

INSIDE THE BANK  
OF CANADA'S  
WEEKLY FINANCIAL  
STATISTICS:  
A TECHNICAL  
GUIDE

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# **Inside the Bank of Canada's Weekly Financial Statistics: A Technical Guide**

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Peter Martin



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TO:

Carolyn, Daniel, Pamela and Andrew

who paid the highest price—my lost time with them—  
to enable completion of this book.



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Finally, I would like to thank Dianne Kennedy, Production Supervisor of the Fraser Institute, who worked tirelessly to produce the layout and presentation.

I close by noting the usual caution to the reader that the sole responsibility for the analysis and conclusions rests with the author. In particular, no responsibility for any comments or views should be attributed to Scotia McLeod, or its officers, directors and employees.

During the period from 1969 to 1973, I worked in various research capacities at the Bank of Canada in Ottawa. One of the many fascinating features of that experience was the conflict between the practical features of monetary policy as revealed by close-hand observation of it and what I had been led to expect from post-graduate training in economics. While to some extent this gap between theory and practise was explained by the fact that the institutional details in graduate textbooks were derived from a U.S. setting, in part it also reflected a lack of understanding by the authors of those textbooks as to how the real world really did function.

Frequently during those days, the research staff of the Bank longed for a publication which would explain the operations of the Bank of Canada in a detailed, accurate, and practical way. Our concern then was that many of the criticisms and comments directed at monetary policy were founded on a lack of understanding of how the process actually operated. As would-be apologists for the Bank's actions we were desirous of a more informed group of critics.

While my perspective is considerably different now than when I was at the Bank of Canada in the early 1970s, my view remains that the operation of monetary policy will be considerably enhanced if more people understand the details of the process. It was, therefore, with some delight that I discovered that Peter Martin was working in a detailed and meticulous fashion on exactly the kind of guide to the operations of monetary policy that we might have hoped for at the Bank of Canada. It, therefore, gives me more than the usual sense of satisfaction to see Peter Martin's book emerge into print and to have been able to financially and otherwise encourage its publication.

Notwithstanding the Institute's effort to improve the quality of public debate over issues relating to monetary policy by publishing Peter Martin's efforts, he has arrived at his views independently and they may or may not conform severally or collectively with those of the members of the Fraser Institute.

M. A. Walker



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## ABOUT THE AUTHOR

Peter J. Martin received his B.A. in Honours Economics from the University of Western Ontario in 1966. He then undertook postgraduate studies in Economics at Harvard University obtaining an M.A. He has completed all but dissertation for a Harvard Phd. In 1966 and 1967 he received Harvard University Fellowships and in 1967 and 1968 he received Canada Council Doctoral Fellowships. In 1968 he was awarded a Visiting Killam Fellowship from Dalhousie University.

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# INTRODUCTION

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INSIDE THE BANK OF  
CANADA'S WEEKLY  
FINANCIAL STATISTICS: A  
COLUMN BY COLUMN, PAGE  
BY PAGE TECHNICAL GUIDE  
TO THE BANK OF CANADA  
STATEMENT

There is one vastly overlooked source of information which, if properly presented and dissected, provides a basis for better understanding the most basic mechanical and technical aspects of monetary control and policy in Canada. A quantum leap in monetary understanding can be achieved through detailed and critical examination of the Bank's *Weekly Financial Statistics* publication (WFS), released between noon and 2:30 p.m. each Friday.<sup>1</sup>

This Bank Statement provides much of the detailed information needed to make an assessment of ongoing monetary policy and conditions in the banking system. When taken together with developments in foreign markets and the strength or weakness in the exchange value of the Canadian dollar, this allows the analyst to forecast trends and conditions in Canadian credit markets and the direction of interest rates.<sup>2</sup>

*The basic objective of this book is to delve into the weekly Bank Statement in detail; to set out the essential raw material lying behind the tools, mechanisms and mechanics of monetary policy implementation by going through the weekly Bank Statement page by page and column by column.*<sup>3</sup>

## I. THE PRESENTATION STYLE

This book is unique in that it is the only published page-by-page technical guide to the *Weekly Financial*

*Statistics*. It is intended to be the monetary and banking system equivalent of a chemistry or physics *lab* or *shop manual*, a "nuts and bolts" dictionary with which analysts can understand the Bank's data. In turn, this knowledge should allow analysts to see more clearly how the Bank implements monetary policy and the ways in which the Bank of Canada, chartered banks and the money market interact.

The presentation style has advantages and disadvantages. The book highlights the *Weekly Financial Statistics* as a source of data and a once-a-week focus of attention for the monetary analyst. This approach sets monetary policy into a highly rigorous balance sheet framework.

Second, the lab manual point form should be well received by people who like to get to the operational aspect of technical matters quickly. If a reader wants to know details on a particular entry on the Bank Statement, they can be quickly found. Alternatively, if a reader is interested in a particular subject (e.g., dealer PRAs), he can quickly find this entry in the table of contents or the index.

There are also disadvantages with this presentation style. The biggest problem is that *the order of discussion is almost completely dictated by the order of entries in the Weekly Financial Statistics*. Unlike a normal textbook which would organize the subject matter and then refer to a variety of data sources (e.g., some on page 1, some on page 3, etc.), this manual does the opposite. *This is not always consistent with the natural flow of some arguments*. Specifically, instances will arise where, in discussing a specific column in the WFS, a directly related topic which concerns an entry in a *different* column necessarily has to be discussed in a manner which makes it seem out of place. This can occasionally leave the reader feeling unfulfilled because sometimes, in discussing a particular column, highly relevant information is left out. This information may then pop up a few pages later when its relevant column on the Bank Statement comes up for discussion.

In particular, the natural order of subject matter is interrupted in two key places in chapter 1, which shows how the Bank's balance sheet can be used to assess some of the monetary tools and techniques. Specifically, it would be part of the natural order to discuss Bank cash reserve management operations prior to discussing open market operations. Unfortunately, since items relating to open market operations appear in the WFS *before* items related to the drawdown and redeposit technique (used for cash management operations), this manual's format forces

<sup>1</sup> Prior to July 16, 1986, the Bank of Canada's balance sheet was finalized Wednesday and released at 10:00 a.m. Thursday morning. The complete WFS package, which is 16 pages long, was released Thursday evening at 5:00 p.m. With the shift to retroactive clearing and settlement on July 16 (discussed in chapter 3), the Bank of Canada and other direct clearers had to leave their books open into Thursday morning to be credited for Wednesday and settled as of Wednesday. This meant that the Bank of Canada's balance sheet and certain other data related to the clearing process would have to be delayed one day to Friday. Given this, the Bank decided to delay release of the entire Statement by one day.

<sup>2</sup> Much of the data published by the Bank each week in its Thursday release is available on the Statistics Canada CANSIM data base. The weekly series available on CANSIM, along with their identification numbers, are shown on the Bank Statement.

<sup>3</sup> The usefulness of the weekly Statement was first alluded to by Catherine Starrs when, in 1968, she wrote a six-page summary article in *The Canadian Banker* titled, "Bank of Canada's Weekly Financial Statistics".

an awkward presentation of the material.

Secondly, the drawdown and redeposit (D/R) technique for cash reserve management is itself difficult to handle with the balance sheet approach. This is because the technique theoretically relates best to two entries on the *liability* side—federal deposits at the Bank of Canada and “all other liabilities”. However, because Exchange Fund swaps are an important element of the D/R technique and because these swaps are captured on the *asset* side of the balance sheet, the D/R technique has to be discussed with swaps, prior to either government deposits at the Bank or “all other liabilities”.

Readers are advised to consider the table of contents carefully so as to grasp the order of presentation of both data and discussion.

It should also be noted that this book is not recommended for the completely uninitiated. It is assumed readers already have a basic grasp of the Canadian monetary system. This can be obtained from many sources including the author's upcoming publication entitled, *The Mechanics of Monetary and Debt Management Policy in Canada—A View from the Street*.

Finally, the discussion is conducted within the framework of a partial equilibrium approach. When analysing a particular variable or data series, other things are assumed to remain constant. In the real world, great care has to be exercised since this assumption seldom holds completely. Discussion in this book, therefore, occasionally suffers from the disadvantages commonly associated with partial equilibrium analysis.

## II. THE SUBSTANTIAL INCREASE IN DATA INCLUDED IN THE WFS IN 1981 AND THE COMPLETELY NEW PRESENTATION STYLE

There are very specific reasons why it is important to present a thorough column-by-column and page-by-page evaluation of the Bank Statement.

### 1. Change in Format for the WFS

First, in July 1981, the Bank began to publish a completely redesigned and much more comprehensive Bank Statement as part of its programme to improve public understanding of monetary conditions and developments in Canada. The updated WFS includes

virtually all the information published in the old Statement but also incorporates a great deal of additional information on the money market, including more interest rate and exchange rate information. Further, the new WFS presents a considerable amount of monthly data previously published only in the *Bank of Canada Review*. This includes net new security issues, corporate paper outstanding, consumer credit and broad credit aggregates, and information for the trust and mortgage loan industry. Publication in the WFS makes these data available on a more timely basis.

The updated WFS report is also much better organized than the old Statistical Release in four ways.

First, the revised format matches the *Review*: the same bilingual presentation, the same order of progression from one table to the next and the same data set up. Specifically, the WFS, like the monthly *Review*, sets out the table headings horizontally across the top of the page, with the time series running vertically down the page in columns. The old Statement presented headings vertically and the data ran in rows across the page. The Statement is also cross-referenced to the *Bank of Canada Review* tables and shows CANSIM numbers, so that a reader can access an entire data series using the weekly report.

Second, the updated WFS also provides much longer and more comprehensive time series. For example, in the old WFS the Bank of Canada and chartered bank statements of assets and liabilities showed data for only the latest one or two statement weeks and the dollar change from last week and last year (i.e., one or two observations, plus another which could be calculated and two dollar change series). By contrast, the new WFS sets out the latest ten-twelve weeks of data, the average for each of the last four months, the dollar change from last week and the change from the same week a year ago. These additional time series not only assist the analyst in examining medium term trends, but they also allow the Bank to reflect data revisions in the WFS more than two weeks after the fact.

Third, the WFS also explicitly recognizes that the banking system and money market dealers are only part of the Canadian financial market and that there is a need for timely data on other financial institutions. This is evident from the fact that the Statement, for the first time, includes data on trust and mortgage loan companies, consumer credit granted by a wide range of lenders and broad credit measures. Substantial expansion of the interest rate section gives recognition

to the importance of a wide variety of interest rate trends beyond both the domestic banking system and, in fact, beyond Canada.

Fourth, as suggested above, the updated publication is also more international in scope, including for the first time five non-U.S. exchange rates, four U.S. dollar interest rates and two pages of charts showing Canada-U.S. short- and long-term interest rate differentials, the short- and long-term Canada-U.S. uncovered interest rate differential, along with the spot and forward exchange rates.

## 2. Data Changes Reflect Developments Arising from the 1980 Bank Act Revisions

The latest decennial Bank Act review culminated in the new Bank Act and the Bank of Canada Act which received Royal Assent on November 26, 1980. Banking legislation for the 1980s came into force December 1, 1980. This is especially important because the weekly Statement is, in fact, largely derived from schedules B and C in the 1980 Bank of Canada Act and schedules J and K in the Bank Act.

The 1980 Bank Act produced two main changes and several minor changes to data in the WFS. The main changes are summarized in this introduction. Subsequent chapters, showing each page of the WFS, will note both major and minor changes and also note where specific data series have been affected by the new Acts.

### a) *Foreign Bank Affiliates Becoming Canadian Chartered Banks*

The 1980 Bank Act allowed foreign bank affiliates to apply to the federal government for a Canadian bank charter.<sup>4</sup> In 1981-84, 58 foreign banks applied for and were granted Canadian bank status by the issue of letters patent (rather than by special Acts of Parliament required under the former legislation). This meant that for the first time, the Bank of Canada had to incorporate data covering these new banks in the WFS.<sup>5</sup>

<sup>4</sup> The objective of the Bank Act in providing for foreign bank subsidiaries in Canada is to promote competition, enable Canada to provide reciprocity to banks from jurisdictions where Canadian banks are permitted to operate and to bring under Canadian banking law financial corporations in Canada owned by foreign banks.

<sup>5</sup> Data for those banks which received letters patent on July

These new data did not change the nature of the weekly release, but they did significantly affect specific data series and expand the size of the banking system. Thus, as of November 1981, several specific series initially had to be interpreted with great care because of statistical discontinuities introduced by the Bank's delay in publishing consistent historical data series. (Consistent data was published in March 1983.) Specifically, business loans, non-personal term deposits, net foreign assets, foreign currency deposits of residents and the broad monetary aggregate (M3) were all revised up by varying amounts.

By contrast, the series shown for commercial paper outstanding on page 11 of the weekly release was revised down to reflect the fact that commercial paper previously issued by foreign bank affiliates was reclassified as chartered bank term deposits when foreign banks received Canadian bank status. However, because these foreign banks had virtually no private chequing account facilities, their impact on the key monetary aggregate (M1) was minimal.

### b) *A New Chartered Bank Statistical Reporting System*<sup>6</sup>

Another development arising out of the December 1980 Bank Act revision was incorporation of a new chartered bank statistical reporting system for assets and liabilities (and their detailed breakdown). This was implemented on November 1, 1981, to coincide with the beginning of the banking system's first full fiscal year under the revised Act. There were four reporting formats—a weekly return, a monthly return, a quarterly return and an annual return—which were phased in over a one-year period. The revised weekly

30, 1981 (11 banks), were first incorporated in the WFS dated October 8, 1981. For those banks which began operations following receipt of their letters patent on October 8 and November 2, 1981 (nine banks and one bank respectively), data were first released on December 10. In 1982, data for the 19 banks receiving their letters patent on January 21 and data for the seven banks receiving theirs on February 4 were incorporated into the WFS beginning on January 27, 1982. And, as more foreign banks have received letters patent and commenced operations, the Bank has also been incorporating them in the *Weekly Financial Statistics*.

<sup>6</sup> This section is based on an article titled, "The new chartered bank statistical reporting system", *Bank of Canada Review*, November 1981, pp.3-15.

return directly influences the WFS and was implemented for the first reporting Wednesday in November 1981. The updated monthly return, which is based on schedule J and a set of related returns, is also used in the WFS. The new monthly reporting procedure was introduced for the first time on November 30, 1981.

The 1981 reporting system introduced four specific changes which affect the WFS. First, it is more systematic than the previous approach and provides more detailed and better quality information than formerly existed (although several series previously published weekly are no longer available). The new data included and excluded are discussed in chapters 2 and 3, although chapters 5 and 6, which deal with monetary aggregates and selected bank assets and liabilities, also include entries which are affected by the new reporting system.

Second, the balance sheet for the chartered banking system now consolidates into the WFS all the subsidiaries of the banks *where the banks hold a majority interest*.<sup>7</sup> Mortgage loan subsidiaries are, by far, the most important to be incorporated into the WFS. Other subsidiaries include: bank service corporations, venture capital corporations, mortgage investment corporations and companies engaged in leasing and factoring. On the asset side, the impact of consolidation is most significant for mortgages held, while on the liability side, consolidation leads to a

substantial increase in personal fixed term deposits. Most other series are not significantly affected.

The third change reflects two specific accounting procedures dealing with the method banks use to report accrued interest and the method used to value all debt securities. This is discussed in chapters 2 and 3.

Finally, because the 1980 Bank Act allows banks, through subsidiaries, to enter a broader range of activities (specifically leasing, factoring and providing venture capital), the WFS can now reflect some of these asset creating activities as well. Further, the Statement also reflects liabilities used to fund these assets because the liabilities are classified as deposits.

Overall, it can be seen that the series most affected by the move to the 1981 chartered bank reporting system are the various loan series (including mortgages), personal savings deposits and non-personal term and notice deposits.

Turning to the monetary aggregates, M1 is unaffected by the revised reporting procedure since none of the changes affect the components of M1 (currency and demand deposits). However, the newly included foreign banks do hold a small amount of demand deposits so their inclusion in the WFS boosts M1 slightly. The other Ms—M2 and M3—were significantly affected by both inclusion of new foreign banks and the new reporting system. This is discussed further in chapter 5 dealing with the monetary aggregates.

In March 1983, for the first time the Bank set out statistically consistent time series which incorporate the adjustments arising from both the 1980 Bank Act revision and the associated introduction, in November 1981, of the new chartered bank statistical reporting system.<sup>8</sup> The revised data cover the period 1968-1982 for bank assets, deposits and the monetary aggregates. The revised data were first set out in the April 7, 1983, *Weekly Financial Statistics*.

### III. SUMMARY OF CONTENTS

Following the Bank Statement's format, this book describes and analyses each of the 16 pages in turn. Chapter 1 discusses the Bank's weekly summary balance sheet of assets and liabilities published as page 1 of the weekly Statement on Friday between

<sup>7</sup> Before 1 November 1981 only wholly-owned foreign banking subsidiaries of the Canadian banks were consolidated in bank reports. An equity position in other corporations was simply recorded as an equity investment regardless of the degree of control. Under current legislation, where a bank holds more than 50 percent of a corporation's voting shares, financial data for that corporation must be fully consolidated with the bank's financial reports. (For purposes of calculating required reserves, however, only the deposit liabilities of wholly-owned subsidiaries of the banks that are foreign corporations, and of wholly- or partially-owned leasing or factoring subsidiaries are consolidated with bank deposit liabilities.) Where a bank holds between 20 and 50 percent of a company's voting shares, the value of the shares continues to be recorded as an investment, but the bank must now take into income an amount equivalent to its share of that company's earnings. As a result of these changes, certain published financial data for the banking system beginning 1 November 1981 are not comparable with data published for previous periods.

"The new chartered bank statistical reporting system", *Bank of Canada Review*, November 1981, pp. 5-7.

<sup>8</sup> "Technical note: New and revised monetary and credit aggregates", *Bank of Canada Review*, March 1983, pp. 3-33.

noon and 2:30 p.m. This page is critical to understanding the Bank's approach to cash reserve management and monetary policy and some aspects of debt management policy. This chapter focuses on the following:

- the mechanism by which the Bank buys new issue securities to create paper currency and increase the money supply (debt monetization);
- how the asset side of the Bank of Canada's balance sheet responds to the liability side (this includes a discussion of the development of "underbought" and "overbought" positions on the balance sheet);
- the nature of the Bank's open market operations;
- the extent to which the Bank assists the federal government in its debt management operations;
- the Bank's lender of last resort facility, including Purchase and Resale Agreements (PRAs) with money market dealers and direct cash advances to members of the Canadian Payments Association (CPA) for liquidity purposes and "bailout" purposes;
- the mechanics of the Bank's day-to-day cash reserve management of the banking system through use of the drawdown/redeposit technique (D/R), supplemented by both swaps with the Exchange Fund account and the staged transfer of Bank net income (interest on its portfolio of government securities less operating expenses) to the federal government for redeposit in the banking system;
- the mechanics of handling foreign borrowings on the Bank's balance sheet;
- how "high powered money" (i.e., the monetary base) can be roughly estimated directly from the balance sheet;
- how the Bank accounts for uncompleted transactions.

Following discussion of the Bank's assets and liabilities, chapter 2 discusses page 2 and the top of page 3 in the weekly Statement. These pages relate to

the individual asset categories of the chartered banks, although the micro aspects of assets (e.g., loan agreements, repayment schedules, collateral, loan spread over prime, etc.) are deleted since they have little significance for monetary policy and interest rate trends. This chapter also includes discussion of the impact on chartered bank assets arising from consolidation of chartered bank mortgage loan subsidiaries with the assets of the parent bank.

Chapter 3 turns to the liability side of the chartered banking system. Part I of this chapter describes the Canadian clearing and settlement system. This includes a description of the new automated system and how the Bank of Canada does its drawdown/redeposit within it. Also, this section describes the shift to retroactive settlement (same day settlement) for the clearing of cheques and other payment items among direct clearers, and comments on future trends in clearing and settlement.

Part II turns specifically to the chartered bank liability statements shown in the WFS at the bottom of page 3 and on page 4. It covers the various deposit categories, including the new arrangements for federal government demand and term deposits with banks and other CPA members. The chapter also shows how the series for public and private float are calculated. It proceeds with a discussion of Bankers' Acceptances (BAs) and bank capital and concludes with a brief discussion of specific categories of foreign currency assets and liabilities.

The foreign asset side is fairly straightforward, so the last part of chapter 3 focuses on foreign *liabilities*. Swapped deposits, for example, can be important for money market traders and analysts because they compete with money market securities and dealer swaps offered in the market, and because they can be highly volatile. However, chartered bank and dealer swaps are poorly understood outside the money market. This chapter outlines the mechanics of doing a swap and describes the implications swaps have for the foreign exchange market. Since a swapped deposit automatically creates a chartered bank exposure to foreign exchange risk, chapter 3 includes a discussion of the techniques used by banks to cover this forward foreign exchange exposure.

Chapters 2 and 3 also include some explanation of how Bank activity affects chartered bank assets and liabilities, although this is discussed in more detail in other books.

Chapter 4 studies page 5 of the Statement and discusses chartered bank primary and secondary reserve requirements. It summarizes how the deposit



base subject to reserves is determined, the required reserve ratios to be applied to the various deposit categories and the form in which banks can hold reserves. This includes a discussion of five-day versus seven-day reserve averaging, ("Weighted Reserve Averaging"), and how seven-day averaging works under same day settlement. The chapter outlines the rationale for lagged reserve accounting.

Chapter 4 also assesses a key series—excess cash reserves in the banking system—as the Bank's key trigger or control variable for implementing its day-to-day cash reserve management policy. *For the monetary policy and interest rate analyst, the various excess cash reserve data published on page 5 of the WFS are in fact the single most important pieces of data on the entire Statement.*

Against this background, excess cash, as the Bank's key control variable for interest rates, is considered in some detail. This includes an outline of the linkage between changes in excess cash and the resulting expansion or contraction of the banking system in the short and long run.

A by-product of this discussion seeks to correct several misconceptions about how the Bank uses its monetary tools and techniques. These problems often arise because textbooks explain the *theory* of central banking very well, but often fall down when it comes to explaining monetary policy as it is *practised day to day* by the Bank of Canada. For example, most textbooks discuss at length the so-called deposit multiplier and the impact on money supply that would result from the Bank supplying, say, an extra \$10 million in reserves to the chartered banks. In fact, chapter 4 points out that the Bank does not believe there is any direct quantifiable relationship between reserves supplied and M1 *in the short run* because of lagged reserve accounting (i.e., there is no definite limit on the short-run expansion of the system resulting from a given cash injection). For this reason, chapter 4 discusses the fact that the deposit multiplier concept, though theoretically correct, is not used by the Bank in its day-to-day implementation of monetary policy.

A direct extension of this is the widespread belief that the Bank must adjust the cash supplied to the banking system up or down to achieve a certain growth in the money supply. This, too, oversimplifies the case. The Bank does not control money supply directly at all and certainly not by directly altering reserves. Rather, it estimates a demand for money function and then uses cash reserve management to generate a structure of interest rates that will, if the

equations are stable and statistically significant, generate a certain predictable growth rate for money over a longer period of time.

Chapter 4 also provides some comments on how monetary policy could be affected by the phase out of required reserves beginning in 1990.

Having dealt with assets and liabilities and the reserve calculation for the banking system, chapter 5 discusses monetary aggregates (M1, M2, M3 and a new monetary aggregate, M2+, first published in 1983 but only incorporated into the WFS as a regular series in February 1988). For the most part, these aggregates are simply groupings of chartered bank deposit liabilities; only notes and coin in circulation are non-deposit items. This chapter includes a discussion of the seasonal adjustment procedure used to convert the raw series into seasonally adjusted series for policy analysis, and a discussion of the actual seasonal patterns in the four aggregates, using seasonals estimated by the Bank for 1988.

Chapter 6 discusses page 7 in the WFS—a page which is really a grab bag of banking data. It includes some selected seasonally adjusted asset and liability series for the banking system, as well as exchange rate information covering both the spot and forward markets. The chapter outlines the market mechanism for determining the forward premium or discount for the U.S. dollar in Canada relative to the spot price. This includes how the market translates actual interest rate differentials into the forward spread (and vice versa) and makes the point that the forward premium or discount on the U.S. dollar in Canada is determined by interest rate differentials.

Chapter 7 assesses pages 8 and 9 in the WFS. These two pages present a wide range of interest rate data which allows a reader to track trends for short-, mid- and long-term interest rates, determine the shape of the yield curve and assess the spread between the various tiers of credits. The Bank rate is considered in some detail.

Chapter 8 provides a discussion of data reported on pages 10-16 of the WFS. The first part deals with Government of Canada securities outstanding, including a holder breakdown for the various categories of securities (Treasury Bills, marketable bonds and Canada Savings Bonds). Following this, there is a brief discussion of the Government of Canada's cash balance and how it is split between deposits at the Bank of Canada, deposits with chartered banks and deposits with other financial institutions.

Data on the financing record, showing net new

securities issues for all three levels of government (as well as long- and short-term financing by the corporate sector), are presented in part II.

Part III presents separate balance sheet information for the trust and mortgage loan companies excluding bank mortgage loan subsidiaries, and then shows, separately, the balance sheet of mortgage loan companies associated with chartered banks.

Parts IV and V present data on consumer credit extended by various types of lenders and residential mortgage credit, respectively. Part VI sets out several broad aggregate measures of credit outstanding to complete the assessment of the tabular material in the WFS.

Part VII considers the charts presented on page 15 of the WFS—charts which show key interest rate and exchange rate information. Page 15 sets out two representative 30-day interest rate series for Canada and the U.S. and plots the differential between them. The spot exchange rate and the 30-day forward differential are also charted. The key technical aspects of the forward arbitrage mechanism and the flow of fully hedged funds are analysed here.

Part VIII, dealing with page 16, concludes the discussion of the *Weekly Financial Statistics*. The chart at the top of this page, showing the money market dealer overnight financing rate plotted against the 91-day Bill rate, is one of the key pieces of information provided to money market traders and monetary analysts. On the technical side, dealers have

an objective standard against which to judge the quality of their own banking operations. Obviously, any money market banker who can consistently finance 25-50 basis points cheaper than the reported dealer average will be in heavy demand, while those who consistently bank above the average might be in for an uncomfortable time.

Second, the spread between the call loan rate and Bills shown in the chart correlates well with the Bank's excess cash setting (shown on page 5 and discussed in chapter 4), giving the analyst a better feel for short-run monetary policy. Specifically, when the call average is substantially above six-month Bill yields on a weekly basis, the Bank's stance is relatively tight and this is generally reflected by a tight excess cash setting in the WFS (and vice versa).

A chart showing long bond yields in Canada and the U.S. and the long-term yield spread completes both the page and the weekly release.

Chapter 9 sets out a simple "canned" format for evaluating monetary policy using the WFS. Then, given this background, the book discusses two real world classic case studies to show how information in the WFS can be used for making money in fixed income markets and/or for cutting losses.

The Conclusion of this book looks to the future and offers suggestions for both more and better data releases by the Bank. Such data would relate to the Bank of Canada, chartered banks and the Government of Canada.

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# CHAPTER 1

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## THE BANK OF CANADA'S BALANCE SHEET

Column

BANK OF CANADA: ASSETS AND LIABILITIES (Millions of dollars)													BCR Table B2								
BANQUE DU CANADA: ACTIF ET PASSIF (En millions de dollars)													RBC Tableau B2								
Average of Wednesdays and Wednesday Moyenne mensuelle des mercredis ou données du mercredi	Assets Actif		Government of Canada direct and guaranteed securities Titres émis ou garantis par le gouvernement canadien		Amount of foregoing held under purchase and resale agreements Montant des effets précédents pris en pension	Other bills Autres bons	Advances to members of the Canadian Payments Association Avances aux membres de l'Association canadienne des paiements	Invest- ments in IDB Titres de la BEI	Other invest- ments(2) Autres place- ments(2)	Foreign currency deposits Dépôts en monnaies étrangères	All other assets Autres éléments de l'actif	Total assets Total de l'actif									
	Treasury bills Bons du Trésor	Other Autres	Total(1) Total(1)																		
	B3 B113702	B5 B113704	B6 B113705	B2 B113701	B8 B113713	B7 B113706	B10 B113708	B12 B113709	B14 B113711	B15 B113712	B13 B113710	B1 B113700									
1987	M	6,086	3,045	7,502	16,634	38	-	702	-	960	402	497	19,196								
	A	7,126	2,887	7,627	17,640	68	-	718	-	758	342	498	19,956								
	M	8,143	3,133	7,430	18,706	9	-	633	-	44	334	517	20,234								
	J	8,550	2,931	7,585	19,066	-	-	643	-	3	259	477	20,448								
1987	M 6	8,397	3,165	7,395	18,957	-	-	684	-	3	292	496	20,432								
	13	7,895	3,166	7,395	18,455	-	-	622	-	23	352	517	19,969								
	20	8,084	3,166	7,395	18,645	-	-	614	-	3	373	517	20,152								
	27	8,196	3,036	7,535	18,767	36	-	611	-	150	317	537	20,382								
	J 3	8,243	2,931	7,582	18,756	-	-	604	-	3	215	471	20,050								
	10	8,506	2,931	7,582	19,020	-	-	642	-	3	267	495	20,426								
	17	8,652	2,931	7,583	19,166	-	-	667	-	3	244	460	20,540								
	24	8,798	2,931	7,593	19,323	-	-	657	-	3	309	483	20,775								
	J 1	9,343	2,981	7,563	19,886	679	-	607	-	3	325	506	21,327								
	8	8,746	2,699	7,663	19,107	-	-	557	-	293	288	481	20,725								
	15	8,888	2,699	7,663	19,249	167	-	545	-	556	286	500	21,136								
Changes from: Variations par rapport à la:																					
1986	J 16	4,382	-461	525	4,446	-166	-	-3,578	-	554	-67	-	1,355								
1987	J 8	142	-	-	142	167	-	-11	-	263	-2	19	411								

Column

BANK OF CANADA: ASSETS AND LIABILITIES (Millions of dollars)											Continued
BANQUE DU CANADA: ACTIF ET PASSIF (En millions de dollars)											suite
Average of Wednesdays and Wednesday Moyenne mensuelle des mercredis ou données du mercredi	Liabilities Passif		Canadian dollar deposits Dépôts en dollars canadiens				Foreign currency liabilities liabilités Autres Engagements en monnaies étrangères	All other liabilities Autres éléments du passif	Total liabilities Total du passif		
	Notes in circulation Billets en circulation	Held by Débiteurs	Total	Government of Canada Gouvernement canadien	Chartered banks Banques à charte	Other members of the Canadian Payments Association Autres membres de l'Association cana- dienne des paiements	Other Autres				
	Chartered banks Banques à charte	Other Autres	Total								
	B52 B113716	B53 B113717	B51 B113715	B54 B113718	B55 B113719	B59 B113723	B56 B113720	B57 B113721	B58 B113722	B50 B113714	
1987	M	2,958	13,229	16,187	13	2,148	63	173	220	390	19,196
	A	2,909	13,474	16,383	245	2,524	117	174	170	342	19,956
	M	3,042	13,749	16,791	316	2,302	91	184	169	380	20,234
	J	3,011	14,114	17,125	374	2,307	53	210	95	284	20,448
1987	M 6	2,913	13,736	16,649	1,055	2,020	2	183	129	394	20,432
	13	3,095	13,681	16,777	11	2,311	62	196	188	425	19,969
	20	3,150	13,717	16,867	181	2,235	158	165	207	340	20,152
	27	3,010	13,863	16,872	15	2,642	142	195	153	362	20,382
	J 3	2,813	14,124	16,937	108	2,393	104	187	51	270	20,050
	10	3,066	13,990	17,056	346	2,353	7	256	103	306	20,426
	17	3,001	14,113	17,114	794	2,057	21	210	80	264	20,540
	24	3,164	14,229	17,393	248	2,426	80	186	145	297	20,775
	J 1	3,056R	14,615R	17,671	225	2,769	1	164	160	336	21,327
	8	3,313R	14,449R	17,762	12	2,225	72	219	123	313	20,725
	15	3,240	14,336	17,576	15	2,673	210	205	125	332	21,136
Changes from: Variations par rapport à la:											
1986	J 16	268	1,107	1,375	-847	644	52	58	22	51	1,355
1987	J 8	-73	-113	-186	3	448	138	-13	2	19	411

- 1 Net amount of uncompleted securities transactions (excluding PRA) with dealers and banks in Canada has a potential cash reserve effect of \$- millions in the latest week.  
Le montant net des opérations sur titres non encore liquidées (à l'exclusion des pensions) avec les courtiers en valeurs mobilières et les banques au Canada a une incidence virtuelle de - millions de dollars sur les réserves-encaisse de la dernière semaine.
- 2 Other investments comprise mainly holdings of U.S. dollar denominated securities.  
Autres placements comprennent principalement les titres libellés en dollars E.-U.

The fundamental importance of the Bank of Canada's balance sheet in the implementation of monetary policy—the so called “transmission mechanism”—is made evident by Governor John Crow's comments in early 1988:

“the Bank of Canada gets its leverage on economic behaviour because it is the ultimate provider of liquidity to the economy, including the final means of settlement for financial institutions. What gives us this economic leverage are two key facts.

First, large financial institutions—above all, banks—need to use balances at the Bank of Canada to settle among themselves the net outcome of the massive movements of cheques and other payment items through the Canadian clearing system each day. Second, because the Bank of Canada controls the size of its balance sheet, it controls the availability of those settlement balances. . .

Our view about the linkages between central bank actions and their ultimate effects on the economy is, simply put, as follows. The Bank of Canada, by increasing or decreasing the supply of settlement balances to financial institutions, directly influences the very shortest term interest rates in the Canadian money market. Movements in these rates in turn influence the whole spectrum of market and administered interest rates and rates of return on a wide variety of assets and liabilities and, through them, the exchange value of the Canadian dollar. The movements of the various rates of return and of the price of foreign exchange affect over time total spending in the economy.”<sup>1</sup>

The Bank's weekly Statement of assets and liabilities, derived from schedules B and C of the Bank of Canada Act, contains much of the information needed to assess the Bank's monetary policy. A Friday morning release sets out the Bank's detailed balance sheet.

Page 1 of the weekly Statement, released between noon and 2:30 p.m. on Friday and which corresponds to table B2 in the *Bank of Canada Review*, also provides this information. Column references on the balance sheet are keyed to the discussion which follows.<sup>2</sup> Data are shown as of Wednesday each week

<sup>1</sup> “The Work of Canadian Monetary Policy.” Eric J. Hansen Lecture delivered by John W. Crow Governor of the Bank of Canada at the University of Alberta Edmonton, Alberta 18 January 1988.

<sup>2</sup> The Friday morning balance sheet contains slightly more detail than the afternoon release. For example, on the asset side the morning release shows that the Bank can buy both gold coins and bullion, provincial bonds, shows a three

for the current month and the latest two completed months along with monthly averages for the latest four months. The dollar values of changes are shown from the previous week and from the same week a year before. All figures are shown on a settlement day basis (not on a transactions day basis). Purchases and sales of securities which have been contracted but not settled (i.e., outstanding and uncleared at the end of the statement week), are shown in footnote 1 of the balance sheet.

On the asset side, the Bank has direct control over all entries except dealer Purchase and Resale Agreements (PRAs), advances to members of the Canadian Payments Association (CPA)—since the 1980 Bank Act extended the advance facility to certain non-banks—and items in the course of settlement. It is also important to note that the balance sheet always balances. Any action the Bank takes to increase or decrease its assets will automatically lead to a balancing increase or decrease in liabilities and vice versa.

## I. BANK OF CANADA ASSETS

There are nine entries shown on the asset side of the balance sheet.

### 1. Government of Canada Direct and Guaranteed Securities

#### a) Total Held

In September, 1988, Bank assets totalled some \$22 billion. By far, the largest amount of these (about \$20 billion) are the three classes of federal government security holdings—Treasury Bills, short-term Canada bonds (three years and under to maturity) and longer term Canadas (over three years in term).<sup>3</sup> These investments are recorded at cost and adjusted for amortized purchase discounts and premiums each week. The amortization, as well as gains or losses on the sale of securities, is included in income.

With the Friday morning balance sheet released at

category breakdown of advances and breaks out Bank premises from all other assets.

<sup>3</sup> They include federal government guaranteed bonds (i.e., certain marketable bonds issued by Canadian National Railways and guaranteed by the federal government).

**BANK OF CANADA**

### STATEMENT OF ASSETS AND LIABILITIES

AS AT WEDNESDAY JULY 15, 1987

**ASSETS —****LIABILITIES** \_\_\_\_\_

1. GOLD COIN AND BULLION .....	\$		1. CAPITAL PAID UP .....	\$	5,000,000.00
2. DEPOSITS PAYABLE IN FOREIGN CURRENCIES:			2. REST FUND .....		25,000,000.00
(A) U.S.A. DOLLARS .....	\$	281,327,071.68	3. NOTES IN CIRCULATION .....		17,576,285,393.74
(B) OTHER CURRENCIES .....		4,273,783.00	4. DEPOSITS:		
TOTAL .....		285,600,854.68	(A) GOVERNMENT OF CANADA .....	\$	14,856,247.62
3. ADVANCES TO:			(B) PROVINCIAL GOVERNMENTS .....		
(A) GOVERNMENT OF CANADA .....			(C) CHARTERED BANKS .....		2,672,730,567.09
(B) PROVINCIAL GOVERNMENTS .....			(D) OTHER MEMBERS OF THE CANADIAN PAYMENTS ASSOCIATION .....		209,804,154.09
(C) MEMBERS OF THE CANADIAN PAYMENTS ASSOCIATION .....		545,317,434.89	(E) OTHER .....		205,175,136.83
TOTAL .....		545,317,434.89	TOTAL .....		3,102,566,105.63
4. INVESTMENTS			5. LIABILITIES PAYABLE IN FOREIGN CURRENCIES:		
(AT AMORTIZED VALUES):			(A) TO GOVERNMENT OF CANADA .....		125,254,724.26
(A) TREASURY BILLS OF CANADA .....		8,887,971,185.14	(B) TO OTHERS .....		25,860.77
(B) OTHER SECURITIES ISSUED OR GUARANTEED BY CANADA MATURING WITHIN THREE YEARS .....		2,698,668,684.48	TOTAL .....		125,280,585.03
(C) OTHER SECURITIES ISSUED OR GUARANTEED BY CANADA NOT MATURING WITHIN THREE YEARS .....		7,662,656,251.12	6. ALL OTHER LIABILITIES .....		302,177,033.96
(D) SECURITIES ISSUED OR GUARANTEED BY A PROVINCE OF CANADA .....					
(E) OTHER BILLS .....					
(F) BONDS AND DEBENTURES ISSUED BY THE INDUSTRIAL DEVELOPMENT BANK .....					
(G) OTHER INVESTMENTS .....		556,247,018.82			
TOTAL .....		19,805,543,139.56			
5. BANK PREMISES .....		137,283,021.33			
6. ALL OTHER ASSETS .....		362,564,667.90			
TOTAL .....	\$	21,136,309,118.36			
			TOTAL .....	\$	21,136,309,118.36

TOTAL AMOUNT OF SECURITIES INCLUDED IN ITEMS 4(A) AND (B) OF ABOVE ASSETS HELD UNDER PURCHASE AND RESALE AGREEMENTS .....	\$ 167,253,432.00
TOTAL AMOUNT OF BILLS INCLUDED IN ITEM 4(E) OF ABOVE ASSETS HELD UNDER PURCHASE AND RESALE AGREEMENTS .....	\$

the end of each month, the Bank also publishes a more detailed maturity breakdown of longer term security holdings, based on schedule C of the Bank of Canada Act, near the bottom of the page. As shown on the morning balance sheet, this includes breaking down the holdings of bonds over three years in term to show three- to five-year Government of Canada bonds, five- to ten-year bonds and over ten-year bonds.<sup>4</sup>

The Bank purchases these securities for its own account directly from the government at the time of issue or in the open market from banks and money market dealers. If the purchases are made for the Bank's own account, it can be either an outright purchase or a purchase which is offset by a resale agreement (PRA). PRAs are usually done when the Bank is asked to act as a lender of last resort by money market dealers although in recent years the Bank has been initiating more PRAs. On occasion, the Bank will also buy from or sell to official international organizations (e.g., other central banks) and domestic government agencies or Crown corporations (e.g., Central Mortgage and Housing Corporation). Actions with respect to domestic accounts can reflect debt management operations or cash reserve management; alternatively, they can simply provide a service to the account.<sup>5</sup> Purchases made for a government account

<sup>4</sup> Detailed characteristics of Government of Canada Treasury Bills and marketable bonds are discussed in the forthcoming book titled *The Mechanics of Monetary and Debt Management Policy in Canada—A View from the Street* by P. Martin. This includes an outline of the coupon/pricing/term to maturity decision, the methods of marketing these securities to the public, the Bank of Canada takedown and the maturity profile and holding distribution.

<sup>5</sup> It is worthwhile noting here that the Bank acts as agent to help manage the assets of both the government's *Securities Investment account* (SIA) and several *Special Investment accounts*. To the extent that government debt is an asset for these accounts, the Bank's debt management activities also involve it in asset management.

The Securities Investment account is a general account operated by the Bank as agent for the government. Typically, most idle cash in this account is invested in government securities. However, on rare occasions the Bank has used this account for cash reserve management policy. For example, when the level of deposits owing to the Government of Canada and held at the Bank of Canada has been high, investments have been made and held with the SIA. Additionally, the Bank could do PRAs with the SIA to generate cash for redeposit in the banking system. (If the change in government deposits is reflected in the banking system, the cash base of the system is influenced.) In 1963, for example, the Bank sold \$50 million in Treasury Bills to the SIA on February 1 and repurchased the Bills on

do not show up on the Bank's books.

The Bank can also buy, outright or under a PRA, securities issued by or guaranteed by any province. However, because these purchases are very rare a separate entry line is not included in the Bank Statement, although the more detailed morning statement of assets and liabilities does show this entry line. Finally, the Bank can buy "other Bills" — municipal and certain corporate securities.

#### b) *Government of Canada Securities and the Bank of Canada's Balance Sheet*

There are several powerful reasons why the Bank buys and/or trades Government of Canada securities:

##### i) Debt Monetization—The Creation of Paper Currency

The Bank of Canada acquires most of the Treasury Bills and Government of Canada bonds, shown in the first three entries of its balance sheet, directly from the Government of Canada. These securities are usually obtained as part of new issues offered to the public by the Department of Finance. If the government offers, say, \$800 million in new bonds to finance a government deficit, the Bank may buy \$200 million of the issue, leaving \$600 million to be sold to the general public. On occasion, however, the Bank may buy an *entire* new issue directly from the government.

To pay for these securities which, once purchased, appear in the appropriate Bill and bond entries on the balance sheet, the Bank issues Bank of Canada cheques to the government and credits the Government of Canada account at the Bank of Canada with the proceeds. These proceeds initially appear on the liability side of the balance sheet as Government of

March 1 to offset a seasonal change in chartered bank till money.

The Bank of Canada also acts as agent for several Special Investment accounts. Here, however, its discretionary control is quite limited since these accounts are usually established for special insurance or trust purposes (e.g., pensions, unemployment insurance). Typically, there are rules governing the use of fund inflows (e.g., earmarked to government securities) and how surplus funds are to be used (e.g., retire debt). Thus, the Bank cannot usually use these accounts for either debt management policy or cash reserve management.

Canada deposits and the balance sheet balances. At this point, the Bank will usually begin to redeposit these funds into the banking system as the level of required primary reserves rises. This redeposit is also necessary to earn interest (the Bank of Canada does not pay interest on deposits).

Once the funds appear as government deposits with chartered banks, the government typically spends the money. In this case, Ottawa issues cheques to the public drawn against its account at the Bank of Canada (and replenishes this account from its chartered bank accounts). The public then has two choices: it can demand paper notes, or it can deposit the cheques for credit to their accounts with financial institutions. With respect to paper notes, the public's demand for them rises over time. As the public draws these notes from financial institutions, these institutions obtain them from the Bank of Canada and pay for them by authorizing debits to their reserve accounts at the Bank of Canada. In turn, the Bank will typically offset the potential reserve contraction associated with the fall in the financial institution reserve accounts by redepositing the funds back into the system. In summary, the notes are gradually fed into the system at a rate determined by the general public's demand for them, and the Bank of Canada acts to neutralize the associated potential cash reserve contraction.

The key point to note here is that paper currency is put into circulation by the Bank of Canada purchasing and thereby monetizing paper debt—government securities. (The Bank could in fact purchase *any assets*, thus monetizing them.) The government then buys real assets and services using the currency. This process is commonly called debt monetization. The currency created through purchase of debt securities is called “high powered money” and forms part of the monetary base.

## ii) The Bank of Canada's Asset Response to the Liability Side of Its Balance Sheet and the Overbought/Underbought Position

In the second case, where the public deposits cheques with, for example, chartered banks, bank deposits and bank cash are increased. However, because banks only have to “reserve” a small portion of the cash against the deposit (one month later), they will subsequently acquire more assets (i.e., make more loans) and, in the process, their deposit liabilities rise again. Assuming no other leakages in the system (e.g., to currency in circulation), and assuming the

chartered banks do not hold any excess cash reserves, this process would generate an increase in private bank deposits *theoretically* equal to the inverse of the primary reserve requirement. If the average reserve requirement is 5 percent, the demand deposits will theoretically have risen by a factor of 20 times once equilibrium is restored. This whole process is referred to as the theoretical textbook “deposit multiplier”.<sup>6</sup>

The opposite case occurs if the Bank bids for fewer new issue Bills (or bonds) than its holding of maturing Bills, or if it does not “rollover” all its bonds or Bills at refunding. Then, the Bank has to draw down government balances at the Bank of Canada to meet the paydown. This does not necessarily affect chartered bank cash directly. However, financial system cash, and the money supply broadly defined to include government deposits, are affected if the paydown is achieved by reducing government balances on deposit with chartered banks (unless government balances at the Bank of Canada were unusually high). Direct sales of Bills to the public also reduce bank cash and theoretically reduce money supply by lowering private deposits counted in the various definitions of money.

*At this point it is important to note that these deposit multiplier effects are only theoretical.* First, since bank reserves are held against last month's deposit base, increased deposits this month do not automatically trigger the multiplier mechanism. Second, though the *potential* exists for the multiplier effects to occur, the Bank in fact almost always overrides them by using cash reserve management policy to offset them. The Bank does not rely significantly on the multiplier concept for money supply expansion and will usually not allow the potential cash contraction implicit in a new issue takedown by the general public to impact fully on the banking system. Rather, it will usually offset this by a system redeposit on the day the certified cheques clear. This can be done in a simple one-step process or in a two-step process where the Bank first increases its foreign currency assets (i.e., by doing swaps with the Exchange Fund account) to obtain more cash for redeposit to financial institutions.

As a result, at least in this area *most monetary textbooks describing the deposit multiplier, though*

<sup>6</sup> In fact, the deposit multiplier is much smaller than the inverse of the reserve requirement because money continually leaks out of the system into desired reserves above required reserves (excess cash reserves) and into currency.



*theoretically correct, do not go far enough to capture the way the Bank actually reacts to offset the multiplier concept in the real world.*

Another key point to note is that, although the Bank's new issue takedown will be influenced by government cash requirements, the bonds needed by the Bank to control each issue, the impact the Bank wants the issue to have on interest rates and money supply and market conditions, *the Bank sees its actual dollar takedown of bonds as being largely determined in a somewhat passive and mechanical way.*

Generally speaking, Bank assets in total (all asset entries) are usually adjusted "to make its balance sheet balance" in a certain way—a process not always recognized in some of the published literature on monetary policy and public debt management. Given a certain rate of real economic growth, inflation, the structure of interest rates, public demand for currency, and the demand for bank credit, deposits in the banking system will grow at a certain rate. This reflects public demand for currency, bank deposits and credit at a certain structure of interest rates and income level. As the deposit base grows in the banking system, banks will be required to add to their primary reserve holdings—a Bank of Canada liability. Consequently, as was the case for currency expansion, growth in the required level of reserves usually leads the Bank of Canada to match this on the asset side with increased holdings of Government of Canada securities, thus monetizing the debt. If this matching were not done, currency in circulation would immediately fall by the amount of the increased holdings of reserves.

When the securities held tend to run ahead of required reserves, the Bank may be referred to as "overbought". When the Bank needs these assets to balance the reserve liabilities (e.g., if it has sold Bills to lean against an interest rate decline), it is "underbought". On balance, the Bank seems to prefer to operate from an "underbought" position to ensure maximum flexibility on new issue takedowns, i.e., the Bank may sell into rallies to enable buying of new issues when the market is weak.

*It is important to note that the Bank's short-run sensitivity to nominal economic growth is via chartered bank deposit liabilities.* For example, if the economy should start to grow faster, chartered bank chequable deposits (and perhaps non-chequable interest bearing deposits) would rise at a faster rate according to the M1 and perhaps M2 demand for money function. In turn this leads to higher required primary reserves. Given the faster increase in these

Bank of Canada liabilities, the Bank must at some point book more assets to avoid being underbought. As a result, faster economic growth automatically tends to lead the Bank to take down relatively more new issue bonds or Bills and, failing this, to buy these securities in the secondary market.

In 1982-84, the opposite situation occurred. A large drop in real economic activity and inflation in 1982 resulted in only marginal growth in chartered bank major assets during this period (loan demand shrunk). Banks did not need to take in as much deposit money as usual and so set uncompetitive deposit rates. With much slower growth in deposits and reduced reserve requirements on these deposits (following the 1980 Bank Act changes), chartered bank deposits at the Bank of Canada fell slightly in 1982. This reduced the Bank's need for balancing assets. Bank holdings of marketable securities actually fell by about \$1.5 billion in 1982—an unusual situation reflecting "temporary fluctuations within the Bank of Canada's balance sheet".<sup>7</sup> The drop in Government of Canada securities held was more than offset within the Bank's balance sheet in December 1982 when it increased its "other investments" position via Exchange Fund swaps by about \$1.2 billion and its "all other asset" position by about \$400 million. As the Bank's year end balance sheet shows, this increase in assets supported an increase of about \$1 billion in Bank of Canada note liabilities in 1982, with most of the increase occurring in December 1982.

In summary, it can be seen that *in the short run* and under normal circumstances Bank of Canada new issue takedowns (the major component of Bank assets) tend to be largely mechanical. It is a somewhat passive response to the exogenous expansion in the liability side of its balance sheet determined by growth in the bank deposit base which in turn is a function of growth in the private sector.<sup>8</sup> This is in sharp contrast to the earlier *longer term* discussion and a generally perceived view that the Bank actively sets its own requirement at the beginning of the exercise as a function of monetary policy. *Viewed in this context, there is no particular cause and effect relationship between M1 growth and new issue takedowns by the Bank in the short run*, although heavy net takedowns of government securities would eventually lead to

<sup>7</sup> *Annual Report*, Bank of Canada, 1982, p.32.

<sup>8</sup> The mix of assets (e.g., the takedown of bonds relative to Bills) is less passive and more influenced by interest rate and debt management considerations.

more rapid money supply growth unless offsetting measures are taken.

This analysis is supported by the Bank's argument that it sees economic growth and chartered bank deposit growth determining the monetary base to which the Bank then simply reacts by adjusting its assets. That is, in the very short run M1, M2 and M3 will determine what the monetary base will be next month.

In conclusion, the Bank usually takes down more new issue bonds and Bills than it holds of maturing issues. Quite apart from any monetary objectives, this will always be the case over the longer term as long as nominal GDP and therefore the deposit base in the banking system are expanding—the normal course of events. Put another way, net government debt held by the Bank of Canada must expand as long as the economy, currency in circulation, bank deposits and, hence, required reserves expand.

*Given the mechanical approach to new issue takedowns in the short run, it is important to note that the Bank can and does influence credit conditions, interest rates and money supply growth over the longer term by deviating from the mechanical path, i.e., by allowing underbought and overbought positions to develop using cash reserve management policy. For example, in order to ease liquidity in the system, or to prevent the system from tightening on its own, the Bank would redeposit more government funds and, if there were insufficient funds in the government account at the Bank of Canada, an Exchange Fund Swap would be used to create the additional funds; this gives rise to an underbought position. The Bank will normally want to implement this policy via fine tuning the chartered bank cash reserve base in order to influence interest rates and money supply indirectly. This is in contrast to an active Bank policy of increasing or reducing its takedowns of new issue bonds.*

### iii) Open Market Operations

When it buys or sells any of the security classes appearing in entry 1 *in the open market*, as opposed to buying them as new issues directly from the government, the Bank is employing one of its most aggressive monetary techniques. This technique influences interest rates *directly* via both the supply/demand impact and the impact on psychology, as opposed to influencing interest rates *indirectly* via changes in the cash base of the banking system.

1				2	3
BANK OF CANADA: ASSETS AND LIABILITIES (Millions of dollars) BANQUE DU CANADA: ACTIF ET PASSIF (En millions de dollars)					
Assets Actif				Amount of foregoing held under purchase and resale agreements Montant des effets précédents pris en pension	
Government of Canada direct and guaranteed securities Titres émis ou garantis par le gouvernement canadien				Oth bil Aut bon	
Treasury bills Bons du Trésor	Other Autres 3 years and under De 3 ans ou moins	Over 3 years De plus de 3 ans	Total(1) Total(1)		
B3 B113702	B5 B113704	B6 B113705	B2 B113701	B8 B113713	B7 B1
6,086	3,045	7,502	16,634	38	
7,126	2,887	7,627	17,640	68	
8,143	3,133	7,430	18,706	9	
8,550	2,931	7,585	19,066	-	
8,397	3,165	7,395	18,957	-	
7,895	3,166	7,395	18,455	-	
8,084	3,166	7,395	18,645	-	
8,196	3,036	7,535	18,767	36	
8,243	2,931	7,582	18,756	-	
8,506	2,931	7,582	19,020	-	
8,652	2,931	7,583	19,166	-	
8,798	2,931	7,593	19,323	-	
9,343	2,981	7,563	19,886	679	
8,746	2,699	7,663	19,107	-	
8,888	2,699	7,663	19,249	167	

The data on security holdings shown in entry 1 and, more specifically, the week-to-week changes in the holdings, are of critical importance in understanding the open market operations aspect of monetary policy. Further, to the extent that the cash reserve impact of open market operations is not offset through the Bank's drawdown/redeposit technique, purchases and sales of these security classes in the market can also be important for the cash position in the banking system. For example, during the 1970s, the Bank often bought 30-day Bankers' Acceptances in December to inject cash into the banking system, offsetting a potential seasonal decline in chartered bank cash and higher interest rates around Christmas (as a result of higher public demand for currency). Subsequently, maturing of BAs in January would withdraw cash and drain the system, thus preventing rates from falling when currency in circulation dropped and bank cash increased.

The broad impact of these open market operations on chartered banks can be seen by looking at the chartered bank asset structure on page 2 of the weekly Statement. However, it will be very difficult to track this precisely because many factors operate on chartered bank assets and bank cash. Also, it should

be remembered that the Bank will usually offset the cash reserve impact of its open market operations.

Bank activity can be for its own account, in which case it shows up as a change in assets on the Bank's balance sheet, or for government accounts, in which case it does not show up on the Bank's books.<sup>9</sup>

There are two main advantages of open market operations. First, the Bank can affect the system *very quickly*. When the Bank is seen in the market as a buyer or seller of securities, and the security classes in this entry change, interest rates will begin to adjust in the desired direction within a matter of seconds.

Second, open market operations can usually be tailored to have a *bigger direct impact* on interest rates unless, as is usually the case, the Bank is leaning strongly against the market. This is because the initial impact of open market operations falls on longer term securities (Bills or bonds), while cash reserve adjustments impact initially on the call loan rate and the day loan rate. It takes some time for this impact to be transmitted out along the yield curve. Also, by minimizing the use of open market operations the Bank effectively creates the psychology impact, thus making the tool even more powerful.

On the negative side, the Bank sees one main disadvantage with open market operations. This tool is viewed as one which overrides the normal market forces of supply and demand. Aside from the Bank's clear policy of, from time to time, targeting three-

month Treasury Bill rates, the Bank generally believes in the price responsiveness of capital markets and the need to give maximum scope to the forces of supply and demand. By contrast, open market operations change interest rates in a somewhat arbitrary way because such operations have an element of "moral suasion" and require dealing in specific classes and issues of securities. This is particularly true since the longer term area of the debt market is still somewhat illiquid and dominated by the federal government, so any Bank of Canada activity, especially given its relative infrequency, will tend to dominate the market. This goes against the Bank's view that it wants broad and self-reliant markets for securities.<sup>10</sup>

It is important to note here that the Bank also sees a clear separation between its cash management tools, which influence bank cash and interest rates only indirectly, and open market operations, which it sees as influencing interest rates directly via a change in the supply of securities and market expectations. Instead, the Bank's main objective in open market *purchases* has normally been to "lean against the wind" and slow down a disorderly rise in interest rates. By contrast, the Bank has normally been a *seller* in the open market for foreign exchange reasons (i.e., to maintain or increase the yield spread between Canada and the U.S. in order to hold up a weak Canadian dollar).

Thus, the Bank's cash manager will almost always moderate the cash injection/withdrawal in the system resulting from the open market desk's purchase/sale of securities. For example, if the Bank of Canada buys Treasury Bills to support the tender, the cash impact will usually be neutralized via an unwinding of Exchange Fund swaps or an increase in government deposits at the Bank of Canada.

Herein lies one key reason why the Bank relies to a much lesser extent on open market operations than many other central banks.<sup>11</sup> By essentially ruling out

<sup>9</sup> The analyst should always be very careful in judging Bank activity in different areas of the bond market from the weekly Bank Statement. Sometimes the figures will show, for example, that holdings of under three-year Canadas rose, say, \$75 million. This may simply be an outstanding issue "clicking over" from the longer category to the shorter category. This should always be suspected if the shorts held rise by (almost) the same amount that the longs fall.

Unfortunately, in weeks when the Bank has intervened in the market and there is also a "click over", it is very hard to judge what the Bank actually did. This is because the market does not know how much "clicked over" and how much was market intervention. As a result, analysts are asking the Bank to publish its holdings of bonds traded in the market on a regular basis.

Also, since page 1 of the WFS only shows settled transactions, if the Bank buys or sells a new issue prior to its delivery, these transactions will *not* show up as a change in assets since such transactions cannot be settled until the issue is delivered. To obtain a complete picture one also needs to look at unsettled transactions outstanding (see Bank Statement, page 1, footnote 1).

<sup>10</sup> Because of this, the Bank will not normally buy or sell Bills on a Thursday morning because this would alter the market right before the tender. Similarly, it will not normally buy or sell right after the tender. However, there have been occasions when the Bank undertook these unusual actions to provide strong direction to the market.

<sup>11</sup> In the U.S., the Federal Reserve relies extensively on market-related techniques to manage bank cash. Prior to the Fed's shift in operating procedure in October 1979 and after October 1982, this involved Fed-initiated repos or match sale/purchase agreements (i.e., reverse repos), virtually every day when the Fed Funds rate moved out of a specific target range. Also, the Fed relies to a much greater extent on use of open market operations (usually for a customer

open market actions as a tool for cash management, such operations by definition cannot be used for day-to-day smoothing of the system. Market intervention is only used when the Bank wants to affect interest rates directly and powerfully.

Second, the Bank is reluctant to use open market operations because the market may be thin. As a result, such operations can create unwanted market volatility.

A third key reason open market operations are not used extensively in Canada results from the Bank's view that the assets with which it would undertake market intervention are acquired more or less passively, at least in the short run, to cover increases in its primary reserve liabilities resulting from deposit growth in the banking system. Put another way, passive short-run asset management implies a passive approach to open market operations except under fairly unusual market conditions.

This analysis, unlike some textbooks, does not treat an open market cash injection/withdrawal in the same way as a direct redeposit cash injection. Theoretically, the two have the same effect but, in practice, the Bank considers them to be quite separate, to be used under very different sets of market circumstances.

*Aggressive and "active" open market operations are generally carried out only when the Bank wants the market to see its policy intent clearly or when it wants policy to have a quick and direct interest rate impact.* In these situations, the Bank will buy government securities in the market outright to reduce interest rates or slow down an increase and sell securities to raise rates or slow down a decline.

These actions, which affect yields on Government of Canada securities directly, are also quickly transmitted to the rest of the market given maintenance of "normal" spreads between security classes.

Overall then, (excluding some exceptional open

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account, though on occasion for its own account) to manage both bank cash and interest rates. In Canada, by contrast, the Bank of Canada initiates "special" PRAs infrequently and has done reverse PRAs on only rare occasions, eg. August 1986. Also, the Bank of Canada rarely uses open market operations to manage bank cash.

The main reason the Federal Reserve uses open market operations to manage bank cash is because there are so many individual banks in the U.S., making it very difficult to use the system drawdowns and redeposits favoured in the much more concentrated Canadian system.

market operations in late 1978, 1979, 1980 and 1984-86) this tool tends to be used only occasionally and in specific sets of circumstances, usually calling for strong action to provide formal direction for the market. In fact, during 1981-83 the Bank only once undertook open market purchases or sales of securities in any of the bond classes with dealers and chartered banks (July 1982). Most Bank transactions with dealers and banks are restricted to Treasury Bills (i.e., the "Bills only" or "Bills usually" policy) with a heavy focus on the three-month term.

#### iv) Debt Management Operations

The Bank of Canada is the fiscal agent for the Government of Canada. As such, it is required to assist in developing the government's borrowing programme which, among other things, involves physical distribution of new issue government debt and servicing the debt once it is outstanding.

The Bank's takedown of new issues and the occasional trading of bonds/Bills to facilitate marketability (debt management policy) may also impact on both the total, and especially the mix, of Government of Canada securities held as Bank assets.

While debt management techniques are discussed separately from monetary policy techniques (i.e., partial equilibrium analysis), it will quickly become evident that the distinction between the two is blurred and arbitrary. This is true because, when a government budget is in deficit and has to be financed by the issuance of securities, placing these securities with either the Bank or the general public (debt management policy) will influence and affect money supply, credit conditions and interest rates which are the foci of monetary policy. On the other hand, monetary policy obviously affects the types of debt securities to be issued to the public and the Bank and also their yields, which are the foci of debt management policy.<sup>12</sup> Indeed there may be conflicts of interest between monetary and debt management policies. For example, higher interest rates to reduce money supply growth and inflation will raise the government's debt service costs in the short run.

In 1982, there was one specific and visible occasion when debt management policy did not mesh well with

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<sup>12</sup> The 1964 Royal Commission on Banking and Finance thought debt management policy and monetary policy were so intertwined that it discussed them in the same chapter.

monetary policy. This occurred during late February and early March when new government legislation containing provisions for an increase in the government's borrowing authority was delayed in Parliament. This led the Department of Finance to announce that it would raise no new money with either the following week's Treasury Bill tender or with a new bond issue upon the occasion of a maturing bond issue; Ottawa would just roll over the amounts maturing. (In cases such as this, the government is empowered under section 39 of the Financial Administration Act to issue short-term debt up to six months in term to temporarily finance itself if it appears that there may not be sufficient funds in the Consolidated Revenue Fund to meet lawful and authorized disbursements.) One week later, following passage of the legislation, Ottawa announced on a Wednesday that it would raise \$500 million in net new money at the Bill tender *the next day*. With so little warning, this about-face caught Bill traders by surprise and three-month Bills immediately jumped from 9.20 to 9.30 percent (and would have gone higher had it not been for the Bank's open market buying support at 9.30 percent) while longer dated Bill yields moved up 25-40 basis points.

This debt management action was highly unusual because it significantly destabilized and distorted the market. The announcement should have been on Monday, three days before the tender at the latest, and preferably a week's notice should have been given. Further, the Bank seemed to be caught in a difficult position because it was maintaining a tight cash position in advance of the announcement, with the call loan rate holding above 11 percent through Tuesday, just before the tender.

With respect to the Bank's takedown of new issue marketable securities, several points are important. First, the Bank will want to keep control of each issue of each security class. In practice, this means it will usually want to hold 15-20 percent of any specific maturity, although it may sometimes take less if the issue is "hot" or if it wants to hold down money supply growth. By contrast, on occasion the Bank may have to take up to 50 percent of a particular slow selling maturity. (On occasion, the government may do an issue directly with the Bank. This was last seen in March 1979 when a special \$300 million issue was done to replenish Bank holdings of 10 1/4s of 2004—a maturity it sold heavily to encourage higher interest rates to stabilize a decline in the Canadian dollar.)

Bank of Canada debt management operations may

also be affected on occasion by three technical factors which may or may not affect its own balance sheet. First, a technical situation which has to be dealt with several times a year is market illiquidity for specific Government of Canada bond issues outstanding. For example, a specific long-term government issue may be illiquid in the hands of dealers, so the Bank may buy these bonds on the street on the basis that each dealer buys the same amount of bonds with a similar term (i.e., only one-two years apart) from the Bank. This maintains liquidity in the whole market for Canadas by encouraging dealers to buy and sell all outstanding bonds without influencing the balance sheet, bank cash or interest rates.

While most of these trades would be "size for size" and "term for term" (and thus would net out on the balance sheet), the Bank might also on rare occasions go against this principle to correct a technical situation. For example, if a foreign central bank were to buy or sell a large amount of securities in the market, the Bank might have to offset some of the market impact by dealing in different size in a different maturity of the market. This would affect the security mix on the Bank's balance sheet.

Second, the Bank may want to adjust its own portfolio to, say, increase the amount of mid-term bonds on its books while lowering the number of longs (to maintain flexibility to deal in *all* issues and maturity ranges in the market). If this adjustment is not possible using new issue takedowns, it may be carried out in the secondary market.

For example, in 1984 the Bank felt its balance sheet was becoming overweighted in bonds relative to Treasury Bills. Thus, the Bank, in moves which were basically unrelated to monetary policy, tended to limit its purchases of new issue bonds and also sold bonds which it already held on its books. The balance sheet adjustment was achieved in two ways, as described in the Bank of Canada's *Annual Report* for 1984.

First, the Bank purchased Government of Canada bonds that were maturing during 1984 against sales from its portfolio of longer-term Government bonds and, to a lesser degree, treasury bills. Such purchases amounted to \$672 million and allowed the Bank, when these issues came due, to reduce its holdings of bonds by not fully replacing the maturing bonds with purchases of the new issues. Secondly, outright sales of \$782 million of bonds were made in the market. The net result was a decrease in the Bank's holdings of Government marketable bonds of \$600 million during the year. With treasury bill holdings up \$700

million, the increase in the Bank's overall portfolio of Government of Canada securities was only \$100 million in 1984, compared to \$1.6 billion in 1983.<sup>13</sup>

Overall, however, the uncertainty created when these situations occur means that the Bank rarely enters into these transactions without some explanation to bond and money market traders. Technical intervention, especially in the bond market, can be easily misinterpreted by "the street" as a more fundamental move in policy by the Bank. *Typically, open market operations are basically guided by one factor—interest rates.*

The third type of technical debt management policy is Bank activity, as agent for the government, to retire government debt prior to its final maturity. There are two methods it can use. The first does not affect the Bank's balance sheet while the second approach does.

First, on behalf of the government, the Bank can retire a small portion of debt prior to its final maturity by buying bonds in the market for resale to the federal government's Purchase Fund account. This fund was first established in 1961 to buy long-term bonds when the market was weak and so help support the price (market stabilization). These purchases also increase secondary market liquidity, aid the marketability of new issues and generally improve market efficiency.

The Purchase Fund, applying to each issue as specified by the federal government, is like a sinking fund with one major difference: sinking fund purchases are *mandatory*, while Purchase Fund purchases are not. Generally speaking, in the case of the Federal Purchase Fund the Bank, on behalf of the government, undertakes on a "best efforts" basis to purchase long-term bonds during each quarter of each year to maturity (beginning soon after issue) *when they are available in the open market at prices at or below the original issue price*.<sup>14</sup> The amount purchased each year ranges from 2 to 3 percent of the principal amount of the bonds subject to the Purchase Fund.

However, the Bank will try to buy a pro-rated amount each quarter (i.e., at least 1/2 or 3/4 percent of the principal amount of the issue outstanding). A 2 percent Purchase Fund, if fully utilized, would retire

40 percent of a 20-year issue prior to final maturity, while a 3 percent Purchase Fund would retire 60 percent.<sup>15</sup> Purchase fund bonds are actually retired once a year usually in March.

Though not used extensively as an element of policy, these purchases are usually timed to complement the Bank's monetary policy. For example, to help keep interest rates from rising in the first quarter of 1983, the Bank came in relatively early in Q1, rather than at the end of the quarter as is usually the case, to buy bonds for the Purchase Fund. (These purchases show up in the account of the Minister of Finance and so cannot be calculated from the WFS. Street estimates, however, placed the buying support at about \$34 million.)

On occasion, however, the Bank has felt it had to buy bonds for the Purchase Fund when it did not want to do so (e.g., in a strong market). In such cases, purchases are usually balanced by offsetting sales of bonds which are not subject to Purchase Fund provisions. Also, the Bank makes a point of noting when its market buying is as an agent, acting for an account or for the Purchase Fund, so that the market is not misled into thinking the Bank is buying for its own account and using pure open market operations. In any case, if activities for the Purchase Fund do have a potential cash reserve impact, this will almost always be offset by the Bank to eliminate any impact on system cash.

An alternative method of "retiring" debt prior to its final maturity is for the Bank to "pre-retire" outstanding issues on behalf of the government. There are two ways of doing this. First, as agent for the federal government as borrower, the Bank can do an exchange offering, as was done in 1971. Here it announces an offer to buy up certain bonds which are close to maturity (at a premium to the market), if the lender will buy other bonds with a longer term from the Bank.

Alternatively, the Bank need not make a formal offer but, instead, may gradually buy short maturity bonds (usually under one year in term) prior to maturity. Against these purchases it sells out the same amount of longer term bonds (typically one-three year term). In either case, however, unlike bonds bought for the Purchase Fund, these are not actually retired when they are bought. Also, these purchases show up on the Bank's balance sheet.

<sup>13</sup> *Annual Report*, Bank of Canada, 1984, p.30.

<sup>14</sup> To date, all long-term Canada issues offered since 1974 have had a Purchase Fund. However, there are no other issues currently outstanding with a Purchase Fund.

In the case of long issues *re-opened* at various prices, the relevant issue price for Purchase Fund consideration is the *original* issue price.

<sup>15</sup> The government may, in any quarter, apply bonds purchased in the previous year but not credited.

These two types of pre-retirement are done in order to lengthen the term of *public* holdings via a type of “tap” issue and guard against the distorting impact of large *public* maturities, which would be particularly serious if a large issue were to show a big public maturity during poor market conditions (i.e., pre-retiring gives the Bank more control over maturing issues).

Under either method of pre-retirement there is a bond swap involved. Since these swaps are usually dollar for dollar, they do not affect the cash reserve base of the banking system.

## 2. Amount of Foregoing (Government Securities) Held Under Purchase and Resale Agreements

When money market dealers are unable to finance their inventories of Government of Canada securities in the private money market at reasonable rates (see day-to-day loans and call loans), they can enter into a Purchase and Resale Agreement (PRA) with the Bank of Canada up to their credit line with the Bank. These PRAs use government securities three years and under to maturity, including Treasury Bills, as collateral.

Before 1985, a PRA was almost always initiated by the dealer. Here, the dealer sells the eligible security to the Bank at a fixed price with an agreement to repurchase the security at a predetermined future date and at a predetermined fixed price (i.e., a simultaneous purchase and resale by the Bank). These prices determine the cost of the PRA to the dealer. This is commonly referred to as “rediscounting” eligible government securities with the Bank.<sup>16</sup> These

PRAs provide same day cash to dealers, but their impact on chartered bank cash can be offset by the Bank of Canada drawing down the system. Securities held by the Bank under PRA are always considered temporary assets since they generally reflect temporary tightness in the market—an inability by the dealer community to obtain reasonable rates on overnight private financing for its inventory of Government of Canada securities. This forces dealers to use the Bank’s lender of last resort facility.

In 1954, chartered banks reacted to the PRA initiative by introducing the day loan facility for dealers to finance Treasury Bills in the private money market.

In 1956, the rediscount facility was expanded to include direct and guaranteed Government of Canada bonds maturing within three years, and in 1962 the Bank granted investment dealers the right to do PRAs on Bankers’ Acceptances (BAs) as well as agreeing to deal in BAs for cash with dealers. (Bankers’ Acceptances are essentially commercial paper with a chartered bank guarantee.) In 1969, the Bank introduced a limitation that BAs could only be rediscounted up to 15 percent of a dealer’s total line of credit with the Bank. This limitation was imposed since dealers had been financing all their BAs on the “day line” at a large spread over Treasury Bills. As a result, banks began to finance BAs in the call loan market.

Under the 1980 Bank of Canada Act revision, however, BAs were totally eliminated (as of February 1981) as a security class specifically eligible for PRAs with the Bank and, hence, as collateral for day-to-day loans with chartered banks. This was because the Bank concluded that the money market no longer required central bank involvement as a lender of last resort against BAs. That is, with the huge growth in the BA market, the Bank’s objective of using policy to develop the breadth and depth of this security class had been achieved. In any case, with BAs only previously eligible for PRAs up to 15 percent of the total dealer line of credit with the Bank of Canada, only about \$50-75 million out of the \$7 billion in BAs outstanding in early 1980 could actually be financed at the Bank—a small “nuisance” amount. Finally, under the previous rules, certain BAs were eligible for rediscounting, while others were not. Under the 1980 Bank of Canada Act, all BAs are treated equally, thus eliminating unnecessary complications for people buying, selling and financing two different classes of BAs.

It is also important to note that even with the changed treatment of BAs, the Bank continues to have the power to buy and sell them in pursuit of its open market operations, should it consider this necessary or desirable. In 1981-87, the Bank did not buy or sell any BAs either outright or under a PRA.

<sup>16</sup> When the Bank introduced PRAs in 1953, they could only be done against Treasury Bills. The PRA facility was designed to increase the liquidity of the dealer Bill inventories by having the Bank stand ready to buy these securities. This would also encourage banks to make loans to dealers against Bills as collateral. Thus, establishing the PRA facility encouraged dealers to take Treasury Bills into inventory and trade as principals—a move which was designed to increase the liquidity of Treasury Bills and broaden the market for short-term debt securities. This rediscount facility carried a lower interest rate than chartered bank call loans and was successful in encouraging dealers to make markets in short-term securities (i.e., to take principal positions and deal from an inventory). In turn, this greatly expanded the secondary market liquidity of Treasury Bills. The “official” money market began to develop quickly from this point.



1			2	3	
BANK OF CANADA: ASSETS AND LIABILITIES (Millions of dollars) BANQUE DU CANADA: ACTIF ET PASSIF (En millions de dollars)					
Assets Actif			Amount of foregoing held under purchase and resale agreements Montant des effets précédents pris en pension	Other bills Autres bons	
Government of Canada direct and guaranteed securities Titres émis ou garantis par le gouvernement canadien					
Treasury bills Bons du Trésor	Other Autres 3 years and under De 3 ans ou moins	Total(1) Total(1)			
	Over 3 years De plus de 3 ans				
B3 B113702	B5 B113704	B6 B113705	B2 B113701	B8 B113713	B7 B113
6,086	3,045	7,502	16,634	38	-
7,126	2,887	7,627	17,640	68	-
8,143	3,133	7,430	18,706	9	-
8,550	2,931	7,585	19,066	-	-
8,397	3,165	7,395	18,957	-	-
7,895	3,166	7,395	18,455	-	-
8,084	3,166	7,395	18,645	-	-
8,196	3,036	7,535	18,767	36	-
8,243	2,931	7,582	18,756	-	-
8,506	2,931	7,582	19,020	-	-
8,652	2,931	7,583	19,166	-	-
8,798	2,931	7,593	19,323	-	-
9,343	2,981	7,563	19,886	679	-
8,746	2,699	7,663	19,107	-	-
8,888	2,699	7,663	19,249	167	-

However, there are occasions when dealer initiated PRAs are not evidence of true fundamental tightness. For example, dealers may be positioning paper for a very positive carry or capital gain potential, thereby creating additional demand for call/day loan financing which forces up the rates. Second, the banks may not like the call/day loan rate and may choose instead to put their funds into short-term paper. Third, at the end of October each year, banks like to "window dress" and hold extra cash, rather than call/day loans, to guard against having to ask for a Bank advance which would show up in the chartered banks' year end financial statements and annual reports. This situation can create "technical tightness" over the chartered bank year end, although this is usually offset by the Bank of Canada. Finally, on some occasions there may be an uneven distribution of lendable cash in the banking system. Here, one or two banks may end up with all the surplus cash and may not want to lend it.

Since 1985, the traditional type PRA has been supplemented with "Special PRAs" for which the Bank of Canada (and not the dealer) initiates the transactions and controls the timing, rate and amount to be negotiated.

Special PRAs were introduced by the Bank to give it more flexibility and direct control in targeting market interest rates. With the ability to set any PRA

rate and to do any size transaction with any dealer, the Bank has immediate and direct control over the call and day loan rates and thus more direct control over market interest rates in general. Specifically, the Bank can achieve more direct interest rate control than it could achieve via cash reserve management policy alone, and it has more targeted technical control over the short end of the market than it could achieve via the use of open market operations in Treasury Bills (a blunter, broader technique).

These PRAs are over and above the normal dealer lines of credit. There is neither a set amount for any dealer nor any allocation formula. Special PRAs are done at interest rates prevailing "in light of the circumstances" and at the Bank of Canada's discretion. They are usually done by the Bank of Canada either to alleviate undue tightness in the money market, and provide a signal to the market (like open market operations), or to provide extra cash to the system to offset some unusual development. For example, special PRAs were used heavily near year end 1986 when technical factors in the U.S. pushed overnight rates sharply higher there and this spilled over into Canada. When this occurred, special PRAs were used to offset the U.S. tightness hitting Canadian dealers.

In 1987, Special PRAs were outstanding on 63 days, averaging about \$300 million. However, Special PRAs were very aggressively used just before and after the October 19, 1987, stock market crash, with the Bank of Canada introducing peak amounts of Special PRA credit of \$3.5-4 billion.

Regular PRAs and special PRAs are combined for statistical presentation.

In 1986, the Bank of Canada also formally introduced "Special Sale and Repurchase Agreements"—reverse PRAs. While Special PRAs allow the Bank to inject credit and lower call/day loan rates, reverse PRAs allow the Bank to withdraw funds and push overnight rates higher. As with Special PRAs, special Sale and Purchase Agreements are also at the pleasure of the Bank and are usually used to provide clear cut direction for interest rates. This transaction was first done on August 29, 1986, when the Bank of Canada negotiated \$150 million of them with the chartered banks. These reverse PRAs allowed the Bank to offset a sharp decline in overnight interest rates. They were apparently done on a small spread over the call loan rate.

In 1987, two transactions were done in mid-December in amounts of \$250 million and \$275 million. 1988 saw more reverse PRAs. A notable series of transactions occurred in late May 1988, when



the Bank had little money on deposit with banks that could be used for a system drawdown. Here, the Bank did reverses on the last day of a bank averaging period to push interest rates up (due to reports of very strong domestic economic growth data).

Money market dealers and the Bank engage in PRAs on two broad classes of government securities—federal Treasury Bills and short-term Government of Canada bonds—although virtually all of these PRAs are actually done on Treasury Bills.

PRAs are usually more expensive than normal day and call loan funds. As a result, PRAs are only done by dealers when the “normal” channels of financing are not readily available at reasonable interest rates.

PRAs can be for as long as 15 days but are usually for a term of one day (except in 1985-87, when PRAs had a much longer average term). The 15-day maximum reflects the Bank’s desire not to have PRAs outstanding for more than one full chartered bank reserve averaging period. Under normal circumstances (excluding special PRAs), the maximum extent to which a dealer can borrow from the Bank on a PRA is determined by the dealer’s line of credit with the Bank of Canada. It is estimated that dealer lines of credit totalled about \$800-\$900 million in late 1988.<sup>17</sup> This suggests that the major four or five dealers would each have lines of credit in the range of \$50-\$80 million. As noted above, the Bank has offered dealers special PRA financing well above their actual lines of credit, so the dealer lines of credit are not nearly as meaningful as they were prior to 1985.

Turning to the cost of PRAs, the formula for normal dealer initiated PRAs has undergone several changes since it was originally set in 1953 at the 91-day Bill tender average rate plus 1/4 percent. However, in spite of all the changes over the years, the Bank returned in March 1980 to that original formula.

The first change was introduced in 1962 when the Bank abandoned the floating Bank rate because a foreign exchange crisis forced Ottawa to pursue a

policy of leading interest rates up. This was done by moving to a fixed Bank rate and then raising this rate significantly. The Bank then gave some additional protection to money market dealers whom it had previously encouraged to take liability positions in short-term paper. When the Bank returned to a fixed (and higher) Bank rate in 1962, it also announced that dealers could do PRAs at the Treasury Bill linked rate (91-day Bills at tender plus 1/4 percent) *or the Bank rate, whichever was lower*. That is, dealer borrowing costs were limited to a maximum of the Bank rate regardless of what was happening in the market.

The next change occurred in late 1970 when the Bank went one step further and set a *minimum PRA cost* of Bank rate less 75 basis points.

Thus, it can be seen that dealer PRAs would not be totally subject only to Treasury Bill auction yields. Rather, dealer PRAs would be at a market-related rate, subject to both a fixed Bank rate adjusted minimum and maximum.<sup>18</sup>

Another change as it affected the dealer PRA

<sup>18</sup> The PRA formula which evolved under the fixed Bank rate regime is one which clearly tended to stabilize the market. Specifically, the fact that the PRA formula has always been based on the previous week’s Bill tender average means that a change in the fixed Bank rate which existed during the 1960s and 1970s had its major effect on the dealer’s last resort financing cost the following week. Thus, dealers were temporarily cushioned against an increase in the Bank rate on a Friday night in a given week, because dealer borrowing costs at the Bank in the following week (when interest rates would rise sharply) were determined by the previous Thursday’s Treasury Bill tender. Also, dealers were not allowed to capture the full benefits of a reduction in the Bank rate in the week following a cut. As a result, the formula which emerged under a fixed Bank rate tended to stabilize the market.

The minimum and maximum also tended to stabilize and preserve orderly financial markets by ensuring that distortions in the money market and, in particular, distortions in the Treasury Bill sector did not provide dealers with large windfall profits or losses in a short period of time. For example, in 1972 a large build-up in federal cash balances led Ottawa to cut back on the Bill tender. The limited supply of Bills, combined with chartered bank demand to meet the high secondary reserve requirement which existed at that time, pushed Bill rates to an abnormally low level relative to yields on other types of securities. The minimum dealer borrowing cost, which then became operative on PRAs, kept dealers from borrowing artificially cheap funds in the call and day loan markets to finance a sharp speculative build-up in inventories as Treasury Bill rates fell.

<sup>17</sup> From late 1969 to April 1984, dealers were not free to draw their full line of credit. The rule was that two-thirds of a dealer’s line of credit would always be granted by the Bank, at the PRA formula rate, up to 5 p.m., if a dealer could not bank (finance) his short-term Government of Canada inventory position in the day or call loan system at reasonable rates. The remaining one-third of a dealer’s line had to be *offered* by the Bank of Canada, and this was only done on rare occasions. Also, the rate on the remaining one-third of the line was negotiated and was usually above the normal PRA formula rate.

formula occurred in 1974 when the Bank announced that the maximum PRA rate would no longer be the fixed Bank rate but rather the Bank rate plus 50 basis points.<sup>19</sup> Thus, from 1974 through to March 1980,

<sup>19</sup> This change permitted more flexibility in the relationship between Treasury Bill rates and the fixed Bank rate. One reason for the higher maximum was that the Bank did not like the fact that some analysts, including the author, effectively used the spread between Bills and the Bank rate to forecast changes in the Bank rate (i.e., as Bill rates approached the Bank rate, there was pressure for a Bank rate increase). Because the spread relationship worked so well in forecasting Bank rate changes, it developed into a self-fulfilling prophesy.

Under these circumstances, the Bank's policy options could be restricted when the differential closed. This was not a problem when the Bank wanted to raise the Bank rate, but could create difficulties if the Bank did not think a Bank rate increase was warranted even though it might be called for on a spread basis. In these instances, the Bank was sometimes forced to buy Treasury Bills in order to hold Bill yields below the Bank rate—an action which, on occasion, introduced a rigidity which was inconsistent with the Bank's policy to control interest rates and/or restrict money supply growth.

In these circumstances, if the Bank did not buy Bills, then market psychology might force Bill yields above the Bank rate. In theory, this could encourage dealers and possibly chartered banks to borrow from the Bank at the Bank rate maximum and use these funds to "margin" a much larger amount of higher yielding Bills—a development which could lead some banks to aggressively manage bank cash by playing a technical spread game. Though eventually these purchases and sharply higher dealer inventories of Bills would bring rates back into equilibrium, dealer and bank arbitraging using central bank credit is not consistent with the Canadian concept that lines of credit with the central bank should be mainly used as a last resort. The new maximum technically prevented this phenomenon from developing among dealers and banks until Bill yields rose 50 basis points above the Bank rate—a development which would be most unlikely.

Also, it is important to point out that even if these borrowings were not undertaken directly from the Bank, it was likely that if Bill rates went through the fixed Bank rate (and therefore the PRA rate) the banks might call in their call/day loans to money market dealers in order to purchase the higher yielding Bills. This, in turn, would squeeze the dealers, *forcing them* to either sell securities outright (which would cause interest rates to rise further) or borrow from the Bank. This phenomenon was not desirable either.

The new higher maximum PRA rate also offered another advantage from the Bank's viewpoint in 1974. When interest rates were rising, it would sometimes be relatively more expensive than before for dealers to use their lines of credit with the Bank (i.e., when Bills were within 25 basis

dealers could do PRAs with the Bank at 1/4 percent above the average 91-day weekly Bill tender, subject to a minimum of Bank rate less 3/4 percent and a maximum of Bank rate plus 1/2 percent.

The last change in the dealer PRA formula occurred in March 1980, when the Bank moved to a floating Bank rate. Here, the dealer borrowing cost on a PRA was maintained at three-month Bills at tender plus 1/4 percent, but the maximum and minimum were dropped (i.e., the same formula which applied between 1953 and 1962 was reintroduced). Under this formula, the dealer PRA rate is also equal to the Bank rate whereas, under the formula prevailing prior to March 1980, dealer borrowing costs could exceed the Bank rate.

### 3. Other Bills (Purchased Directly or under a PRA)

Under the 1980 Bank of Canada Act, the Bank is *specifically empowered* under paragraph 48(3)(g) to buy and sell bills of exchange and promissory notes *endorsed, accepted or issued by a chartered bank* and having a maturity not exceeding 180 days (excluding days of grace) from the date of acquisition by the Bank. The Bank of Canada is empowered not only to buy Bankers' Acceptances in any amount outright or under a PRA (only at the Bank of Canada's pleasure) but is also allowed to buy Certificates of Deposit (CDs) or bearer deposit notes (BDNs) issued by the chartered banks out to 180 days in term either for cash or under a PRA. The 1980 legislation thus allows the Bank specific and wide scope to buy a broader range of chartered bank or bank guaranteed short-term paper than under the previous Act, either outright or under a PRA.

These purchases, which are made at the initiative of the Bank of Canada, are quite different from PRAs. Specifically, all these purchases can be made in conjunction with the Bank's *open market operations*.

points of the Bank rate or above the Bank rate). This discouraged dealers from positioning paper as principal in periods of rising interest rates. Looked at from this point of view, the change in the PRA formula in 1974 reflected at least a partial desire to limit dealer ability to position securities as principal in bad markets, as well as a technical tightening of monetary policy, and increased Bank control over the financial system to maintain orderly markets.

Prior to December 1980, dealers could do PRAs on only one class of bank paper—eligible Bankers' Acceptances.

Further, under the 1980 Bank of Canada Act, the Bank was also given much broader powers to buy *non-bank short-term securities*, if necessary, to *facilitate its open market operations*. Paragraph 48(4)(k) of the 1980 Bank of Canada Act states that the Bank of Canada can, for the purpose of its open market operations, buy from and sell to Canadians or non-residents in the open market, bills of exchange or promissory notes out to 180 days in term with or *without the endorsement of a chartered bank*. (But this dealing cannot apparently be done under the Bank's lender of last resort facility where PRA purchases are included in entry 2.) The securities which can be used to facilitate open market operations include a wide variety of bank paper, as well as bills of exchange and eligible promissory notes issued by provincial and municipal governments and corporations (e.g., commercial paper).

2	3	4	5	6	7
Amount of foregoing held under purchase and resale agreements Montant des effets précédents pris en pension	Other bills Autres bons	Advances to members of the Canadian Payments Association Avances aux membres de l'Association canadienne des paiements	Investments in TDR Titres de la BEI	Other investments(2) Autres placements(2)	Foreign currency deposits Dépôts en monnaie étrangère
B8 B113713	B7 B113706	B10 B113708	B12 B113709	B14 B113711	B16 B113712
38	-	702	-	960	402
68	-	718	-	758	342
9	-	633	-	44	334
-	-	643	-	3	259
-	-	684	-	3	292
-	-	822	-	23	352
-	-	614	-	3	373
36	-	611	-	150	317
-	-	604	-	3	215
-	-	642	-	3	267
-	-	667	-	3	244
-	-	657	-	3	309
679	-	607	-	3	325
-	-	557	-	293	288
167	-	545	-	556	266

"Other Bills" can be bought outright for cash by the Bank of Canada or purchased under an agreement to resell the securities back to the original holder. However, the Bank Statement does not allow the reader to distinguish cash purchases from PRAs when these are included in the "other Bills" category.

#### 4. Advances to Members of the Canadian Payments Association

##### a) The Canadian Payments Association

Before examining Bank of Canada advances to members of the Canadian Payments Association (CPA) as of Wednesday each week, it is worthwhile to describe the CPA since it is a creation arising out of changes to banking legislation in December 1980. The CPA was established to do two things:

- to take over the ten-centre clearing system from the Canadian Bankers' Association (CBA) and operate the national clearing and settlements system for such things as cheques, travellers cheques and money orders; and
- to work with interested groups to plan the evolution of the national payments system—a system which is to be based more and more on shared computer communications technology and electronic funds transfer in the future, e.g., shared ATMs. This involves the automation of daily clearing and final settlement in a way that links all bank and non-bank direct clearers together in a reliable and cost efficient manner. The CPA is also expected to play a key role in helping develop a national point-of-sale electronic network and an automated payments transfer system for large value payments.

The CPA formally took over operation of the clearing system from the Canadian Bankers' Association on February 1, 1983, for three reasons.

The first was *equity*—to give recognition to the fact that non-bank financial institutions, which accept transferable deposits, have a big stake in the clearing and settlement system and so should have an equal opportunity to participate in the long-term development of the system. The second reason was *cost*—the new technology will require costly new investments so it is desirable to spread these costs over as many participants as possible. The third reason was *efficiency*—competition between a wider range of financial institutions would lead to the most efficient payments system. And, even if non-banks did not see themselves as direct participants in the clearing system at the time, it was still felt that non-banks should have the opportunity to participate in a forum which will

become both very knowledgeable concerning electronic funds transfer and a powerful force in developing such transfer in Canada.

Under the banking legislation in force prior to December 1980, the Bank of Canada and all Canadian banks were required to be members of the CBA, but no other members were permitted. The Canadian chartered banks ran the clearing system by exchanging their customers' cheques and other payment items directly among themselves and settled the balances daily through their accounts at the Bank of Canada. All other institutions accepting chequable deposits were effectively required to use one of the chartered banks as their agent in clearing their customers' cheques through the system.

Under the 1980 legislation, the Bank of Canada and all Canadian banks (both domestic and foreign banks chartered in Canada) are still required to be members of the CPA. However, with the legislation setting up the CPA a new class of membership—voluntary non-bank membership—is both allowed and encouraged. Specifically, any institution or person is eligible to become a member of the CPA *if the institution or person accepts deposits transferable by order to a third party and if the institution or person is able to meet the requirements set out in the CPA by-laws*. Section 84 of the CPA Act sets out the financial stability requirements for CPA members which serve to protect depositors against loss. These include:

- being a member institution of the Canada Deposit Insurance Corporation (CDIC); or
- being a member of the Canadian Co-operative Credit Society Limited, incorporated by Special Act of Parliament and holding a valid certificate granted under the Co-operative Credit Association Act; or
- being an institution having deposits made with it insured or guaranteed under provincial legislation which protects depositors and ensures adequate inspection of the member.

Beyond the required membership (chartered banks and the Bank of Canada), the following are specifically eligible for membership in the CPA:

- trust companies;
- loan companies;
- centrals of credit unions, including provincial or regional groupings, and *caisses populaires* as well

as the respective federations to which the centrals themselves may belong;

- provincial governments and their agencies—advances can be made to the federal government and provincial governments whether or not they are CPA members; and
- other eligible financial institutions.

In early 1988 the CPA had over one hundred members including:

- the Bank of Canada;
- all domestic Canadian banks;
- all foreign banks chartered in Canada;
- 23 federally and provincially incorporated trust and mortgage loan companies;
- 25 credit union centrals and federations of co-operative credit institutions (e.g., *caisses populaires*); and
- seven other institutions (Province of Alberta Treasury Branches, Ontario Government Savings Offices and five other unaffiliated local credit unions).

#### b) Bank of Canada Liquidity Advances to Direct Clearing CPA Members

Under the banking legislation existing prior to December 1980, the Bank of Canada was only empowered to make cash advances to Canadian chartered banks and Quebec savings banks, under normal circumstances, although it also had power to advance funds directly to the federal and provincial governments. It will be noted that, unlike investment dealers who could only borrow from the Bank at the PRA rate by discounting eligible securities, members of the CBA (only Canadian-owned chartered banks) could borrow cash funds *directly* from the Bank, using virtually any asset as collateral, under the Bank's lender of last resort facility, up to their line of credit with the Bank.

Under the 1980 Bank of Canada Act, the Bank is *empowered* to both accept deposits from non-bank members of the CPA and grant temporary loans or cash advances to *any member of the CPA*. As under the prior legislation, the Bank can advance funds to all banks chartered in Canada and to any savings bank to which the Quebec Savings Banks Act applies and, in addition, can extend advances to a wide range of non-banks.

There are, however, two distinctly different classes of CPA members. Clearing members have direct

participation in the association while non-clearing members have a more arm's length participation. Even though the Bank is empowered to advance to all CPA members, in fact, it normally limits its advance facility to those CPA members who are or become *clearing members* (i.e., those members who both participate directly in the daily clearing of payment items and have established a deposit account with the Bank to settle their daily clearing gains or losses). All banks are already members, but contingency borrowing facilities have been set up for non-bank CPA clearing members to enable them to settle unforeseen transactions which are larger than the funds they may have on deposit at the Bank.

3	4	5	6	7	8
Other bills Autres bons	Advances to members of the Canadian Payments Association Avances aux membres de l'Association canadienne des paiements	Invest- ments in IDB Titres de la BEI	Other invest- ments(2) Autres place- ments(2)	Foreign currency deposits Dépôts en monnaies étrangères	All other assets Autres éléments de l'a
B7 B113706	B10 B113708	B12 B113709	B14 B113711	B15 B113712	B13 B1137
-	702	-	960	402	497
-	718	-	758	342	498
-	633	-	44	334	517
-	643	-	3	259	477
-	684	-	3	292	496
-	622	-	23	352	517
-	614	-	3	373	517
-	611	-	150	317	537
-	604	-	3	215	471
-	642	-	3	267	495
-	667	-	3	244	460
-	657	-	3	309	483
-	607	-	3	325	506
-	557	-	293	288	481
-	545	-	556	286	500

To be eligible to join as a direct clearer rather than employ an agent, a CPA by-law (accepted in December 1982) requires that a financial institution must account for a minimum of 1/2 percent of the total annual clearings of the system. As of the end of 1983, this required about 15 million items—a number that tends to preclude non-bank members who are not involved in retail business. This rule was adopted because direct participants in the clearing system require both staff and expensive automated cheque sorting equipment, making participation expensive for institutions with a small volume of clearing items.

For those not heavily into clearing, the CPA welcomes the membership but encourages the firm to

save money by clearing through existing direct clearers. Thus, most of the non-bank CPA members (e.g., small trust companies) will not participate directly in the clearing process; rather, these smaller members use another member to represent them in the clearing and settlement process. Non bank members of the CPA would only qualify for Bank of Canada advances if they are direct clearers.

As of 1988, there were eight Schedule A clearing banks plus five other members who began to clear and settle on their own behalf in 1984-85. These included: Laurentian Bank (which took over Montreal City and District Savings Bank in September 1987), Canada Trustco Mortgage Company, the Province of Alberta Treasury Branches, La Caisse centrale Desjardins du Quebec and the Canadian Co-operative Credit Society Limited. The latter two institutions represent their respective regional centrals in the clearings and thus well over 3,000 individual credit unions and caisses populaires. In 1987, Royal Trust also joined as a direct clearer.

### c) Characteristics of Liquidity Type Cash Advances

Cash loans or advances are made when requested by any direct clearing CPA member, although the Bank wants CPA members first to use the money market to adjust their cash reserves before asking for an advance. Under the Bank of Canada Act, these loans can be made for no longer than six months. Loans are made against the borrowing member's own promissory notes, secured by government obligations or other satisfactory collateral.<sup>20</sup> Each CPA member's line of credit is set at 2 1/2 percent of the member's chequable deposits.

From a technical point of view, the main advantage CPA members derive as a result of borrowing from the

<sup>20</sup> The range of eligible collateral is much wider than for dealers borrowing under the PRA facility. Indeed, the eligible collateral has never really been spelled out in the public record. Under the 1980 Bank Act, eligible collateral is defined to be bills of exchange or promissory notes or any other property that the CPA member is authorized to hold. Thus, the CPA member may use virtually any legal asset it holds as collateral, though the speed with which Bank of Canada advances are arranged normally implies the use of government securities.

Legally, CPA members can also do PRAs with the Bank of Canada (and vice versa) at the same PRA rate as dealers. This would be unusual, however, because the advance facility is usually cheaper and administratively easier.

Bank of Canada is that they get money for immediate value (i.e., a Bank of Canada advance has an immediate dollar-for-dollar impact on the system).

The main disadvantage of these advances is psychological in nature, although cost can become a factor because the cost of advances increases with the number of advances. In Canada, it has traditionally been considered "embarrassing" if the chartered banks could not manage their cash to avoid using the Bank's lender of last resort facility at the end of an averaging period. That is, these borrowings have historically been designed to serve as a safety valve for chartered banks when there was an uneven distribution of cash reserves at the end of an averaging period, or when there was a sudden cash drain which could not be handled by a sale of Treasury Bills or by calling day loans, or when there was a sudden surge in the demand for bank credit.<sup>21</sup>

However, in the latter half of the 1970s, the banks became much more aggressive and professional in managing their cash in the U.S. style. This led to more frequent use of the lender of last resort facility at the end of averaging periods and especially on the last day of an averaging period, when a bank could see it was going to have trouble meeting its required reserves. Prior to retroactive settlement procedures being introduced in July 1986, a Bank advance would be required for a chartered bank to meet its reserve requirement on the last day of the period since an advance was the only predictable source of same day cash in the system. In fact, one banking source indicates that one bank may now manage its cash so aggressively that it may actually target to borrow at the end of certain averaging periods.

Chartered bank borrowings take place at the Bank rate. When the Bank of Canada follows a fixed Bank rate policy, this rate is administered by the Bank and is changed from time to time. Since March 1980, the Bank rate has been allowed to float at the average weekly auction yield for 91-day Treasury Bills plus

1/4 percent. These loans are normally for either two or three days (at the option of the Bank), although a one-day loan is permitted on the last day of an averaging period as long as the borrowing bank had its *cumulative* average cash reserves "on side" for the period on the previous day.

Chartered banks would not normally borrow more than once per averaging period (i.e., to meet the required reserves on the last day of the period). If a bank borrows more than twice during a bi-monthly averaging period, the loan charge is negotiated and would usually be above the Bank rate.

Liquidity type advances to non-bank direct clearers tend to be for a longer term than the one- to two-day term for banks.

#### d) "Extended Credit" Advances for Bailouts

The Bank of Canada advances discussed above are the normal liquidity type advances which relate to day-to-day chartered bank and Bank of Canada cash management. However, from time to time in the past and especially in 1985-86, the Bank of Canada has been called on to provide ongoing "liquidity" to banks, which really meant "extended ongoing credit" when these banks suffered a loss of investor confidence leading to a large loss of private deposits. In order to keep these banks in business, the Bank of Canada was asked to replace these lost deposits with temporary federal deposits under the advance facility.

For these types of loans, the Bank's policy is also to provide support to banks only against full security. However, as with normal liquidity advances, the Bank also requires that banks experiencing difficulty be both solvent and viable. In these cases, the Bank of Canada's role is one of:

providing liquidity support to solvent banks that are encountering withdrawals of funds they cannot readily meet out of their own resources. It would be foolish to force a bank to call its loans and sell its assets at fire-sale prices because of a temporary withdrawal of funds. The duty of the Bank of Canada is to advance funds to banks needing help on these occasions in order to prevent a loss of confidence from spreading and to give a sound institution time to demonstrate that a loss of confidence by its depositors was unjustified.<sup>22</sup>

<sup>21</sup> The various chartered banks have used liquidity advances differently over the years. For example, until the late 1970s, one of the big five Canadian banks was reported to have taken great pride in *never* having asked for a cash advance from the Bank of Canada. By contrast, another big five bank was reported to have borrowed on occasion from the Bank of Canada in the early 1960s and, in turn, reloaned this money to money market dealers in the call loan market to earn a profit on the spread. At the time, this was seen to be highly unusual.

<sup>22</sup> Department of Finance, Press Release on Canadian Commercial Bank and Northland Bank, September 1, 1985.

If restoring confidence is not possible, the liquidity support gives the bank time to negotiate other solutions—e.g., a sale to another bank.

Finally, such advances can prevent a loss of confidence from spreading to the rest of the financial system.

*It is important to note here that the Bank of Canada has to rely on others to define solvency and viability; it does not make these assessments itself. Specifically, the Bank of Canada's contact was with the Inspector General of Banks (IG) prior to 1986 and with the Superintendent of Financial Institutions (SFI) since June 1986, and the Bank relied on the IG and now relies on the SFI for judgements about the solvency of any specific bank. The Bank can make liquidity advances against security to viable banks, but it cannot supply capital or attempt to regulate or manage a bank's affairs. As Governor Bouey of the Bank of Canada said in 1985:*

The Bank of Canada is not involved in monitoring the financial soundness of individual banks and supervising their behaviour. Parliament has not given us that responsibility or the powers that would enable us to fulfill that function. The Bank of Canada has no bank auditors, no bank examiners, no power to require details of individual loans, deposits or any other kind of private transaction... In this country the system of bank supervision, based on an information network of external bank auditors, internal bank inspection systems and bank managements, was designed by Parliament to operate separately from the Bank of Canada, and the Bank must rely on the judgements that emerge from it.<sup>23</sup>

Thus, as long as individual banks are judged to be solvent and viable by this process, the Bank of Canada would normally provide whatever liquidity support was required.

The first such case in modern times occurred in 1977 when the Bank of Canada was called on to advance funds to the Unity Bank for a three-month period early in the year. These Bank advances were related to financial troubles at Unity Bank, which led to a run on the bank by wholesale depositors when loan problems emerged. These extraordinary advances were to replace the withdrawal of private deposits and were for a much longer term than the usual one-three day advance and for an amount which was above the

Unity Bank's actual line of credit with the Bank of Canada. Also, the Bank accepted collateral for the loans other than Government of Canada securities. As indicated in footnote 20, the Bank is empowered to accept collateral other than Government of Canada securities, but this is highly unusual.

In early 1985, the most well-known cases in Canadian history occurred when two small western Canadian banks—Canadian Commercial Bank and then Northland Bank—began to experience a significant loss of depositor confidence leading to large withdrawals of private funds from the two banks. In March 1985, the Bank of Canada was advised that the banks were both solvent and viable. As a result, the Bank of Canada was called on, under its lender of last resort facility, to replace the lost deposits first at CCB and then at both banks. These "extended credit" advances (the Bank misnamed them in calling them "liquidity" advances) were again larger than normal and made for a longer than normal time period. In fact, these advances subsequently mushroomed as high as \$1.3 billion for CCB and \$510 million for Northland Bank on August 30, 1985.

On September 1, 1985, after weeks of speculation about the banks failing even with Bank of Canada support, the federal government announced that curators would be appointed to run the two banks while they were being wound up and liquidated. On September 1 the Department of Finance issued the following statement:

The Honourable Barbara McDougall, Minister of State (Finance) announced today that the Inspector General of Banks advised the Minister of Finance and herself that the Canadian Commercial Bank and Northland Bank were no longer viable and they could not pay their liabilities as they came due. Earlier in the day the Inspector General had reported to the Governor of the Bank of Canada that these banks were no longer viable. Consequently the Bank of Canada has ceased to provide liquidity support to the two banks. The Minister of Finance has therefore taken action to appoint curators to both banks.

Minister McDougall said: "In accordance with provisions of the Bank Act curators have been appointed at 7 p.m. EDT, Sunday, September 1, 1985 to take over the management of the banks' affairs. The curators and employees of the banks will be completing preparations for opening on Wednesday, September 4th."

<sup>23</sup> Address by Gerald K. Bouey, Governor of the Bank of Canada, to the Canadian Club, Toronto, September 23, 1985.



"The problems encountered by the Canadian Commercial Bank and Northland Bank each reflect particular and unique circumstances", said the Minister. "It is clearly not in the best interest of our financial system as a whole to allow institutions to continue to function after they have ceased to be viable operations. The Canadian banking system remains among the most stable in the world. These two banks comprise less than 1% of the total assets of the Canadian banking system."<sup>24</sup>

When the Bank of Canada received notice from the Inspector General on September 1, 1985, that the two banks could no longer be considered viable operations (i.e., could not maintain their own funding and thus could not meet their liabilities as they came due), the Bank of Canada ceased to provide further advances to them.

The liquidators of these banks were also appointed as agents of the Bank of Canada for the purposes of realizing on the loan portfolios held by the Bank of Canada as collateral against its advances. The liquidation of these loans may be spread over several years in order to ensure the maximum return on the sale of the assets. The Bank of Canada expects its advances to eventually be fully repaid from the proceeds of the liquidations.

The government also commented on the specific situation for each bank in its September press release, as follows:

#### *Canadian Commercial Bank*

In March of this year, a joint private sector and federal and provincial government support package was provided to the Canadian Commercial Bank. In light of the advice given to the Minister of Finance by the Inspector General of Banks and the actions by the Bank of Canada today, no further support to the Canadian Commercial Bank is possible. A court order will be sought under the Winding Up Act to liquidate the Canadian Commercial Bank.

#### *Northland Bank*

As to Northland Bank, the Ministers are prepared to accommodate the belief of the Board of Directors of the bank that, given the circumstances, the business of Northland might be preserved through a reorganization or amalgamation. Consequently, it was agreed that the Northland Bank will have a limited time period to seek to reorganize its affairs or

amalgamate with another financial institution. Northland has stated that it will work with the curator and will initiate attempts to arrange such a reorganization or amalgamation.

Mrs. McDougall indicated that the Government is prepared to work with Northland to try to effect a reorganization or amalgamation. This is consistent with the Government's recognition of the useful role played by regional financial institutions.<sup>25</sup>

Subsequently, no reorganization or amalgamation proved possible and Northland was also wound up on January 20, 1986.

In the end, both banks failed because of problems with their loan portfolios. This then led to a loss of investor/depositor confidence which, in turn, led to a run on their deposits.

In the September-October 1985 aftermath of the CCB-Northland Bank debacle, depositors lost confidence in some other banks (judged to be in trouble) and, fearing their deposits could be lost, began to withdraw funds from these banks. Most attention focused on the Bank of British Columbia, Continental Bank and the Mercantile Bank, although both Mercantile and Continental were independently judged to be sound. Here again, the Bank of Canada acted as lender of last resort and stepped in to replace part of the private deposits lost by these banks. As a result, Bank of Canada advances again increased dramatically from about \$1.8 billion in August-September 1985 to a peak of almost \$5 billion in April 1986.

In the case of Mercantile Bank, the support provided was small, as Mercantile quickly sold out to National Bank of Canada (in December 1985). In the case of Bank of British Columbia, Bank of Canada advances were as high as \$975 million in April 1986 but were down to \$430 million on November 26, 1986, just prior to Hongkong Bank's purchase of the Bank of British Columbia. This takeover was effective November 27, 1986, and the entire Bank of Canada advance to Bank of British Columbia was repaid within four days.

For Continental Bank, the situation was more complex. On October 31, 1985, Continental Bank arranged a \$2.9 billion support package. This included a \$1.5 billion standby line of credit with the big six banks and a \$1.4 billion special fully secured advance from the Bank of Canada at the Bank rate, for a six-month term (the maximum length of time permitted by

<sup>24</sup> Department of Finance, Press Release on Canadian Commercial Bank and Northland Bank, September 1, 1985.

<sup>25</sup> Ibid.



law). This term advance was subsequently renegotiated three times—in January 1986, April 1986 and July 1986—with the final term extended to the end of January 1987.

In addition to the term advance, Continental Bank made extensive use of daily advances from the Bank of Canada beginning in November 1985. These advances peaked at about \$1.3 billion in April 1986. Taken together, total advances at the end of April 1986 were \$2.7 billion. These fell to about \$2.4 billion on October 2, 1986, just prior to the takeover by Lloyd's Bank, and fell further to \$2 billion by the end of October 1986.

As part of the arrangement in the Lloyd's Bank takeover, Lloyd's assumed the Continental Bank liabilities including Continental's indebtedness to the Bank of Canada. Lloyd's agreed to repay this within three months of the takeover. The takeover of Continental closed on November 7, 1986, and Lloyd's repaid all advances to Continental by mid-December. Thus, by year end 1986 most Bank of Canada advances had been repaid; outstandings at year end 1986 (covering CCB and Northland Bank) were down to \$868 million. These allowances were reduced further, to \$362 million, by year end 1987.

*Unlike the CCB and Northland Bank situations, where Bank of Canada advances for liquidity support did not help solve their problems, Bank of Canada advances were very helpful to both Continental Bank and Bank of British Columbia in buying sufficient time for these banks to work out orderly and satisfactory solutions to their problems.*

During the period October 1985-April 1986, both Continental Bank and the Bank of British Columbia tried to avoid the appearance of weakness by downplaying government support and Bank of Canada advances. This was done in two ways. First, one of the banks asked its provincial government, a major depositor, to purchase bank bearer deposit notes in lieu of making additional deposits which would be reflected in the official records as "government deposits". The net effect was to give the appearance of market acceptance of the bank paper and, at the same time, to mask the reliance on government support.

The second method used by both banks was to mask the extent of central bank advances reported on the Bank of Canada's balance sheet each Wednesday. Here, the bank(s) would borrow aggressively from the Bank of Canada for the period Thursday to Tuesday each week, and then repay as much of the loans as

possible on the Wednesday reporting day, only to redraw them again on Thursday to repeat the process. A comparison between Bank of Canada Wednesday advances on page 1 of the *Weekly Financial Statistics* and the average of all the daily advances shown on page 8 of the WFS allowed the author to reveal this "trick" in a published report on March 21. Specifically, it was noted that:

the Bank's figures show that average weekly advances by the Bank of Canada to members of the CPA (page 8 of the weekly statistics) are running well above the Wednesday spot advances shown on the Bank's balance sheet (page 1).

This gap raises the issue of where "window dressing" stops and "creative accounting" starts. The Wednesday spot advances by the Bank of Canada are official Bank of Canada balance sheet figures. Also, the month end advances are official figures for CPA members i.e. they have to report borrowings from the central bank on Schedule J. It is this "spot" data that the market focusses on . . . By contrast, the weekly average for advances (an average of daily advances) does not appear on any balance sheet and is not an official figure. Thus, the market has never really examined this data.

The important point here is that average advances have systematically exceeded spot advances every week since November 1985 by \$300-800 million. This indicates that at least one financial institution is systematically borrowing aggressively from the Bank of Canada, probably on a Thursday, and then probably carrying the loans through the following Tuesday. The data suggests that the organization then repays part, or all, of its Bank of Canada advance, probably with funds borrowed for one day from other sources. Then, after the reduced borrowing data is reflected on the "official" Wednesday report, the CPA member reborrows for another six days from the Bank of Canada. The key point is that there are systematic actions being taken to downplay CPA borrowings from the Bank of Canada and to make "official" borrowings appear lower than they really are.<sup>26</sup>

Immediately after this report was released the two banks quickly moved to eliminate this deception, and Wednesday spot advances were brought into rough balance with the average of daily advances for the week.

<sup>26</sup> McLeod Young Weir, "Bond and Money Market Letter", March 21, 1986.

e) *The Impact of Bank of Canada Extended Credit Advances on the Bank's Normal Asset Transactions*

In 1985, as Bank of Canada liabilities in the form of banknotes and deposit liabilities rose, the room for growth in the normal Bank of Canada asset category—government securities discussed in section 1b—was more than absorbed by the Bank of Canada bailout type advances to chartered banks. At the end of 1985, there were \$3.5 billion of advances outstanding. As a result, the Bank's holdings of government securities were reduced by about \$1.5 billion during the year. Following the pattern in 1984, this reduction occurred in holdings of Government of Canada bonds (\$2 billion), while Bill holdings rose \$500 million. Thus, Bank of Canada advances had a marked impact on the Bank's balance sheet.

In 1986, the reverse occurred. Here, after advances increased from \$3.5 billion to a peak of \$5.2 billion at the end of March, they then fell sharply to close 1986 at \$868 million. As the repayments were made, the Bank was again able to create notes for circulation in the usual way—i.e., by purchasing and monetizing government securities. Thus, its security holdings rose \$2.6 billion in 1986. However, as in both 1984 and 1985, the Bank continued to restructure its balance sheet by reducing its holdings of bonds (down \$1.3 billion) while increasing its Treasury Bill holdings by \$3.9 billion. Also, to help offset the liquidity draining impact of the repaid advances late in 1986, the Bank did about \$1 billion of Exchange Fund swaps with the Exchange Fund account (see section 6 following).

## 5. Investments in the Industrial Development Bank (IDB)

Prior to October 2, 1975, the Bank controlled the Industrial Development Bank as a subsidiary, and its investment in the IDB (capital stock—equity and six-year serial debentures at a spread over Government of Canada bonds) appeared on the Bank's balance sheet to the end of 1981.

On October 2, 1975, the Federal Business Development Bank (FBDB) was established. At the same time, the IDB ceased operations and was transferred to the FBDB. That is, its obligations were assumed by the FBDB which is financing on its own. Concurrent with this, the Government of Canada began to purchase all capital stock of the IDB which

was held by the Bank of Canada. These purchases were at par as the IDB debt matured. As the old IDB debt matured, it began to come off the Bank of Canada's balance sheet (about \$40 million per quarter). By the end of October 1981, this asset item reached zero. Even though the Bank no longer has an investment in the IDB, the column still exists on the WFS.

## 6. Other Investments

Other investments mainly include that part of Canada's total foreign exchange reserve position invested in foreign securities which is being carried on the Bank of Canada's books rather than on the books of the Exchange Fund account. These assets are mainly U.S. dollar denominated short-term securities held by the Bank. However, there is also a small entry (about \$2.6 million) for the Bank's investment in the capital stock of the Bank for International Settlements (BIS). Also, if the Bank ever carried Special Drawing Rights (SDRs) on its books, it would be reflected in this entry. Finally, if the Bank ever purchased provincial government securities, provincially guaranteed securities, municipal or corporate securities (as opposed to Bills), they would be included in this entry.

Even though this asset category is almost always going to include mostly foreign securities, it has nothing to do with activity by the Bank in the foreign exchange market. It also has very little to do with the total size of Canada's foreign exchange reserves (which can be held in four different accounts—the Exchange Fund account, an account of the Minister of Finance, the Receiver General account and the account noted here for the Bank of Canada). Rather, movements in this asset category almost totally reflect the Bank's swap dealing with the Exchange Fund account—a technique which the Bank has used extensively to monetize or demonetize foreign securities as a technical complement to its domestic cash reserve management policy. Increases in this entry typically reflect a net cash injection into the system by the Bank, while a decline reflects a system drawdown via the unwinding of swaps.

Before turning to a discussion of Exchange Fund swaps, which is the focus of entry 6, it is worthwhile first to set out a summary discussion of cash reserve management in general and follow this with a discussion of the swaps since they are a specific tool for managing chartered bank cash. (The disadvantage

of discussing cash reserve management here is that it breaks the natural step-by-step progression through the Bank Statement. Thus, it should be noted that the discussion which follows could also be included in entry 11 regarding government deposits at the Bank.)

4	5	6	7	8	9
Advances to members of the Canadian Payments Association <i>Avances aux membres de l'Association canadienne des paiements</i>	Investments in LDB <i>Titres de la BEI</i>	Other investments(2) <i>Autres placements(2)</i>	Foreign currency deposits <i>Dépôts en monnaies étrangères</i>	All other assets <i>Autres éléments de l'actif</i>	Total assets <i>Total de l'actif</i>
B10 B113708	B12 B113709	B14 B113711	B15 B113712	B13 B113710	B1 B113700
702	-	960	402	497	19,196
718	-	758	342	458	19,956
833	-	44	334	517	20,234
843	-	3	259	477	20,448
884	-	3	292	496	20,432
822	-	23	352	517	19,969
814	-	3	373	517	20,152
811	-	150	317	537	20,388
804	-	3	215	471	20,060
842	-	3	267	495	20,426
867	-	3	244	460	20,540
857	-	3	309	483	20,775
807	-	3	325	506	21,327
857	-	293	288	481	20,725
845	-	556	286	500	21,136

#### a) The Bank of Canada's Cash Reserve Management Policy

The Bank of Canada has a number of tools at its disposal with which to influence chartered bank cash and thus to influence short-term interest rates. (The operational procedure for manipulating chartered bank cash reserves is set out in chapter 4, dealing with *excess cash reserves*, since it is cash reserves in excess of the required minimum which is the key operating variable for the Bank of Canada.)

The precise mechanism used by the Bank of Canada to alter bank cash is called the drawdown and redeposit technique (D/R technique).<sup>27</sup>

<sup>27</sup> Open market operations could also be used to increase or decrease bank cash but, as noted earlier, the Bank does not normally use open market operations for this purpose.

#### i) Passive Offset Policy

There are two ways the Bank of Canada looks at chartered bank cash reserve management policy. The first approach, and always the Bank's starting point, is its policy to offset swings in bank cash arising out of cheques clearing for normal, ongoing government banking transactions, foreign exchange market activities, changes in the currency/deposit ratio and special non-recurring factors which would affect bank cash.

With respect to government banking transactions, it can be seen that if government revenues do not exactly equal disbursements on a given day, chartered bank cash will increase or decrease. For example, if the government spends more than it receives on a given day, bank cash would increase by the amount of the net disbursement (assuming none of the money leaks out to currency in circulation). This would allow the banks to make more credit available. The immediate impact would be for overnight interest rates to fall and for this impact to be transmitted to the rest of the yield curve with a small lag. Then the deposit multiplier would potentially come into play.

Since swings in government net revenues/expenditures can be enormous on a given day (e.g., net cash injections or drains of \$500 million or more per day are not uncommon against cash balances which now run \$2 billion to \$7 billion), the Bank will almost always act to prevent these swings from having a major expansionary or contractionary impact on the banking system one day, followed by a possible reversal the next day. That is, the Bank will try to neutralize these accelerator/brake swings in chartered bank cash which, if allowed to occur, would produce sharp day-to-day and week-to-week swings in interest rates. This maintains stability in the banking system and allows it to function without the banks having to maintain huge cash balances.

A second example of the Bank's offset policy occurs when government balances and banking system cash are affected by swings in the Canadian dollar and foreign exchange (FX) reserves. For example, if the Canadian dollar is weak and the Bank of Canada is selling FX reserves, then as the chartered banks buy the foreign currency their Canadian dollar cash reserves fall, which implies that M1 or the other Ms fall. At the same time, government Canadian dollar cash balances increase, though this does not provide for an immediate offsetting increase in M1/M2/M3 since government balances are not counted as part of the money supply.

Typically, what happens here is that the Bank will seek to offset the banking system's private cash reserve loss with an equal and offsetting government redeposit in the government accounts held at chartered banks (and with other CPA members). This is because the Bank has a separate policy for cash reserve management and FX dealing, and it likes separate tools to deal with them. Thus, the Bank does not normally allow the cash reserves in the system to be disturbed by fluctuations in the exchange rate.<sup>28</sup> Indeed, the Bank would try to offset the impact of most exogenous foreign shocks to the Canadian system.

A third major area for passive offset cash reserve management is the Bank's policy to offset seasonal swings in the demand for Bank of Canada paper notes (currency in circulation) relative to bank deposits (shifts in the currency/deposit ratio). *The free substitution between notes and deposits must be maintained, since the Bank is the sole issuer of notes.* If the demand for note holdings rises relative to deposits (as is usually the case during the summer and in December each year), the Bank will almost always act to supply additional cash to the banks, offsetting the tendency for bank cash to fall. By contrast, when the demand for note holdings falls relative to deposits, as it does in January, the Bank will typically drain the excess bank cash.

The Bank of Canada would also normally seek to offset the seasonal pattern in the chartered bank demand for excess reserves. For example, in the fall, when loan demand tends to show a seasonal increase (personal loans and CSB loans both rise), the chartered banks will normally want more cash. Typically, the Bank will act to supply this seasonal cash. Further, it will often (but not always) supply additional cash to the banks over the averaging period that leads up to their fiscal year end (October 31). At this time, the banks want to increase their excess cash to avoid, at virtually all costs, showing a Bank of

Canada advance. (If the additional cash demanded is not supplied by the Bank, the system would automatically tighten and interest rates would rise.)

## ii) "Active" Cash Reserve Management Policy— The Implementation of Monetary Policy

While the Bank of Canada will usually offset the cash reserve impact of swings in government net cash disbursements and other large non-recurring swings in seasonal/technical type factors, it need not always do so. In mid-May 1980, for example, a weakening of the Canadian dollar in response to a major drop in Canadian interest rates and foreign nervousness in advance of the Quebec Referendum led the Bank to very aggressively drain the system.<sup>29</sup> This action forced chartered bank average and excess spot cash to be negative right at the end of the first May reserve averaging period. In other words, the Bank did not willingly supply the reserves needed by chartered banks to meet their reserve requirement. This, in turn, forced very heavy chartered bank borrowing from the Bank of Canada and slowed the decline in interest rates.

Secondly, when a more permanent factor alters chartered bank requirements for cash, the Bank may not supply the needed reserves. This would occur if, for example, strong growth in nominal GDP leads to accelerating demand for bank credit and, therefore, increased cash needs by the banks. If the Bank sees this demand emanating from *real growth*, it would be inclined to supply the cash needed by the banks, especially if there is substantial excess capacity in the economy. On the other hand, if the nominal growth is resulting mostly from *inflation*, the Bank would probably not supply all the reserves needed and the system would tighten. In this latter case, active cash reserve management also replaces a passive approach, and in the process there is a shift from technical control of the banking system to actual implementation of monetary policy.

Overall, it can be seen that a passive cash reserve approach will be taken when monetary policy is accommodating, while an active approach will be followed if monetary policy is designed to tighten or loosen. Put another way, active cash reserve management is used to influence credit conditions, interest rates and money supply, although the very

<sup>28</sup> While the impacts of foreign exchange operations on chartered bank cash are invariably offset, this need not always occur. Specifically, when the Bank sells foreign exchange reserves from the EFA, the Currency and Exchange Act requires that the Canadian dollar balances acquired by the EFA be deposited in the Consolidated Revenue Fund, i.e., in the government's account at the Bank of Canada. At this point, the Bank would usually redeposit these funds with the chartered banks to neutralize the impact of its FX dealings, but it has the power to let the FX dealings tighten the domestic financial market by leaving these funds on deposit at the Bank of Canada.

<sup>29</sup> This was a classic example of monetary policy at work, and it is described more fully in chapter 9.

nature of the technique, being internal, makes it difficult to see precisely what the Bank is doing.

*b) Transfer of Government Cash Balances Between Chartered Banks and the Bank of Canada (The Pure Drawdown and Redeposit Mechanism)*

The drawdown/redeposit technique (including Exchange Fund swaps) is the Bank's key instrument for fine tuning the system. This technique is low profile, impersonal, diffuse and can be used quickly and in large or small size. Compared to other techniques, it has a relatively slower impact on interest rates and money supply because it impacts these variables *indirectly*. However, this derives from the fact that cash management initially affects mainly the very short term to maturity (e.g., overnight cost of financing). The transmission of this impact out along the yield curve may take a few days. Nevertheless, the interest rate adjustment does occur and this, in turn, affects the demand for money and the money supply.

Typically, the Bank will want to make an adjustment in bank cash reserves and at the same time not be seen as a buyer or seller of securities (i.e., would not want to deal with a bank or money market dealer in a personal, high profile and specific way with someone at the end of a telephone). This reflects the fact that the Bank will not usually want its action to have a direct impact on interest rates, preferring to use the market to transmit pressure to all the banks in the system and allow the banks' response to filter out into the open market—the "trickle down" approach (see also the discussion of open market operations in entry 1). Thus, the Bank's actions would not normally impact on any balance sheet entry (pages 1-4 of the WFS) in a detectable way. By contrast, open market operations can usually be seen on the Bank's balance sheet and very often can also be seen on the chartered banks' balance sheets.<sup>30</sup>

In addition, the Bank also needs techniques that work *quickly* within the given institutional framework. This is because it often wants to make precise adjustments in bank cash reserves for the next day, for example, to offset the cash reserve impact of a big increase in government spending on a particular day.

<sup>30</sup> When cash reserve management starts to call forth average excess cash ratios at or below 0.02 percent or above 0.04-0.05 percent, then cash reserve management is aggressive and becomes detectable in the market and on the summary chartered bank balance sheet.

Once again, the most frequently used day-to-day mechanism is the drawdown and redeposit technique (D/R technique), supplemented by Exchange Fund swaps. As noted above, this technique is normally used to smooth out the potentially disruptive impact on banking system cash reserves of large swings in government cash balances attributable to the uneven flow of government revenues and expenditures.

*i) The Mechanics of the Drawdown and Redeposit Technique*

The drawdown part of this technique means that the Bank will withdraw funds from government accounts held at the chartered banks (or with other direct clearers in the CPA). This would occur *ceteris paribus* whenever the government has net disbursements on a particular day. It is important to note here that if these funds are not withdrawn from the chartered banks, then bank cash would increase by the amount of the net disbursements, interest rates would tend to fall and then the deposit multiplier would potentially come into play.<sup>31</sup>

The redeposit aspect refers to net withdrawals from the government's chequing account *at the Bank of Canada* and the redeposit of these funds into government deposit accounts at the chartered banks.<sup>32</sup>

These net flows are calculated each day by the Bank given the financial transactions between itself and

<sup>31</sup> In the short run, if the government runs a budget deficit, outlays exceed tax revenues. As a result, government deposits at the Bank decline. When this money enters the private spending stream and is deposited with chartered banks, there would be a net increase in chartered bank cash. Thus, there would be the potential for a multiplier expansion in the money supply. However, the Bank can act to prevent this by drawing down the government's deposit account with chartered banks. As a result, chartered bank deposits and bank cash can be reduced to the previous level and the money supply, broadly defined to include government deposits, is left unchanged.

<sup>32</sup> If the government receives tax cheques from the public drawn on the banks, the government deposits these funds in its account with the Bank and deducts the amount of the cheques from chartered bank deposits with the Bank. Once the float impact is eliminated, chartered bank cash and deposits fall. However, if the Bank, on behalf of the government, then redeposits the funds deposited at the Bank of Canada back to government accounts at the chartered banks, bank cash and bank deposits are all restored to their previous levels. All that changes is the distribution of liabilities at banks.

chartered banks. It also estimates the change in note holdings.<sup>33</sup> Then, between 5:00 and 6:00 p.m. each day, the Bank decides the drawdown or redeposit for the next day to achieve the cash reserve impact desired. About 8:15 a.m. the following morning, it notifies each bank of its particular dollar portion of the drawdown or redeposit for that day. The actual adjustment is made by a shift in the location of government deposits between bank deposits and government deposits with the Bank of Canada following the 9:30 a.m. clearings the same day.<sup>34</sup> Under back dated settlement, the D/R will be back dated to take effect the previous day.

The daily drawdown and redeposit figures are not published. However, the total can be fairly accurately judged if just one bank will give its daily drawdown or redeposit (since each bank's share can be estimated from the latest *Canada Gazette*, which publishes the individual bank's assets and liabilities at each month end based on schedule J data). For example, if bank A gets \$50 million and the *Gazette* indicates it gets 10 percent of the total, then the total redeposit is \$500 million.

Unfortunately, these figures are not very useful because the D/R figure includes two components—a purely technical/seasonal/ special factor component which is very large and extremely volatile (making it impossible to assess without having the Bank of Canada's data on clearings), and a policy-related component, if any, which is often very small (e.g., \$25-75 million). This latter component is of interest, but the figure cannot be derived by the public given information currently being released by the Bank.<sup>35</sup>

## ii) Advantages of the Drawdown/Redeposit Technique

The D/R technique, including Exchange Fund swaps, is a workhorse, fine tuning instrument. It offers the following advantages.

—*speed*—the technique is fast and can be used to have an immediate impact on chartered bank cash. The key here is that the Bank of Canada has all the information it needs to do the next day's D/R by around 4:00 p.m. The net D/R decided the previous evening and implemented early the next morning affects chartered bank cash immediately. However, other techniques discussed in the following section can take longer to affect bank cash and, in any case, would usually be offset by the Bank of Canada. Open market operations, for example, involve the physical delivery of securities. Since one-three year Canadas have two-day delivery and mid- and long-Canadas have five-day delivery, the potential cash effect of purchases and sales here do not show up the same day—too late to affect bank cash tomorrow or even the next day.<sup>36</sup> (This analysis focuses only on the cash impact; it neglects expectational effects.)

—*size*—the D/R technique can be used to move very large amounts of money into or out of the banking system (particularly when used in conjunction with Exchange Fund swaps, discussed later). This allows the Bank to hit its excess cash target for the banking system on each day of the two-week averaging period, as well as the Bank's trajectory for excess cash over the averaging period.

—*flexibility*—given that the D/R technique is fast and can be used in large or small size each day, the technique is highly flexible. One key element of this flexibility is that the technique is quickly reversible. This makes it valuable in providing temporary cash reserves to the banking system, say, to stabilize the market in the days leading up to the October 31 chartered bank year end.

These three aspects of the D/R technique (supplemented by Exchange Fund swaps) make it the workhorse for undertaking precise daily adjustments in bank cash reserves. It offsets the potentially disruptive impact on banking system cash reserves of large swings in government cash balances attributable

<sup>33</sup> The cash impact of transactions entered into by the Bank is known at least one day in advance (except cash advances by the Bank to chartered banks, which have same day impact).

<sup>34</sup> Part of the federal government deposits are allotted among the banks and other financial institutions who become direct clearers according to a formula which reflects their shares of total Canadian deposits.

<sup>35</sup> It is worthwhile noting here that the daily D/R, taken by itself, is only a technical tool to provide system stability. It is not necessarily an indicator of monetary policy.

<sup>36</sup> Monetarists would likely argue here that this implies taking the present institutional structure as given. In fact, if securities could be settled and delivered in one day to create same day cash, or if the physical delivery of securities were replaced with electronic funds transfer on a same day basis, open market operations could be just as effective as the D/R technique for cash reserve management.

to the uneven flow of government revenues and expenditures. If the Bank did not have a technique which is fast, flexible and available for use in large or small size for smoothing bank cash, there would either be far more borrowing from the Bank of Canada by the chartered banks or much more need for open market operations.

In addition, this technique offers the advantages of:

—*equitability*—beyond the mechanical advantages outlined above, the technique is equitable, having a greater impact on the cash managers of the large direct clearing institutions and vice versa. The bigger clearers absorb proportionately more of the D/R impact than the small clearers (although the technique is probably not more equitable than open market operations where free market choice is involved).

—*low profile and diffuse*—the technique is low profile and diffuse, giving maximum scope for the financial markets to operate independently of direct central bank influences. The technique does not have a direct impact on the securities market and does not try to generate a specific level of interest rates for term securities. Thus, the D/R technique can be used to expand or contract bank cash (and potentially the money supply) on a day-to-day basis without having a direct impact on interest rates other than on the call loan rate. Also, by limiting open market operations to occasional use, the Bank obtains a bigger impact from open market operations when they are used.

Compared to other techniques, (e.g., open market operations), the D/R technique has a relatively slower impact on interest rates and money supply, and impacts these variables *indirectly*.

### iii) Disadvantages

In spite of all the advantages of the D/R technique, it has two associated disadvantages (although these virtually disappear when the Bank's use of Exchange Fund swaps is linked into the D/R technique). First, government balances at the Bank (entry 11a) cannot go below zero. That is, the redeposit in the banking system cannot be more than total federal cash balances, assuming that the drawdown and redeposit technique is viewed separately from Exchange Fund swaps. (Although the Bank can always obtain cash for

redeposit by monetizing more federal debt, it may not be totally free to do this.) By the same token, the Bank does not like to have large government deposits on its own books, since such deposits earn no interest though they have been financed by the issuance of securities to the public where interest is paid. As an operational procedure, the Bank usually holds the level of government deposits on its own books at a fairly constant \$10-25 million.

Secondly, with respect to system drawdowns, the Bank is not always completely free to suddenly withdraw large amounts of money from direct clearing CPA members. This is true in the case where government balances are low to begin with.

In light of these potential disadvantages, and because the Bank always wants to have a number of tools to use, it also uses a variant of the D/R technique for day-to-day cash reserve management. This is described below.

#### c) *Bank of Canada Direct Securities Transactions with Government of Canada Accounts (Including Crown Corporations) for Cash Reserve Management Purposes*

As noted above, the Bank's ongoing day-to-day cash reserve management and monetary policy is implemented via the D/R technique. In theory, a central bank is in a position to monetize virtually all government assets and use the funds for domestic cash reserve management. For example (neglecting the legalities of the Bank of Canada Act), the Bank could theoretically buy physical assets, such as post office trucks, or paper assets, such as securities, from the Securities and Investment account or CMHC mortgages and, by writing Bank of Canada cheques for these assets, convert them into Canadian dollar cash to be redeposited in the financial system. In practice, however, the Bank of Canada Act sets out the assets which the Bank can buy and, therefore, monetize. The monetizable assets generally fall into two categories—Canadian dollar securities issued by the government or held by government accounts or the general public, and foreign securities which are generally held by the Exchange Fund Account. (In 1985-86, the Bank also monetized its advances to banks for bailouts.)

Looking first at domestic assets outstanding and neglecting new issues, government accounts, including the Securities and Investment account, held some \$4.8 billion in Canadian dollar securities in



September 1988. One way the Bank could conceivably flush the system if the redeposit of ordinary government revenues is too low would be to buy government securities from the appropriate government account under a repurchase agreement and credit the government's deposit account at the Bank of Canada. (This bookkeeping transaction, per se, has no impact on bank cash.) Then, the Bank could transfer the increase in government deposits to chartered banks using the normal redeposit technique.

This type of transaction, if it were undertaken, would show up in two places on the weekly Bank of Canada Statement. On the Bank of Canada's balance sheet, holdings of government securities rise. This is balanced on the liability side by an increase in government deposits at the Bank. If and when these funds are deposited in the banking system as part of a government redeposit, chartered bank deposits at the Bank of Canada or notes in circulation become the offsetting Bank of Canada liabilities. Also, the distribution of government securities, shown on page 10 of the WFS, shifts, with Bank holdings rising while those of government accounts fall.

In practice, however, the Bank acts mainly to provide a service to these accounts; it does not buy securities from or sell to these government accounts as part of its cash reserve management operations. And, even if the Bank undertook such transactions, they could not be done in size simply because there are fewer and fewer Canadian government investment accounts.

There is, however, a second major source of monetizable securities—the several billion dollars of foreign securities held by the Exchange Fund Account (EFA) which is a separate accounting identity. The Bank can use this account to implement its cash management policy. (The Minister of Finance can also hold foreign exchange reserves—Canada's position with the IMF in the General Resources account—and so can the Receiver General, though these holdings are normally very small.) In fact, during the 1970s the Bank of Canada relied heavily on alterations to its net foreign asset position to provide temporary funds to the domestic banking system.<sup>37</sup> Often, swaps and swap

reversals are done in conjunction with the purchase or sale of bonds or Bills. This reflects the Bank using the D/R to neutralize the cash impact of the security sale and so maintain its target cash setting for the system.

*d) Bank of Canada Alterations to Its Net Foreign Asset Position (Swaps with the Exchange Fund Account) as a Technical Complement to and an Extension of the Drawdown/Redeposit Technique for Cash Management Purposes*

Buying (and selling) foreign assets by the Bank for the Exchange Fund account—Exchange Fund swaps for cash management purposes—is a technical complement to the D/R technique. Thus, the D/R technique has been discussed here (even though it is a liability side concept) to provide the necessary mechanism for transferring funds from the government's account at the Bank of Canada to the financial system. This is necessary because the EFS technique creates the funds by monetizing FX reserves and these funds are redeposited using the D/R technique. Exchange Fund swaps were first mentioned by the Bank of Canada in the mid-1960s (*Annual Report*, 1965). Since that time, extensive use has been made of these swaps as a technical complement to the Bank's ongoing management of system cash.

*i) The Mechanics*

The mechanics of altering the level of foreign assets held by the Bank and the Exchange Fund account (a separate accounting identity), via swaps, in order to be able to inject or withdraw cash from the domestic banking system, may be outlined in five steps.

First, the Bank buys foreign assets from the Exchange Fund account (usually U.S. Treasury Bills or short Treasury Notes held by the Exchange Fund account at the Federal Reserve) under an agreement to resell these back to the Exchange Fund at some future

<sup>37</sup> The D/R technique is discussed separately from Exchange Fund swaps in spite of the fact that Exchange Fund swaps are really a technical complement to the general technique (i.e., Exchange Fund swapping is simply an internal mechanical extension of the D/R technique). *It is not a separate technique*. The separation has been made here for two reasons. First, it allows the detailed specifics of the D/R and EFS to be discussed as thoroughly as possible.

Second, EFS will be shown to be a way of *creating new money* by monetizing FX reserves, while the D/R is the *mechanism* for transferring all funds (existing funds on deposit plus new funds created by the EFS) into the financial system. While it is true that a swap would not be done without the following redeposit, the fact that D/Rs are done daily for all cash, while swaps are only done on occasion to create new cash means that the two concepts are quite distinct.



date at a specific exchange rate.<sup>38</sup>

The Bank purchases U.S. dollar securities at today's "spot" price (closing rate) and then sells them for forward delivery back to the Exchange Fund at the same price; that is, at the spot exchange rate which prevailed when the purchase was made. Thus, the swap is eventually unwound at the same spot price even though half the transaction is done forward. Further, despite the Bank purchase and resale, there is no terminal date for the resale so *there is no automatic unwinding* of an EFS. (In foreign exchange jargon, there is an "open" forward contract.)

Second, since the Bank then owns U.S.-pay securities under a PRA, the "other investments" figure on its balance sheet (entry 6) goes up by the Canadian dollar equivalent and the assets of the Exchange Fund account temporarily fall by the same amount.<sup>39</sup> However, since the Bank did not take on a corresponding foreign liability, the foreign currency liability position remains unchanged and the *net* foreign asset position (assets minus liabilities) increases by the Canadian dollar equivalent of the swap.

Third, the Bank pays the Exchange Fund account in Canadian dollars for its U.S. securities by crediting the Canadian dollars to the government's account with the Bank of Canada (it prints the money). This results in an offsetting increase in Bank liabilities (i.e., Government of Canada deposits at the Bank of Canada—entry 11a).

Fourth, the additional funds on deposit at the Bank are then redeposited in the banking system, using the D/R technique. The net impact of the swap is to facilitate the provision of new cash to the domestic financial system (i.e., cash that did not exist prior to the swap), while maintaining government balances at a nominal level on the Bank of Canada's books.

Fifth, since swaps are temporary in nature, a swap is not fully completed until it is unwound. This is done

simply by reversing the process discussed above. The reversal is usually associated with drawdowns designed to drain reserves from the banks. However, the Bank may reverse a swap when it obtains new issue bonds to eliminate an underbought position. Here it may simply do the reversal to offset the cash reserve impact of the Bank of Canada taking down (net) new issue Government of Canada bonds or Treasury Bills. In fact, the Bank has on occasion noted that its new issue takedowns of market bonds are being applied toward a reduction in Exchange Fund swaps.<sup>40</sup>

Finally, it should be noted that the amount of net foreign asset swap activity is constrained by Canada's level of foreign exchange reserves. In fact, the constraint is more binding than this. Assuming that the Bank would not use gold, SDRs or lines of credit with commercial banks or foreign central banks for domestic cash reserve management, the binding constraint on Exchange Fund swaps becomes the level of *foreign currency securities* held by the EFA. And, since at least \$1-1.5 billion would have to be held "free" in case there is a run on the Canadian dollar, it can be seen that the Bank's ability to do cash management swaps is constrained when the Canadian dollar weakens and/or when foreign exchange reserves are low. Gold sales since 1979, however, imply that gold can be monetized. In the future, the SDRs may also be monetized if SDRs became a convertible currency.

## ii) Assessing the Degree of Foreign Asset Swap Activity by the Bank of Canada on a Week-to-Week Basis

An approximate estimate of the Bank's total swaps outstanding at any point in time is given by the "other investments" entry on the Bank's balance sheet.<sup>41</sup> The net swap activity (swaps and their unwinding), on a week-to-week basis, can be assessed from page 1 of the Statement by calculating the week-to-week change in "other investments", entry 6.

<sup>38</sup> The Exchange Fund account already has these foreign assets which it purchased using Canadian dollar government balances. When the Fund sells these foreign assets, it always obtains Canadian dollars which again become part of government balances on deposit with the Bank.

The Exchange Fund account's securities are held primarily at the Federal Reserve Bank of New York. When a swap is done, the Fed is asked to transfer the securities from the Exchange Fund account at the Fed to the Bank of Canada account, also at the Fed.

<sup>39</sup> Exchange Fund account assets fall when the swap is done but then rise to their former level when the swap is unwound.

<sup>40</sup> Note that these transactions involving foreign securities are handled in a closed system. There is no activity taking place in the foreign exchange market and, in fact, it is axiomatic that the Bank does not operate in the foreign exchange market to manage chartered bank cash.

<sup>41</sup> Excluding the \$2.6 million investment in the BIS, the "other investments" figure is usually an exact reflection of the swap activity in foreign assets.

Typically, the Exchange Fund swaps (“other investments” entry) will show a large plus when government cash balances at the Bank of Canada would otherwise drop sharply (and vice versa) as the Bank offsets the potential sharp swing in the cash balance impact on the banks via the swap. However, the shift in the government’s deposit balance will not actually show up on the weekly Bank Statement because it has been offset internally by the Bank.

### iii) Advantages of Exchange Fund Swaps

Swaps offer the same general advantages as the D/R technique when they are viewed in their narrowest sense (i.e., separate from the pure drawdown and redeposit mechanism). Like the D/R, swap transactions can be done quickly, in large or small size, are flexible, equitable and do not have direct interest rate or exchange rate effects. These characteristics are often quite important in day-to-day cash management of the banking system, particularly when it is considered that the Bank would rather use the D/R technique together with its technical complement—Exchange Fund swaps—for day-to-day cash reserve management.

There are, however, several other specific technical advantages from the authority’s point of view. First, and most important, the Bank sometimes needs to create temporary assets and to do this quickly. This could be to offset a temporary direct drain on bank cash, via public currency demands on banks, the need to provide for a seasonal increase in currency in circulation, or when the banking system suddenly needs more cash because of a jump in required reserves resulting from the growth in bank deposits. The cash drain situation has been particularly noticeable each year in December when the public withdraws paper currency from the banks. Thus, there has been a tendency to do a large volume of FX swaps in December (and under the old Bank Act to buy Bankers’ Acceptances) to cushion banks against the potential seasonal drop in their deposits. These swaps were then typically unwound in January when currency in circulation drops and bank deposits rise. Also, the banks usually need a cash injection in December because they usually face a substantial jump in required reserves at that time, reflecting the CSB campaign. This is because CSB purchasers pull money out of personal savings accounts against which the banks only have to hold the lower 2 or 3 percent reserve requirement; these funds are then initially

deposited in the federal government demand deposit account, against which the reserve requirement is 10 percent.<sup>42</sup>

Second, the Bank will also use Exchange Fund swaps when it does not want to either permanently increase its assets via monetizing new issue federal debt or buy these assets in the secondary market and thereby employ open market operations. Here, the Bank may not want to buy secondary market securities to directly lower interest rates and provide permanent and direct cash reserves to the system. This is because the market would view open market purchases as having an intended direct and powerful impact toward loosening policy and lowering interest rates at a time when the Bank’s policy may be acting to accommodate the system or tighten it.

Third, the Bank uses swaps to provide flexibility for new issue takedowns. It can use a swap reversal in conjunction with the D/R technique to offset all or part of the change in Government of Canada deposits at the Bank of Canada resulting from its own takedown of a new issue. This, in turn, allows the Bank to smooth out the impact of a new issue takedown on bank cash and money supply. The smoothing facility is important because the need for currency and the deposit liabilities of the banking system grow continuously and so, therefore, do required reserves each month. Since these reserves are Bank liabilities, these also grow *continuously*. But, the Bank can only obtain balancing new issue bond and Bill assets *on occasion*—when there are new issues (given that it does not want to affect interest rates by secondary market purchases). Thus, there is a tendency for the Bank of Canada to run behind on funded assets on its balance sheet, i.e., to be underbought. Swaps are used as the flexible asset to fill in the asset gaps.

Over and above these three key advantages for swaps, there are two other less important technical advantages. First, particularly when government balances are low, the Bank may not be able to redeposit sufficient funds in the banking system to implement its ongoing monetary policy. Additional funds for deposit can be created quickly by the Bank writing swaps with the Exchange Fund account.

Second, the Bank does not like to show large government deposits on its books and does not like to monetize FX assets and leave the money where the government might spend it. Thus if the swap funds are

<sup>42</sup> These are the reserve requirements under the 1980 Bank Act.

not needed for redeposit in the banking system the Bank will quickly unwind them.

iv) Some Broader Implications of Bank of Canada Swapping Foreign Assets as a Technical Complement for Cash Reserve Management Policy

The swapping procedure is a useful way of managing bank cash on a short-run basis, assuming that swaps will be reversed by the Bank upon acquiring new issue securities. As discussed above, growth in chartered bank liabilities leads to a certain growth in Bank of Canada liabilities which, in turn, requires balancing assets. Over the longer term, these assets should normally be Government of Canada bonds or Bills if the liabilities are considered permanent, although in the short run virtually any assets, including those obtained via Exchange Fund swaps, will suffice. However, if these swaps are considered in the wider context of debt management policy, then they become equivalent to Bank of Canada new issue bond takedowns. If they are not unwound, they have the same impact as the government doing a private placement bond issue with the Bank (although it is also possible to view these swaps as taking the place of a government "tap" issue, which is a common financing technique used in other countries).

The interesting question to ask here is whether cash management swaps can be employed as a means of financing a government deficit. This technique was in fact used to offset a chronic underbought position during the first half of the 1970s and as such the swaps did provide funds to help finance the government. FX swaps outstanding grew from an annual average of about \$100 million in 1970-71 to a peak of about \$1.1 billion in 1976. Since 1976, the annual average has fallen steadily, and there have been more and more weeks when there were no cash management swaps outstanding. This indicates that FX swaps are no longer being used as a temporary means of financing the government.

Assuming all net new government cash will be supported by Canadian or foreign funded obligations, it is appropriate to think of cash management swaps outstanding as a direct charge on the government's cash balance since the cash balance includes the impact of swaps. This is one reason why the government has, on occasion, announced with some new federal bond issues that it would run down swaps

by the same amount as the Bank bond takedown. *The Bank is simply funding the swaps.*

The second reason for reversing swaps in conjunction with new issue takedowns is that the Bank does not want to give the impression of monetizing debt, though the unwinding may not always take place if swaps outstanding are already low.

v) The Implication of Bank of Canada Foreign Asset Swaps with the Exchange Fund Account for the Foreign Exchange Market

It is important to note that Exchange Fund swaps for cash reserve management should not be confused with inter-central bank asset or currency swaps which are totally different and done for foreign exchange considerations. However, some analysts may look at a big increase or decrease in holdings of "other investments" (foreign securities held by the Bank) as reflecting intervention in the foreign exchange markets by the Bank to buy or sell foreign securities. *In fact, WFS data tell us nothing directly about the Bank's activity in foreign exchange markets.* Although the Bank intervenes in the exchange market, *it does so as agent on behalf of the Exchange Fund account.* Therefore, virtually all foreign exchange transactions in the market are reflected in the accounts of the Exchange Fund, not in the Bank of Canada accounts.

Swaps between the Bank and the FX Fund, being bookkeeping entries only, have no direct impact on the foreign exchange market or on the level of official reserves. Canada's foreign exchange reserves are defined to be all officially held assets of the Government of Canada. These include four components—Foreign Exchange Fund assets, foreign assets held by the Minister of Finance and the Receiver General, and foreign assets held by the Bank of Canada. Bank of Canada swaps with the Exchange Fund account *only alters the mix of holdings* between the Bank and the Exchange Fund, not the total.

It is, however, important to note that this asset class can also be affected by international currency developments when they affect the Bank's holdings of foreign securities. For example, in 1972 when the Canadian dollar weakened, the Bank sold the Federal Reserve \$272 million of Canadian securities and obtained \$250 million in U.S. dollar securities. This would lead to a decline in the Bank's Canadian dollar security assets, an increase in general public holdings of Canadas and an increase in the Bank's holdings of

“other investments” with no effect on chartered bank cash. Such transactions would be rare and always publicly announced so that they can be separated from Exchange Fund swaps.

## 7. Foreign Currency Deposits

In addition to holding foreign securities such as U.S.-pay Treasury Bills, the Bank also holds foreign currency deposits. These deposits increase when the Bank, as fiscal agent for the government, receives FX loan proceeds (which are immediately passed to the government), and fall when the Bank makes interest payments on outstanding foreign debt. These foreign deposits are mostly held in U.S. funds. However, the Friday morning balance sheet separates out the U.S. dollar deposit assets from the other currencies. The afternoon release does not provide this breakdown.

Under the 1967 Bank of Canada Act, the Bank only had the power to carry foreign currency deposits with foreign *central banks*. However, under the 1980 Act, these deposits can now also be carried with both Canadian and foreign commercial banks as well as with foreign central banks. This was included in the 1980 Act to facilitate the Bank's foreign exchange operations. Unlike the “other investments” entry discussed above, which usually only includes dealings in foreign currency assets *where these are used for domestic cash reserve management*, the foreign currency deposit entry does capture most Government of Canada foreign borrowings and/or currency swap agreements with foreign central banks when these are handled by the Bank in such a way as to pass through the balance sheet.<sup>43</sup> For example, during the period 1977–1986, with the weak Canadian dollar, the federal government and the Bank as fiscal agent were active in the foreign exchange market and borrowed foreign currencies to replenish Canada's foreign exchange reserves. These borrowings included drawings on U.S. dollar lines of credit with Canadian and foreign commercial banks as well as bond borrowings in U.S. dollars, German marks, Swiss francs, and Japanese yen.

<sup>43</sup> One situation where a foreign borrowing which was handled by the Bank would not show up in this entry is where the Bank borrowed foreign *securities* directly, say, from the Fed. As noted earlier, this transaction would be reflected in the “other investments” entry.

4	5	6	7	8	9
to f ian on ux le tion e ents	Invest- ments in IDB Titres de la BET	Other invest- ments(2) Autres place- ments(2)	Foreign currency deposits Dépôts en monnaies étrangères	All other assets Autres éléments de l'actif	Total assets Total de l'actif
	B12 B113709	B14 B113711	B15 B113712	B13 B113710	B1 B113700
	-	960	402	497	19,196
	-	758	342	498	19,956
	-	44	334	517	20,234
	-	3	259	477	20,448
	-	3	292	496	20,432
	-	23	352	517	19,969
	-	3	373	517	20,152
	-	150	317	537	20,382
	-	3	215	471	20,050
	-	3	267	495	20,426
	-	3	244	460	20,540
	-	3	309	483	20,775
	-	3	325	506	21,327
	-	293	288	481	20,725
	-	556	286	500	21,136

In addition to foreign currency borrowings via bank loans and bond issues, there is a third international borrowing technique that could be used by the Bank which would also be reflected in the foreign currency deposit entry, inter-central bank *currency swaps* (since such swaps are reflected on the Bank of Canada's books, not on the books of the Exchange Fund). Thus, Government of Canada inter-central bank swaps (e.g., a Federal Reserve deposit of U.S. dollars with the Bank under an inter-central bank swap) could also account for an increase in foreign currency deposits on the Bank's books. Generally speaking, however, these transactions are rare, and they are always publicly announced.

Typically, all foreign currency obtained as proceeds from foreign borrowings will show up in the foreign currency deposits entry with a Canadian dollar value. On both bank loans and foreign bond issues, for example, the foreign currency proceeds from borrowings, and the funds actually received are initially credited to the Bank's foreign currency deposit account. If the foreign currency deposits are

kept on the Bank's books, they will continue to show up in this entry as the Canadian dollar value of the foreign funds borrowed.

*However, the normal case is for the Bank to book these deposits with the Exchange Fund account, reflecting the fact that the Bank is acting as agent on behalf of the government's Exchange Fund account.* As a result, there is typically no permanent impact of these borrowings on the Bank's balance sheet. These transactions would normally only show up on the Bank's books for at most one day, and the impact disappears once the foreign currency assets are booked with the Exchange Fund account. As a result, the Bank Statement would not normally show the proceeds from foreign bank loans or securities issues as foreign currency deposits unless they were brought onto the Bank's books on a reporting day (i.e., settled on a Wednesday). However, if there were a regular flow of foreign borrowings by the Bank on behalf of the Exchange Fund account (e.g., drawings, repayments and redrawings of bank credit lines), then this asset entry could show substantial changes on a day-to-day and week-to-week basis.

It is also worthwhile to set out how these asset transactions would affect the rest of the Bank's balance sheet. First, paralleling the increase in foreign currency assets, the foreign currency liabilities entry would also rise by the Canadian dollar equivalent of the foreign borrowing (*ceteris paribus*) to reflect the fact that the loan proceeds have to be repaid in the future. For example, if the Bank borrows U.S. dollars from the Federal Reserve, its assets rise, but this is matched on the liability side because the Bank would give the Fed the equivalent amount of Canadian dollars (assuming there are no other offsetting items). Subsequently, both foreign currency deposit assets and foreign currency deposit liabilities fall as the foreign borrowings are transferred from the books of the Bank of Canada to the Exchange Fund account.

If some or all of these foreign funds booked with the Exchange Fund are then subsequently converted into Canadian dollars to stabilize the exchange rate, Canada's foreign currency assets *held by the Exchange Fund* fall and Canadian dollars will be pulled out of the system, reducing bank cash. The Canadian dollar proceeds from this sale would then be credited to the government's deposit account at the Bank.

Once the Canadian dollars are on deposit at the Bank, two things can be done. First, the Bank can simply allow government cash balances on its books to rise. Here the money is removed from the system

and the system will automatically tighten. Second, the Bank could neutralize the FX activity by redepositing the funds into the chartered banks to leave bank cash unchanged (i.e., the Bank would not normally let its foreign exchange activities affect cash reserve management of the banking system).

## 8. All Other Assets

Prior to July 16, 1986, by far the biggest component of the "all other assets" entry was the Bank of Canada asset float. This mainly included cheques in the process of being collected by the Bank which were drawn on chartered banks and other CPA members for credit to the Bank of Canada or Government of Canada. Also included were government collections and payments in process of settlement. This entry was reflected on a "net" basis. When it was a net asset for the Bank, as in most months, it was shown on the asset side of the balance sheet; when it was a net liability, it was shown on the liability side in entry 14.

On July 16, 1986, the Canadian financial system shifted to "retroactive settlement" (discussed in more detail in chapter 3). This had the effect of shifting to same day settlement among direct clearers and dramatically reduced float as a component of "all other assets" for the Bank of Canada. Government of Canada items in transit (net) were in fact essentially eliminated while cheques on other banks were very small.

Thus, since July 1986 the "all other assets" entry has effectively included only two large components. The first is the cost of Bank premises. This includes land, buildings and equipment, less depreciation—\$141 million at year end 1987. (Depreciation is calculated on the declining balance method using a rate of 5 percent for buildings, 35 percent for computer equipment and 20 percent for other equipment.)

The second element is accrued interest on the Bank's investment portfolio which has not yet been transferred to the government's deposit account. This latter item includes the coupon return on all securities held by the Bank outright or on PRA, the interest return on all advances to members of the CPA and the premium or discount on all securities bought above or below face value, amortized to maturity. These funds are transferred in stages to the government each year. The timing of the transfer is discussed later as an element of the Bank's cash reserve management policy.

4	5	6	7	8	9
to of lian on aux de ation de ments	Invest- ments in IDB Titres de la BRI	Other invest- ments(2) Autres place- ments(2)	Foreign currency deposits Dépôts en monnaies étrangères	All other assets Autres éléments de l'actif	Total assets Total de l'actif
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-	-	23	352	517	19,969
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-	-	150	317	537	20,382
-	-	3	215	471	20,050
-	-	3	267	495	20,426
-	-	3	244	460	20,540
-	-	3	309	483	20,775
-	-	3	325	506	21,327
-	-	293	288	481	20,725
-	-	556	286	500	21,136

The Friday morning balance sheet separates the value of Bank premises from the rest of the "all other asset" data.

## 9. Total Assets

Total Bank of Canada assets is the total of lines 1 through 8.

## II. BANK OF CANADA LIABILITIES

There are five broad categories shown on the liability side of the balance sheet. Entries 10 and 11 are subdivided into two and four parts respectively.

### 10. Bank of Canada Notes in Circulation

#### a) Total Notes Issued

The Bank of Canada has the responsibility for supplying banknotes in Canada. These notes (along with the other components of "high powered"

money), are created by the Bank buying securities which are captured in entry 1 on the asset side of its balance sheet. (As discussed previously, the Bank buys securities from the government as assets at a pace determined largely by the public's demand for banknotes.)

Almost all of these notes have been issued by the Bank of Canada. However, there are a small amount of notes outstanding which were issued years ago by chartered banks, the Dominion of Canada, the provinces and defunct banks. These notes are being retired, and liability for them has been taken over from the original issuers by the Bank.

The actual notes are designed by the Bank, but they are physically printed by two outside companies. The Bank then distributes new notes to the chartered banks in exchange for unfit notes, which are destroyed, and to meet the demand for more notes in circulation. The Bank also receives notes in deposit from institutions with surplus holdings and recirculates them to institutions whose stocks of notes have been run down.

There are eight notes currently issued and/or outstanding: \$1, \$2, \$5, \$10, \$20, \$50, \$100 and \$1,000.<sup>44</sup> The life span for a note in circulation ranges from about one year, for the lower denominations, to five to eight years for higher denominations.

In March 1986 the Bank of Canada announced that it would be phasing in a completely new series of Canadian banknotes. The \$2 note and \$5 notes were introduced in 1986 with other denominations to follow.<sup>45</sup> The \$1 bill was not redesigned because of the introduction of the \$1 coin in mid-1987 and the

<sup>44</sup> The Bank of Canada's involvement with coinage is very limited—this being handled mainly by the Mint. In March 1986 the federal government announced that it would mint a \$1 coin in 1987. This coin initially trades with the \$1 note but will gradually replace the \$1 note, which is being phased out. The phase-out of the \$1 note will start on June 30, 1989 and be completed by the end of 1990. Although the \$1 coin costs about twice as much to produce as a \$1 bill (twelve cents per coin vs. six cents per bill in 1986), the coins are expected to last 20 years, compared to an average of only one year for \$1 banknotes. Thus, coins are much cheaper to produce over the longer term. The coin will also help reduce bill sorting costs for public transit authorities, make more products available via coin operated machines, raise revenue from numismatic demand and assist nickel producers, although this will be partly offset by job losses at paper mills and printing plants.

<sup>45</sup> Bank of Canada Press Releases, March 14, 1986, April 25, 1986, and August 18, 1986.

phasing out of \$1 bills with no more \$1 bills being issued after June 30 1989. (However, all outstanding bills will remain as legal tender.) On Monday, April 28, 1986 the first of the new notes, the \$5 bill, was made available to the public. Following this, on Tuesday, September 2, 1986, the first of the new \$2 notes was made available to the public. The new notes will circulate with the old as the old are being phased out.

The banknotes were redesigned to increase security against counterfeiting in the light of prospective advances in printing and photocopying technology (especially colour copying), to assist the blind and visually impaired in distinguishing the various denominations and to improve the efficiency of processing banknotes on high-speed note-sorting equipment.

The security elements of the new notes include several graphic features to deter counterfeiting, including the larger size of the portrait as well as numerals and words printed on the face in very small characters which can be read with a magnifying glass. Common to both sides of the note are multi-directional fine line patterns and a range of pastel colours across the note.

The visually impaired will be aided by much larger and more distinct numerals and raised print on the note and, to assist the blind, the new note will be readable by a small handheld electronic device that will "speak" the denominations.

On the back of the note are two serial numbers, and a bar code appears across the bottom. The bar code is used by the Bank of Canada in processing banknotes on high-speed note-sorting equipment. By the end of 1986 this equipment had been installed at all Bank of Canada agencies except one.

The designs on the back of the new notes are all changed. Birds found across Canada are the focal point, replacing a variety of Canadian scenes. The dominant colours for each denomination are unchanged. The new notes are the same size as the existing notes and are printed on the same paper. This paper contains small green disks, or planchettes, randomly distributed throughout. The printing processes employed remain the same. The face of the new note is printed using the intaglio (steel engraved) process combined with lithography; the back is printed using lithography and letterpress.

#### *b) Notes in Circulation*

The Bank's balance sheet shows the breakdown of notes in circulation. Currency in circulation is held in

two ways. First, notes are held by chartered banks across the country (vault and till cash) to satisfy the public's demand for notes. Once a month these notes are counted and the Bank of Canada allows them to satisfy a portion of the primary reserve requirement. (Note: the funds captured in this entry are not physically held at the Bank of Canada.) It is also important to state that these primary reserves are held by the banks as assets even though they show up on the liability side of the Bank of Canada's balance sheet (as do all primary reserves). Second, the largest percentage of notes is circulating in the hands of the public. (Notes held by the Bank of Canada are not in circulation.) In September 1988, total notes in circulation at about \$18.8 billion accounted for about 86 percent of total Bank liabilities.

The chartered bank component of note holdings in September 1988 totalled about \$3.6 billion, while non-bank public holdings were \$15.3 billion.<sup>46</sup> The split between chartered bank and public note holdings can be important for the Bank's short-run cash management policy, but the breakdown itself is outside the central bank's control and depends on the public preference for note holdings compared to bank deposits at any point in time. This, in turn, depends on nominal GDP growth, the day of the week (public and chartered banknote holdings tend to be high early in the week, while Bank of Canada note holdings tend to rise on Fridays when the banks deposit their spare cash) and the season of the year (public note holdings rise in the spring and December vacation/shopping periods).<sup>47</sup> Also, institutional changes can affect the demand for notes. For example, the increased use of automatic banking machines has increased the demand for notes by the banks.

<sup>46</sup> A finer breakdown of public holdings between notes (and coin) held by the business sector in tills and vaults and notes (and coin) held by the consuming public is desirable, but this data is not publicly available.

<sup>47</sup> If the public demands to hold more notes (currency), they obtain them by drawing down their deposits with the chartered banks. This leads banks to purchase more notes from the Bank of Canada and, in settlement, bank balances at the Bank are reduced. At this point, there is no net impact on money supply because the drop in publicly held bank deposits is offset by the increase in publicly held currency. However, bank balances at the Bank of Canada, and hence bank cash, would be reduced—a situation which, through the deposit multiplier, leads to a *theoretical* contraction in the money supply. In practice, the Bank normally forecasts and then offsets this effect to maintain bank cash unaffected.



10a 10b			11a	11b	11c
BANK OF CANADA: ASSETS AND LIABILITIES (Millions of dollars) BANQUE DU CANADA: ACTIF ET PASSIF (En millions de dollars)					
Liabilities Passif					
Notes in circulation Billets en circulation			Canadian dollar deposits Dépôts en dollars canadiens		
Held by Débiteurs	Total		Government of Canada Gouvernement canadien	Chartered banks Banques à charte	
Chartered banks Banques à charte	Other Autres	Total			
B52 B113716	B53 B113717	B51 B113715	B54 B113718	B55 B113719	
2,958	13,229	16,187	13	2,148	
2,909	13,474	16,383	245	2,524	
3,042	13,749	16,791	316	2,302	
3,011	14,114	17,125	374	2,307	
2,913	13,736	16,649	1,055	2,020	
3,095	13,681	16,777	11	2,311	
3,150	13,717	16,867	181	2,235	
3,010	13,863	16,872	15	2,642	
2,813	14,124	16,937	108	2,393	
3,066	13,990	17,056	346	2,353	
3,001	14,113	17,114	794	2,057	
3,164	14,229	17,393	248	2,426	
3,056R	14,615R	17,671	225	2,769	
3,313R	14,449R	17,762	12	2,225	
3,240	14,336	17,576	15	2,673	

10a 10b			11a	11b	
BANK OF CANADA: ASSETS AND LIABILITIES (Millions of dollars) BANQUE DU CANADA: ACTIF ET PASSIF (En millions de dollars)					
Liabilities Passif					
Notes in circulation Billets en circulation			Canadian dollar deposits Dépôts en dollars canadiens		
Held by Débiteurs	Total		Government of Canada Gouvernement canadien	Chartered banks Banques à charte	
Chartered banks Banques à charte	Other Autres	Total			
B52 B113716	B53 B113717	B51 B113715	B54 B113718	B55 B113719	
2,958	13,229	16,187	13	2,148	
2,909	13,474	16,383	245	2,524	
3,042	13,749	16,791	316	2,302	
3,011	14,114	17,125	374	2,307	
2,913	13,736	16,649	1,055	2,020	
3,095	13,681	16,777	11	2,311	
3,150	13,717	16,867	181	2,235	
3,010	13,863	16,872	15	2,642	
2,813	14,124	16,937	108	2,393	
3,066	13,990	17,056	346	2,353	
3,001	14,113	17,114	794	2,057	
3,164	14,229	17,393	248	2,426	
3,056R	14,615R	17,671	225	2,769	
3,313R	14,449R	17,762	12	2,225	
3,240	14,336	17,576	15	2,673	

## 11. Canadian Dollar Deposits (at the Bank of Canada)

### a) Government of Canada Deposits

The Bank of Canada, in performing its fiscal agency functions for the Government of Canada, aids in the operation of the federal government's deposit account and manages the location of its cash balances on behalf of the Receiver General for Canada.

As discussed earlier with respect to Exchange Fund swaps in entry 6, the Bank's ability to shift federal government cash balances back and forth between the government's deposit account with the Bank (entry 11a) and the chartered banks is commonly referred to as the drawdown and redeposit technique. This forms the backbone of the Bank's active and passive cash reserve management operations. The ability of the Bank to shift government deposits in the banking system allows it to undertake more efficient cash reserve management operations. In concept, the D/R technique should be discussed here because it relates to Bank of Canada liabilities; however, it was discussed with respect to asset entry 6 because the D/R technique is central to explaining and understanding Exchange Fund swaps—an important Bank of Canada asset.

Generally speaking, because changes in entry 11a reflect the Bank's D/R technique on a week-to-week basis, it could be expected that this entry would show wide swings from week to week. However, this is not usually the case. As will be seen from the chapter 4 discussion of excess cash reserves, the Bank is able to combine the pure D/R technique with Exchange Fund swaps (entry 6) and profit transfers (included in entry 14) to produce a high degree of stability in this series.

In recent years, government balances held on deposit with the Bank have normally been quite low (about \$10-25 million). The main reason is that no interest is earned on this money.<sup>48</sup> Rather, most of the government's cash balances have been deposited in the banking system where the funds earn interest. Low deposits at the Bank of Canada are also desirable for political reasons.

There are, however, two occasions, one fundamental and one technical, when this entry can show a large increase. First, for policy purposes, the Bank may decide to withdraw government cash from the chartered banking system and sterilize it by

<sup>48</sup> Under the Bank of Canada Act, paragraph 48(4), the Bank is not allowed to pay interest on federal or federal agency cash balances. Also, it is prohibited from paying interest on deposits of all CPA members and provincial governments.



depositing it with the Bank of Canada. In this case, entry 11a would show a large increase.

A textbook example of this occurred in late 1981. The story started in September 1981 when the federal government announced, at the top of the interest rate cycle, that the first year coupon on the new Canada Savings Bonds would be 19 1/2 percent. Given that market rates then subsequently fell, Ottawa was flooded with almost \$13 billion in CSB money—at least \$5 billion more than it wanted. The large unwanted buildup in federal cash balances which resulted led the Bank to substantially reduce the size of the weekly Treasury Bill tender. (Bills outstanding fell about \$3.5 billion between November 1981 and March 1982.) To prevent this from encouraging a further decline in interest rates and the Canadian dollar, the Bank cut the secondary reserve requirement from 5 percent to 4 percent effective December 1, 1981, in order to reduce the chartered bank captive demand for Treasury Bills by about \$1.5 billion. Following the cut in secondaries, the banks became potential net sellers of up to \$1.5 billion in Treasury Bills, and the Bank stood ready to absorb a good part of these Bills to prevent a flood of them from hitting the market all at once. In late November and December, the banks sold or matured about \$1.6 billion in Bills and the Bank of Canada purchased about \$1.2 billion of them. This created the potential for a large cash injection into the system right at the time short rates were already falling and the Bank wanted to brake the decline, thus moderating the trend to a narrower spread to U.S. interest rates for foreign exchange reasons. To offset the potential cash injection the Bank had to draw down funds from government accounts at the chartered banks into the government account at the Bank of Canada.

The combined effect of the open market bill purchases and the drawdown of government funds put the Bank in an overbought position. At the time, there were no EFS outstanding to unwind to alleviate the overbought position. As a result, the deposits, shown here in entry 11a, rose from a nominal and normal \$10-25 million in mid-November to a peak of almost \$1 billion as of December 9, 1981.

There is one potential disadvantage with this technique. When the funds are taken out of the chartered banks (where interest is paid at prime less 2.5 percentage points) and redeposited with the Bank of Canada, no interest is earned. No one, and especially the federal government with a large deficit, likes to see a large amount of cash on deposit and earning no interest. However, the loss of interest

income is only a potential impact. If the additional liabilities on the Bank of Canada's balance sheet are not balanced by a drop in another liability category and are instead balanced by an increase in interest earning assets purchased from the public, as happened on this occasion, the loss of interest on the liability side is offset by an increase in interest on the asset side. Therefore, knowing the system tends to tighten in the latter part of December, the Bank began to redeposit these funds back into chartered banks, and by December 30 government balances at the Bank of Canada had fallen to \$318 million. The average excess cash setting for the December 16-30 period stood at 0.08 percent, and in the final week of the month the call loan rate declined about 200 basis points. It was this technical factor and low holiday call loan rates plus the steady reduction in the size of the Bill tender which caused the Bank rate to fall a sharp 34 basis points in the last week of December 1981.

The second occasion when this entry can show a large increase is technical. If a new Government of Canada bond issue is delivered on a Wednesday, the Bank's takedown can result in a large credit to the government's deposit account (until the proceeds are redeposited in the banking system).

11a	11b	11c	11d	11e
TIES (Millions of dollars) (En millions de dollars)				
Canadian dollar deposits Dépôts en dollars canadiens				Foreign currency liabilities Engag en mo étran
Government of Canada Gouvernement canadien	Chartered banks Banques à charte	Other members of the Canadian Payments Association Autres membres de l'Association cana- dienne des paiements	Other Autres	
B54 B113718	B55 B113719	B59 B113723	B56 B113720	B57 B11
13	2,148	63	173	220
245	2,524	117	174	170
316	2,302	91	184	169
374	2,307	53	210	95
1,055	2,020	2	183	129
11	2,311	62	196	188
181	2,235	158	165	207
15	2,642	142	195	153
108	2,393	104	187	51
346	2,353	7	256	103
794	2,057	21	210	80
248	2,426	80	186	145
225	2,769	1	164	160
12	2,225	72	219	123
15	2,673	210	205	125

#### b) Chartered Bank Deposits

The chartered bank deposit account at the Bank of Canada is used for two purposes: to hold the major

part of the chartered bank's required reserves and also to act as a buffer against gains and losses of balances at the Bank of Canada which occur as a result of payment items such as cheques clearing through the banking system. That is, the banks have to manage their Bank of Canada deposit accounts to take care of both their clearing operations and legal reserve requirements. The clearing operations are discussed in chapter 3, while the reserve requirements are discussed here and in chapter 4.

In entry 10b it was noted that chartered bank holdings of paper notes as vault notes (and coin) satisfy part of the Bank of Canada's primary reserve requirement and appear on the liability side of the Bank's balance sheet. *The second way the banks can hold these primary reserves is as deposits in their reserve accounts at the Bank of Canada.* In late September 1988, this item stood at about \$1.8 billion (accounting for 8 percent of total Bank of Canada liabilities). These deposits grew quite strongly in the 1970s, reflecting rapid economic growth and hence a fast expansion in bank deposits (against unchanged reserve requirements). However, these deposits fell in the early 1980s, reflecting reduced reserve requirements in the 1980 Bank Act and a slower growing economy.<sup>49</sup> The primary reserves held (entry 10a plus entry 11b) are normally only slightly above the minimum required by the Bank, since cash held and deposits at the Bank do not earn interest. Thus, if their deposits rise, chartered banks will have to increase their deposits with the Bank, though this is subject to a lag because of the lagged reserve requirements.

#### c) *Other Members of the Canadian Payments Association*

Under the 1980 Bank Act, non-bank members of the CPA may also maintain a deposit account at the Bank of Canada though, as noted in entry 4, these deposits would only be held to facilitate clearing transactions. Non-bank members of the CPA must hold some deposits since they cannot be overdrawn in their clearing accounts. However, they are not required to

hold a *specific amount* of these deposits since they are not subject to the primary reserve requirement. Since the new CPA became operative, six non-bank CPA members have become clearing members (to date) and are now making deposits at the Bank to facilitate cheque clearing.

#### d) *Other (Canadian Dollar Deposits)*

The bulk of the "other" (Canadian dollar deposit liability) entry is the Canadian dollar deposits of foreign central banks and official institutions (e.g., the IMF, UN and World Bank) with the Bank. Deposits of Government of Canada enterprises are also included (negligible). Prior to February 1983 this entry also included deposits of the Quebec savings banks.

11c		11d	13	14
Other members of the Canadian Payments Association <i>Autres membres de l'Association canadienne des paiements</i>		Other <i>Autres</i>	Foreign currency liabilities <i>Engagements en monnaies étrangères</i>	All other liabilities <i>Autres éléments du passif</i>
B59 B113723	B56 B113720	B57 B113721	B58 B113722	
63	173	220	390	
117	174	170	342	
91	184	169	380	
53	210	95	264	
2	183	129	394	
62	196	188	425	
158	165	207	340	
142	195	153	362	
104	187	51	270	
7	256	103	306	
21	210	80	264	
80	186	145	297	
1	164	160	336	
72	219	123	313	
210	205	125	332	

Finally, this item reflects private deposits which the chartered banks and savings banks transfer to the Bank of Canada when the accounts have been inactive and unclaimed for ten years. As of early 1988, the Bank held over 865,000 unclaimed accounts with a total value of slightly over \$55 million. The average balance was only \$56; however, there were some 40,000 accounts with \$1,000-60,000 in them. Dormant accounts earn interest of 1.5 percent per year for 20 years. Accounts worth less than \$50 are held for 20 years, at which time the balances are transferred to the government (and the money can be spent).

<sup>49</sup> Under the 1980 Bank Act, these requirements are 3 percent of Canadian dollar time deposits above \$500 million at any bank, 2 percent of time deposits below \$500 million at any bank, 10 percent of Canadian dollar demand deposits and 3 percent of foreign currency deposits booked with Canadian residents in Canada.

Accounts worth more than \$50 are held indefinitely by the Bank of Canada. (To facilitate the recovery of unclaimed balances by their owners, copies of all records have been placed in Bank of Canada Agencies and can be directly accessed by the public.)

## 12. The Monetary Base (High Powered Money)

The monetary base, so-called high powered money, can be calculated from either the asset or liability side of the Bank of Canada's balance sheet, although the liability side calculation is far easier.

The widest definition of the monetary base includes all currency in circulation (held by chartered banks and the general public) plus chartered bank deposits of primary reserves with the Bank of Canada—entries 10a, 10b and 11b. A narrower definition for the monetary base includes these entries but subtracts Bank primary reserves held against federal government deposits and private sector float.<sup>50</sup>

Chartered bank holdings of primary reserves are based on the total dollar deposits in the banking system. Thus, the public's desire to hold currency rather than time or demand deposits has a marked impact on the monetary base. Also, the deposit mix itself affects the monetary base. A shift from time deposits to demand deposits increases the monetary base because the banks have to increase their deposits at the Bank of Canada (given the higher reserve requirement on demand deposits) and vice versa. The demand for currency and deposits, in turn, depends on the general level of economic activity, prices and interest rates as well as on seasonal factors.

<sup>50</sup> In the U.S., the monetary base is adjusted and called the "adjusted monetary base" to reflect a reserve adjustment magnitude (RAM) which eliminates the impact on the monetary base arising from changes in reserve requirements or changes in the method of classifying deposits for reserve requirements. For example, if reserve requirements are reduced, as in Canada, the monetary base would decline. However, this would increase the RAM by the same amount so when the RAM is added to the monetary base the adjusted base is unchanged.

In Canada the Bank does not publish either a monetary base or adjusted monetary base series.

Under the 1980 Bank Act, chartered banks are allowed to count coins as part of their vault and till cash and therefore as part of their deemed deposit at the Bank of Canada. Thus, total coins held by banks and non-banks are now included in the monetary base. However, the Bank does not publish the coin series separately.

In addition, the banks themselves demand that part of the monetary base be directly held as *excess reserves*, although the actual dollars involved are very small (\$40-50 million) compared to the size of the total base. This demand depends on factors such as the size of the economy (nominal GDP), the trend in economic activity, the size and composition of the total deposit base, the level, structure and trend of short-term interest rates, and the yield on chartered bank assets.

The general public's demand for the monetary base reflects the need for currency and the public's holdings of both demand and time deposits. This demand is positively related to economic activity (real growth and inflation) and wealth, and negatively related to interest rates.

Finally, the government has a claim on the monetary base through maintenance of deposits at chartered banks. However, since the major monetary aggregates do not include government deposits, it is theoretically necessary to net out from the monetary base chartered bank required reserves held against federal government deposits to preserve consistency.

The monetary base can also be calculated by using Bank of Canada asset items. The main item would be Bank of Canada credit created (i.e., the central bank's holdings of securities). In addition, advances to members of the CPA, the Bank of Canada net float, and net foreign currency assets are all elements of the Bank's credit creation process. These, too, are included when calculating the monetary base from the asset side.

It will be noted that the biggest element of the base, Bank of Canada credit, is theoretically under direct control of the Bank, as are net foreign assets. In fact, virtually the entire base is under central bank control. Thus, the Bank could, *if it desired*, theoretically control the amount of high powered money in the economy.

There is not, however, total control. First, the Bank of Canada has to supply currency to the public on demand; second, the reserve requirements on various deposit classes are different such that a private sector shift from one deposit class to another will alter the monetary base; third, the banks can hold excess cash or lend it out; and finally, with coins now being counted as part of cash reserves, this part of the base is outside Bank control.

*In practice, however, the Bank does not use the monetary base to control the system. Rather, it responds to the fact that it is driven by the liability side of its balance sheet.*

### 13. Foreign Currency Liabilities

The "foreign currency liabilities" entry includes foreign currency balances maintained by the federal government and balances of other foreign central banks with deposits at the Bank, although virtually the entire liability is federal foreign currency. (The Friday morning release shows these two components of foreign liabilities separately, while the afternoon statement aggregates them.) This entry is normally quite small since the Canadian and foreign governments only deposit small amounts of foreign currencies with the Bank.

### 14. All Other Liabilities

Prior to July 16, 1986, the major component of the "all other liabilities" entry was Bank of Canada cheques outstanding. This entry also included a second component—collections and payments in the process of being settled on behalf of the Government of Canada (net) and others—net payment items in transit. When this entry was a net liability, it was shown here. When the entry was a net asset, it was shown in entry 8.

	11d	13	14	15
Items of the payments res de on cana- paiements	Other Autres	Foreign currency liabilities Engagements en monnaies étrangères	All other liabilities Autres éléments du passif	Total liabilities Total du passif
	B56 B113720	B57 B113721	B58 B113722	B50 B113714
723				
	173	220	390	19,196
	174	170	342	19,956
	184	169	380	20,234
	210	95	284	20,448
	183	129	394	20,432
	196	188	425	19,969
	165	207	340	20,152
	195	153	362	20,382
	187	51	270	20,050
	256	103	306	20,426
	210	80	264	20,540
	186	145	297	20,775
	164	160	336	21,327
	219	123	313	20,725
	205	125	332	21,136

As with asset float, the shift to retroactive settlement on July 16, 1986, essentially eliminated the float component of this entry. At year end 1987, Bank of Canada cheques outstanding totalled only \$16 million versus \$935.8 million at year end 1985, and Government of Canada items in transit (net) were eliminated.

Thus, since July 16, 1986, this entry effectively only includes two other items: the first is the earned surplus of the Bank net of expenses. The Bank will normally earn a large amount of net income (profit) each year from interest on its government securities.<sup>51</sup> This net income (which is classed as "all other liabilities" on the balance sheet) increases on a dollar-for-dollar basis as interest income is earned on the Bank's investment portfolio. As the interest is earned, the Bank normally invests it in Treasury Bills. At some point, however, this net income has to be transferred to the government's deposit account at the Bank of Canada.<sup>52</sup> When this transfer is made, "all other liabilities" fall by the amount of the transfer and another liability figure, government deposits, rises by the amount of the transfer. The Bank can then redeposit this amount of government balances in the banking system. Thus, the transfer of net income to the federal government followed by its redeposit in the financial system is another way the Bank can use the D/R technique to internally alter cash reserves in the domestic banking system without changing interest rates directly.

Viewed as a cash reserve management technique, the transfer of net income is a complement to swaps. Like swaps, which are flexible Bank of Canada *assets*, net income transfers are flexible *liabilities* the Bank can use when, for example, the level of foreign exchange reserves is too low to permit the desired level of swaps.

Until the mid-1960s, interest income was invested in Bills which matured in December. Then, the entire

<sup>51</sup> Net profit includes amortization of securities purchased at a discount or at a premium to reflect the fact that at maturity the Bank of Canada collects at par on all securities bought at a discount or at a premium.

<sup>52</sup> Part of the government's higher interest expense shown in the budget accounts in recent years is being recaptured as increased net income transferred from the Bank due to an increase in securities held by the Bank. In fact, the Bank's profit of about \$1.8 billion in 1987 on total revenue of about \$2.0 billion (interest income) makes it Canada's most profitable large operation, if one judges profitability in the normal corporate sense.

transfer took place at the end of the year (December) to offset a large cash drain in the banks resulting from a big seasonal increase in currency in circulation. In recent years, however, the sheer size of the interest income has led the Bank to make the transfer in instalments to assist in cash management *during the year*. While this method of altering cash reserves in the banking system cannot be easily analysed because the Bank does not publish its earned surplus or net income information with its weekly figures, it is possible to develop a "feel" for the transfer by estimating the Treasury Bill income and how many bonds the Bank holds of each specific maturity. This is then combined with the interest rate and maturity profile for Bills and bonds to arrive at an estimate of gross income for each week. From the gross income, an estimate of weekly expenses is subtracted to arrive at estimated net weekly income.

The second component of "all other liabilities" is the total paid in capital of the Bank. This includes \$5 million held by the Minister of Finance since the Bank was nationalized in 1938 (100,000 shares at \$50 par value) and the rest fund, which is five times the paid-in capital (i.e., \$25 million which was reached in 1955; these figures have remained unchanged since the end of 1955). These data are also shown as a separate entry on the balance sheet released Friday morning.

### 15. Total Liabilities

Total Bank of Canada liabilities is the total of lines 10, 11, 13 and 14. This figure does *not* include contingent liabilities.

## III. FOOTNOTES

At the bottom of page 1 there are two footnotes. The first sets out data on uncompleted Bank securities transactions (transactions which are done but not settled) with dealers and banks in Canada to the next weekly Statement date (excluding PRAs). These are transactions which would increase or decrease

chartered bank cash unless offset by the Bank. (The transactions are uncompleted because the Bank uses settlement day accounting.) These data are set out in an attachment to the Friday morning balance sheet. The attachment to the balance sheet is shown at the end of this chapter.

### 16. Net Amount of Uncompleted Securities Transactions (Excluding PRAs) with Dealers and Banks in Canada

This footnote relates to entry 1 and refers to outstanding uncleared transactions in Government of Canada securities—Treasury Bills and marketable bonds. This entry will be positive when the Bank has bought government securities from dealers and banks which have not yet been settled. Bank purchases of a new Canada issue directly from the government are not included in uncompleted transactions unless these bonds are traded out to the street prior to delivery.

The series will be negative if the Bank has sold securities which have not been settled. Here, because this series does not separate the activity in the federal government security classes, it is impossible to tell, for example, how many short bonds are sold but not settled in a given week if the Bank also bought or sold long bonds which are not settled.

Over long periods of time, this item is normally blank for two reasons. First, it is virtually impossible that the Bank would have uncompleted Bill transactions under the retroactive settlement procedures, since Bills are for same day settlement. Second, it is unusual for the Bank to deal in longer term securities in its open market operations. Nevertheless, between September 1978 and April 1979, again in April and May 1980, and in 1984-86 the Bank did sell short, mid and long-term bonds to dealers and banks. And, on several occasions, the uncompleted entry showed negative clearing transactions, indicating that some Bank sales of bonds would not clear until the following Statement week when, unless offset by the Bank, the transactions would drain the system.

- 16 1 Net amount of uncompleted securities transactions (excluding PRA) with dealers and banks in Canada has a potential cash reserve effect of \$- millions in the latest week.  
*Le montant net des opérations sur titres non encore liquidées (à l'exclusion des pensions) avec les courtiers en valeurs mobilières et les banques au Canada a une incidence virtuelle de - millions de dollars sur les réserves-encaisse de la dernière semaine.*
- 17 2 Other investments comprise mainly holdings of U.S. dollar denominated securities.  
*Autres placements comprennent principalement les titres libellés en dollars E.-U.*

## 17. Other Investments

Footnote 2, explaining “other investments” (mainly holdings of U.S. dollar denominated securities), was discussed in entry 6.

## 18. Central Bank Credit Outstanding

### a) *Securities Held Under Purchase and Resale Agreements*

A third important series, the following week cash impact from PRAs (with money market dealers on Government of Canada securities and theoretically on “other Bills”), was also reported on the weekly Bank Statement until the Bank started to publish its revised Statement in July 1981. This figure is no longer reported as an explicit number. However, since most PRAs outstanding on a Wednesday are for less than seven days, most will clear the following week. Thus, the total PRAs outstanding on Wednesday of each week and shown in entry 2 will be a close approximation of the potential cash withdrawal in the following Statement week, unless the Bank does PRAs on “other Bills” (entry 3). Since the “other Bills” entry does not distinguish between cash purchases and PRAs, it is not possible to tell from the Friday afternoon release how many “other Bills” are held under PRA. In any case, this entry is usually zero. The Friday *morning balance sheet* does show, at the bottom of the statement, the securities held under PRA for both government securities and “other Bills”, and *the attachment to this balance sheet, shown at the end of this chapter, shows the potential impact of these PRAs on cash reserves in the following week.*

Overall, a negative figure on the attachment to the morning balance sheet indicates that dealers have done PRAs in the current week for settlement in the following Statement week. This is a cash injection in the week the PRAs are done. But, if these PRAs are for resale to dealers in the following week, the PRA figure reported on the attachment will be negative. This represents a potential draining of system cash in

the following week as dealers buy back the securities from the central bank. Here again, the Bank will normally seek to neutralize these impacts on the system.

Large negative figures for PRAs indicate the system is tight and are generally associated with rising interest rates. In fact, purchase and resale agreements outstanding for the week is one of the best series to judge the degree of tightness or ease “on the street” in a given week. These figures typically correlate well with the excess cash ratios discussed in chapter 4 and with the spread between the money market dealer overnight financing rate and the 91-day Bill rate.

### b) *Advances to Members of the Canadian Payments Association*

Prior to July 1981 the Bank also showed the next week potential impact on system cash arising out of its advances to CPA members. This data is no longer shown explicitly on the Bank Statement, nor is it shown on the Friday balance sheet or the attachment to the balance sheet.

Large liquidity advances by the Bank to chartered banks and other members of the new Canadian Payments Association (under its lender of last resort facility) usually represent a temporary injection of credit in the week in which they occur, unless offset by the Bank, but represent a draining in the following week when the advances have to be repaid. The one major exception to this rule is Bank of Canada “extended credit” type advances for bailouts. These advances may or may not be paid off in the next Statement week.

In summary then, entries 2, 4 and 16 on page 1 of the WFS, along with the morning balance sheet and its attachment, will usually show the potential impact on system cash arising from uncompleted transactions. That is, these Statements will show whether liquidity in the system will tend to rise or fall in the upcoming Statement week as a result of clearing transactions, dealer PRAs and liquidity type advances to CPA members.

FOR ATTACHMENT TO THE STATEMENT OF ASSETS AND LIABILITIES  
À JOINDRE À L'ÉTAT DE L'ACTIF ET DU PASSIF

As at/Au July 15 19 87

Potential cash reserve effect of certain  
uncompleted Bank of Canada transactions to  
the next weekly statement date  
(increasing cash +; decreasing cash -)

Effet d'encaisse potentiel, à la date  
du prochain état hebdomadaire de  
l'actif et du passif, de certaines  
transactions non dénouées de la Banque  
du Canada (augmentation de  
l'encaisse: +, diminution de  
l'encaisse: -)

(millions of dollars)  
(en millions de dollars)

1. Net Float.

Solde des effets en cours de compensation..... +33.3

2. Securities to be sold under Purchase and  
Resale Agreements.

Titres à vendre conformément  
à des accords de prise..... -167.3

3. Net Amount of Other Uncompleted  
Security Transactions with Dealers  
and Banks in Canada.

Montant net d'autres transactions sur  
titres non dénouées conclues avec des  
négociants en valeurs mobilières et des  
banques au Canada..... NIL





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# CHAPTER 2

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## AN EXPLANATION OF CHARTERED BANK ASSETS

Column	1	2	4	5	7	8a	8b	9	10	11		
Average of Wednesdays and Wednesday Moyenne mensuelle des mercredis ou données du mercredi	Page 2											
	CHARTERED BANK ASSETS (Millions of dollars) ACTIF DES BANQUES A CHARTE (En millions de dollars)											
	Canadian dollar assets Avoirs en dollars canadiens											
	Liquid assets Avoirs de première liquidité											
	Bank of Canada Billets de la Banque du Canada	Bank of Canada Dépôts à la Banque du Canada	Day-to-day loans Prêts au jour le jour	Government of Canada direct and guaranteed securities Titres émis ou garantis par le gouvernement canadien	Treasury bills (amortized) Bons du Trésor (val. amortie)	Other Autres	Call and short loans Prêts à vue ou à court terme	Special call loans Prêts à vue spéciaux	Other call and short loans Autres prêts à vue ou à court terme	Total Canadian liquid assets Ensemble des avoirs canadiens de première liquidité	Earning liquid assets Avoirs de première liquidité productifs d'intérêts	"Free" liquid assets Avoirs de première liquidité "libres"
	B403 B113502	B404 B113404	B405 B113401	B406 B113402	B408 B113503	B409 B113504	B467 B113403	B468 B113512	B466 B113252			B113265
1987 M	2,958	2,148	16	16,502	1,206	1,847	1,170	403	26,251	21,144		15,855
A	2,909	2,524	17	18,251	1,363	1,890	1,282	451	28,687	23,254		18,103
M	3,042	2,302	17	17,803	1,341	2,008	1,233	484	28,230	22,886		17,587
J	3,011	2,307	6R	17,101	1,480	1,892	1,189	532	27,519R	22,201		16,684
1987 M 6	2,913	2,020	10	18,255	1,382	2,030	1,669	526	28,805	23,872		18,113
13	3,095	2,311	21	17,923	1,333	1,972	1,389	549	28,593	23,187		17,977
20	3,150	2,235	16	17,536	1,323	2,019	1,018	463	27,759	22,374		17,152
27	3,010	2,642	22	17,499	1,327	2,012	856	396	27,763	22,111		17,106
J 3	2,813	2,393	-	16,955	1,334	1,984	1,533	530	27,541	22,335		16,598
10	3,066	2,353	8	16,871R	1,526	1,853	1,229	511	27,418R	21,999R		16,679R
17	3,001	2,057	-	17,448R	1,546	1,857	1,258	462	27,629R	22,571R		16,809R
24	3,164	2,426	15R	17,131R	1,516	1,875	737	626	27,490R	21,900R		16,648R
J 1	3,056R	2,769	6	15,930R	1,524R	1,805R	1,151R	799R	27,039R	21,214R		16,150R
8	3,313	2,225	-	16,162	1,410	1,833	433	562	25,937	20,399		15,139
Changes from:	Variations par rapport à la:											
1986 J 9	259	-646	-5	2,893	624	276	-403	125	3,121	3,508		2,937
1987 J 1	257	-544	-6	232	-114	28	-718	-237	-1,102	-815		-1,011
Preliminary data:	Chiffres provisoires:											
1987 J 15	3,240	2,673	-	16,234	3,156	1,255	570	27,128	21,215			16,297

Column	12	14a	14b	15	18	19	20a	20b	20c	21	22	
Average of Wednesdays and Wednesday Moyenne mensuelle des mercredis ou données du mercredi	CHARTERED BANK ASSETS (Millions of dollars) ACTIF DES BANQUES A CHARTE (En millions de dollars)										continued suite	
	Canadian dollar assets Avoirs en dollars canadiens											
	Liquid assets Avoirs de première liquidité				Less liquid assets Avoirs de seconde liquidité							
	As a ratio of total Canadian dollar major assets Pourcentage des principaux avoirs en dollars canadiens	Holdings of selected short-term assets Divers avoirs à court terme	Total Canadian liquid assets plus short-term assets Ensemble des avoirs canadiens de première liquidité plus actifs à court terme		Loans Prêts	Provinces and municipal-ities Provinces et municipalités	Canada Savings Bonds Obligations d'épargne du Canada	General loans Prêts généraux	Business Prêts aux entreprises	Personal Personnels	Residential mortgages Prêts hypothécaires à l'habitation	Non-residential mortgages Prêts hypothécaires sur immeubles non-résidentiels
	Total liquid assets Ensemble des avoirs de première liquidité	Short-term paper(1) Papier à court terme(1)	Chartered instruments(2) Effets bancaires(2)									
	B470 B113263	B471 B113264			B426 B113501	B430 B113544	B431 B113545	B425 B113533	B429 B113543	B432 B113546		
1987 M	11.8	7.1	3,868	6,107	36,226	1,344	52	82,162	43,273	125,435	50,370	4,067
A	12.6	8.0	4,491	6,446	39,624	1,176	44	82,829	43,908	126,737	51,127	4,154
M	12.4	7.7	4,604R	6,048	38,882R	1,180	35	82,259	44,786	127,044	52,232	4,217
J	12.0	7.3	4,270R	6,071R	37,861R	1,173	28	82,806R	45,273R	128,079R	53,652R	4,294
1987 M 6	12.6	7.9	4,832	6,381	40,017	1,068	29	82,360	44,480	126,840	51,999	4,226
13	12.6	7.9	4,225	5,951	38,769	1,138	38	80,848	44,725	125,574	52,105	4,213
20	12.1	7.5	4,796R	5,869	38,424R	1,245	35	83,042	44,853	127,895	52,300	4,240
27	12.1	7.5	4,561R	5,992	38,316R	1,270	40	82,784	45,084	127,868	52,527	4,190
J 3	12.0	7.2	4,628R	5,841R	38,010R	1,152	21	82,958	45,053	128,012R	53,114R	4,239
10	12.0	7.3	4,400R	6,173R	37,991R	1,128	33	82,184R	45,126R	127,309R	53,425	4,280
17	12.0	7.3	4,168R	6,057R	37,853R	1,207	24	83,096R	45,354	128,450R	53,831	4,319
24	11.9	7.2	3,885R	6,215	37,589R	1,204	32	82,986R	45,561R	128,547R	54,237	4,339
J 1	11.6	6.9	4,856R	5,997R	37,891R	1,005R	35R	84,751R	45,878R	130,629R	54,890R	4,352R
8	11.2	6.5	4,120	5,649	35,706	980	22	84,242	45,798	130,040	55,169	4,226
Changes from:	Variations par rapport à la:											
1986 J 9	.5	.8	213	1,121	4,454	-37	-339	-249	4,995	4,746	10,627	497
1987 J 1	-.4	-.4	-736	-348	-2,185	-25	-13	-509	-81	-589	279	-126

1

Included in less liquid Canadian assets  
Compris dans les avoirs canadiens de seconde liquidité.

2

Consists of bankers' acceptances and deposits with other banks and is not included in total Canadian dollar major assets.  
Comprend les acceptations bancaires et les dépôts dans d'autres banques. Non compris dans l'ensemble des principaux avoirs en dollars canadiens.

Column	23	24	25a	25b	25c	25d	26	27	28	29
Average of Wednesdays and Wednesday	CHARTERED BANK ASSETS (Millions of dollars)									continued
Moyenne mensuelle des mercredis ou données du mercredi	ACTIF DES BANQUES A CHARTRE (En millions de dollars)									suivie
	Canadian dollar assets									
	Avoirs en dollars canadiens									
	Less liquid assets									
	Avoirs de seconde liquidité									
	Loans	Total	Securities	Provincial and municipal	Corporate	Corporations associated with banks	Total	Total Canadian dollar major assets	Net foreign currency assets	Total major assets
	Prêts	Total	Titres	Provinces et municipalités	Sociétés	Sociétés associées aux banques	Total	Ensemble des principaux avoirs en dollars canadiens	Avoirs nets en monnaies étrangères	Ensemble des principaux avoirs
	Leasing receivables									
	Créances liées au crédit-bail									
	B433	B428	B418	B434	B415	B414	B499	B410	B400	
	B113547	B113542	B113507	B113548	B113255	B113254	B113251	B113520	B113250	
1987 M	2,834	184,103	1,685	10,495	171	12,350	196,453	222,704	-1,745	220,959
A	2,843	186,081	1,880	10,476	167	12,524	198,605	227,292	-2,168	225,124
M	2,852	187,562	1,872	10,635	172	12,679	200,240	228,470	-2,133	226,337
J	2,866	190,092R	1,731	10,413R	173	12,317R	202,410R	229,929R	-2,073R	227,856R
1987 M 6	2,842	187,004	1,872	10,598	170	12,639	199,643	228,448	-2,118	226,330
13	2,855	185,923	1,869	10,552	172	12,593	198,516	227,109	-2,072	225,036
20	2,850	188,564	1,899	10,835	172	12,906	201,470	229,229	-2,681	226,547
27	2,863	188,757	1,850	10,554	173	12,576	201,333	229,096	-1,660	227,435
J 3	2,860	189,397	1,910	10,593	173	12,676	202,073R	229,614R	-1,866R	227,748R
10	2,864	189,040R	1,681	10,426R	173	12,280R	201,320R	228,738R	-1,850R	226,888R
17	2,870	190,701R	1,716	10,304	173	12,193	202,895R	230,523R	-2,254R	228,269R
24	2,871	191,232R	1,619	10,328	173	12,120	203,352R	230,841R	-2,323R	228,519R
J 1	2,874R	193,785R	1,645	10,688R	172	12,505R	206,290R	233,329R	-1,805R	231,525R
8	2,888	193,324	1,720	10,262	172	12,155	205,479	231,416	-2,253	229,163
Changes from:	Variations par rapport à la:									
1986 J 9	165	15,657	460	-551	4	-87	15,571	18,691	31	18,723
1987 J 1	14	-461	75	-426	-	-350	-811	-1,913	-448	-2,362

Column	1a	1b	1c	1d	1e	1f	2a	2b	2c	2d
Average of Wednesdays and Wednesday	CHARTERED BANK LIABILITIES (Millions of dollars)									BCR Table C2
Moyenne mensuelle des mercredis ou données du mercredi	PASSIF DES BANQUES A CHARTRE (En millions de dollars)									RBC Tableau C2
	Canadian dollar deposits									
	Dépôts en dollars canadiens									
	Personal savings deposits									
	Dépôts d'épargne des particuliers									
	Chequable	Non-chequable	Fixed term	Total	Chequable	Non-chequable	Bearer term	Other	Total	
	Transférables	Non transférables	A terme	Total	Transférables	Non transférables	notes	Fixed term	Total	
	par chèques	par chèques	fixe		par chèques	par chèques	Billets à terme au porteur	Autres dépôts à terme fixe		
	Daily interest	Other	Daily interest	Other	Daily interest	Other	Daily interest	Other	Daily interest	Other
	A intérêt quotidien	Autres	A intérêt quotidien	Autres	A intérêt quotidien	Autres	A intérêt quotidien	Autres	A intérêt quotidien	Autres
	B484	B485	B479	B480	B454	B451	B472	B473	B474	B455
	B113535	B113536	B113645	B113286	B113606	B113522	B113607	B113608	B113609	B113610
1987 M	28,596	4,178	18,160	25,466	54,639	130,939	11,273	2,693	4,432	26,394
A	29,436	4,291	18,515	25,342	54,627	132,211	11,641	2,716	4,539	29,111
M	29,705	4,335	19,722	25,502	54,021	133,286	12,089	2,780	4,805	28,886
J	29,524R	4,399	21,729	25,117	53,408R	134,177	12,277R	2,754	4,812R	29,654R
1987 M 6	30,253	4,421	19,077	25,636	54,243	133,631	11,908	2,740	4,811	28,658
13	29,648	4,301	19,491	25,490	54,091	133,010	12,043	2,806	4,734	28,754
20	29,546	4,285	19,962	25,454	53,962	133,209	12,376	2,795	4,848	28,861
27	29,374	4,334	20,369	25,427	53,789	133,292	12,030	2,778	4,827	29,274
J 3	29,752	4,426	21,189	25,358	53,684	134,310R	12,344R	2,762	4,863	29,063R
10	29,372	4,337	21,478R	25,137R	53,443R	133,768	12,219R	2,763	4,920	29,531R
17	29,634R	4,424	21,935	25,076	53,358	134,427	12,380R	2,764	4,725	30,072
24	29,336	4,411	22,314	24,896	53,247R	134,204R	12,165	2,729	4,740R	29,948R
J 1	29,529R	4,572	22,962R	24,884R	53,058R	135,005R	13,186R	2,759R	5,257R	30,479R
8	28,665	4,351	23,625	24,574	53,156	134,371	13,429	2,718	5,086	29,156
Changes from:	Variations par rapport à la:									
1986 J 9	2,173	41	9,366	-2,839	547	9,287	4,444	373	600	3,265
1987 J 1	-864	-221	663	-310	98	-634	243	-41	-171	-1,323

Understanding the Bank of Canada's balance sheet is only part of what is needed for a technical assessment of monetary policy and short-run interest rate trends. A second key to analysing the debt markets is the ability to assess emerging trends and conditions in the chartered banking system and how these respond to, or give rise to, policy actions by the Bank of Canada. To do this, a knowledge of the balance sheet of the chartered banking system is required. Before moving to a page-by-page and column-by-column discussion of this balance sheet, it is worthwhile to establish some general background for the system. This is well set out by the Bank of Canada.

Canada's commercial banking system is comprised of privately owned banks which have been chartered by Parliament or have received letters patent by Order-in-Council as provided for in the 1980 Bank Act. This Act provided for Canadian financial institutions affiliated with foreign banks to become incorporated as Canadian banks and allowed the establishment of new foreign banks in Canada... The banks operate under the terms and provisions of this Act, which defines their range of activities and regulates certain internal aspects of their operations as well as their relationship with the Government and the Bank of Canada. Under this Act, the banks are required to submit reports on their operations to the Minister of Finance and the Bank of Canada.<sup>1</sup>

The data discussed in chapters 2 and 3, covering pages 2, 3 and 4 of the WFS, are based on these reports which are commonly referred to as schedules J and K (and their related schedules) in the Bank Act.

The Bank also notes that:

It has been the practice to revise the Bank Act at approximately ten-year intervals. The most recent revision was in 1980... Coincident with the 1980 Bank Act revision, the reporting system was substantially revised and the new system was implemented on 1 November 1981. The level of consolidation and the treatment of accrued interest were two of the most significant changes.<sup>2</sup>

Specifically, the banking data now

consolidate all wholly and majority owned subsidiaries of the chartered banks and accrued interest is not included in the various asset and

liability items but rather is included in "other assets" and "other liabilities". Prior to this date, the data consolidated only foreign wholly owned banking subsidiaries and accrued interest was included on an item-by-item basis.<sup>3</sup>

Changes that have affected the data published in the WFS are described in the various entries discussed in the next two chapters.

Turning to the *Weekly Financial Statistics*, the asset side (page 2 and the top half of page 3) is discussed in this chapter, and the liability side (bottom half of page 3 and page 4) is discussed in the following chapter. This information is keyed to table C1 in the *Bank of Canada Review*. Data is shown by week for the current month and for the most recent two completed months and a monthly average for the latest four months is set out. The dollar change from the previous week and from the same week a year ago is also shown.

## I. CANADIAN CHARTERED BANKING SYSTEM ASSETS

Total chartered bank assets are divided into three main categories—Canadian dollar liquid assets, Canadian dollar less liquid assets and net foreign currency assets. Within the liquid asset section there are sixteen entries.

### 1. Bank of Canada Notes

Bank of Canada notes are the so-called "vault cash" and "till money" of the chartered banking system (i.e., vault cash plus the cash held at the tellers' wickets). These funds are held to meet operating needs and can also be counted as part of the funds the banks use to satisfy their reserve requirements.

### 2. Bank of Canada Deposits

Bank of Canada deposits represent the cash that chartered banks actually have on deposit with the Bank. These deposits are held mainly to meet the chartered bank reserve requirements. These deposits are included in entry 11b on the Bank of Canada's balance sheet.

<sup>1</sup> "Notes to the tables," *Bank of Canada Review*, January 1982, pp. 5-6.

<sup>2</sup> *Ibid.*, p. 6.

<sup>3</sup> *Ibid.*

1	2	4	5	7	
CHARTERED BANK ASSETS (Millions of dollars) <i>ACTIF DES BANQUES A CHARTRE (En millions de dollars)</i>					
Canadian dollar assets <i>Avoirs en dollars canadiens</i>					
Liquid assets <i>Avoirs de première liquidité</i>					
Bank of Canada notes <i>Billets de la Banque du Canada</i>	Bank of Canada deposits <i>Dépôts à la Banque du Canada</i>	Day-to-day loans <i>Prêts au jour le jour</i>	Government of Canada direct and guaranteed securities <i>Titres émis ou garantis par le gouvernement canadien</i>	Treasury bills (amortized) <i>Bons du Trésor (val. amortie)</i>	Other <i>Autres</i>
				3 years and under <i>De 3 ans ou moins</i>	Over 3 years <i>De plus de 3 ans</i>
B403 B113502	B404 B113404	B405 B113401	B406 B113402	B408 B113503	B409 B113504
2,968	2,148	16	16,502	1,206	1,847
2,909	2,524	17	18,251	1,363	1,890
3,042	2,302	17	17,803	1,341	2,008
3,011	2,307	6R	17,101	1,480	1,892
2,913	2,020	10	18,255	1,382	2,030
3,095	2,311	21	17,923	1,333	1,972
3,150	2,235	16	17,536	1,323	2,019
3,010	2,642	22	17,499	1,327	2,012
2,813	2,393	-	16,955	1,334	1,984
3,066	2,353	8	16,871R	1,526	1,853
3,001	2,057	-	17,448R	1,546	1,857
3,164	2,426	15R	17,131R	1,516	1,875
3,056R	2,769	6	15,930R	1,524R	1,805R
3,313	2,225	-	16,162	1,410	1,833

### 3. Primary Reserves Held

Primary reserves do not appear as an entry on pages 2 and 3 of the weekly Bank Statement, but the total of items 2 and 3 is the actual level of cash reserves (notes and deposits at the Bank) held by the banking system.

### 4. Day-to-Day Loans

Day loans are overnight loans (with a same day call if they are completed before noon) made by the chartered banks to investment dealers against certain government securities as eligible collateral. The Bank of Canada requires that at no time will the total amount of day loans with chartered banks exceed the unused portion of the dealer's PRA line of credit with the Bank of Canada. Therefore, dealer lines of credit can be estimated as the largest total of PRAs and day loans outstanding in a given week.

On the "day line", dealers can finance Canada Treasury Bills and direct and guaranteed Canada bonds with a term up to three years, although on occasion chartered banks may give the day loan rate on other classes of securities, such as Bankers' Acceptances.<sup>4</sup> The collateral for day loans must be put

<sup>4</sup> The first day-to-day loans were made by the chartered banks to money market dealers in June 1954. The day loan

up by 3:30 p.m., and the day loan continues in effect (automatic rollover) at the same interest rate unless terminated by the dealer or bank. Dealers can finance more paper than their line of credit, but this must usually be done at a higher rate—usually a rate greater than the day loan rate but less than the call loan rate.<sup>5</sup> In 1982-1988, bank excess secondary reserves were so high that the banks were putting out very little day money; rather, they were focusing on call loans (entry 8) where their interest return was slightly higher.

The day loan rates are shown on page 8 of the weekly Bank Statement. The day rate is negotiated and moves by eighths of a percent. This rate is a function of system liquidity and dealer inventories of short-term government securities which determine the demand for day loans. A restricted supply of day loans, or heavy demand for day loans by dealers to finance large inventory positions, pushes up the day loan rate and vice versa. (At the end of the bank's fiscal quarters they tend to reduce day and call loans to raise cash, ensuring they will not have to show a Bank of Canada advance. Thus there is usually upward pressure on the overnight rate at these times of the year.) When dealers cannot obtain sufficient accommodation through the banking system to finance their security holdings, dealers either have to resort to call loans at a higher rate or purchase and resale agreements with the Bank at the PRA rate. PRAs will be heavily used if this rate is less than the overnight rate in the private money market. The call loan rate is normally higher than the day loan rate.<sup>6</sup>

programme was initiated in response to the federal government's introduction of the PRA facility in 1953—a move which Ottawa felt would improve the liquidity of the money market. The banks introduced the day loan programme because both the banks and the federal government felt that, if dealers were to carry substantial inventories of Treasury Bills and short Canada bonds, they should be able to finance these high quality inventories through the banking system at lower interest rates than those prevailing in the ordinary call loan market. Moreover, the creation of day loans provided the banks with a highly liquid earning asset which allowed them to make the fullest possible use of their other funds.

<sup>5</sup> Day loans (and call loans discussed later) are increasingly being supplied by non-bank lenders such as pension funds and life insurance companies.

<sup>6</sup> There are occasions when the day loan rate has been so high that dealers financed as much as they could via PRAs, and day loans outstanding fell to zero on the Bank Statement.

## 5. Treasury Bills

Chartered bank holdings of Treasury Bills are self-explanatory. The banks buy Bills at the regular weekly auctions and also purchase them in the secondary market from dealers and other banks. All terms of Bills are included in this entry. Since November 4, 1981, Bills have been shown at amortized value; prior to November they were carried on the books at par. These Bills form the core of chartered bank secondary reserves.

## 6. Secondary Reserves Held

Secondary reserves, like primary reserves, do not appear as a separate entry on the asset side of the banking system's balance sheet. However, secondary reserves are primary reserves over and above the required minimum, plus day loans and Treasury Bills (i.e., excess primaries plus items 4 and 5 above).<sup>7</sup>

## 7. Other (Government of Canada Direct and Guaranteed Securities)

Other Government of Canada securities held (including both federal and federally guaranteed securities) are also shown at amortized value in entry 7. Since November 4, 1981, the figures reported for these securities exclude accrued interest; prior to this date the data included accrued interest.

These securities are broken down into two categories—three years and less to maturity, and over three years to maturity. The former holdings are referred to as “money market bonds” which are acceptable as day loan collateral.

Government of Canada securities are held as a vehicle to make maximum capital gains from a decline in interest rates (speculation). They are also used to enhance the liquidity position of the banks, because the securities can be sold fairly easily to create cash for more profitable lending should the opportunity arise. Government bonds—especially longer term bonds—are not really liquid in the same sense that day loans and Treasury Bills are liquid.

<sup>7</sup> It will be noted that the existence of the secondary reserve requirement implies a captive market for federal Treasury Bills, given the constraint on day loans outstanding.

## 8. Call and Short Loans

### a) *Special Call Loans*

Call loans are divided into two classes on the Bank Statement. “Special call loans” were first introduced by the chartered banks in 1967 and subsequently became the most important source of dealer financing from the chartered banks replacing day loans. Such loans are normally made to money market dealers for a short period of time to finance their inventory of money market securities. The main advantage of such loans to the banks is their flexibility and thus their use in cash management. These loans can be liquidated by either the borrower or lender on the same day notice is given (if called before noon) or in 24 hours after notice is given.<sup>8</sup>

Call loans are the same as day loans except that call loans finance a much broader range of securities and lesser quality securities. For this reason, call loans from the banks normally carry a higher rate of interest than day loans, since they are secured by lesser quality collateral which is not eligible either as bank secondary reserves or for rediscounting with the Bank of Canada.

Special call loans grew rapidly after 1967 for three reasons.<sup>9</sup> First, the Bank of Canada introduced a rule at the end of 1968 limiting dealer financing of BAs in the day loan market to 15 percent of a dealer's line of credit. Thus, the growth in BAs outstanding since that time has had to be financed using special call loans. Second, in January 1969 the Bank began to require that the chartered banks meet the cash reserve

<sup>8</sup> “Daylight overdrafts” are technically included in call loans, but they would only actually appear if, under a unique set of circumstances, the overdraft was left outstanding at the close of business on a given day. These overdrafts occur because a dealer often has to put up cash to buy short-term securities before it receives payment when selling to his customers. The procedure here is for the dealer to overdraw his account at the bank, usually before noon on a given day, with the consent of the bank, which certifies the cheque for a fee (the overcertification charge) on the understanding that the dealer will use the certified cheque to pay for the securities bought. Then, these securities are delivered to clients in exchange for the cheque which is used to retire the daylight overdraft *before the end of the day* (i.e., the overdraft is not left outstanding overnight).

<sup>9</sup> “Overnight financing in Canada: Special call loans”, *Bank of Canada Review*, May 1983, pp. 3-13.

requirement twice per month. This made special call loans more valuable to the banks because of their flexibility in helping to alter bank cash reserves. Third, as the volume of short-term paper and dealer inventories rose rapidly in the 1970s, the need for special call loan financing by the dealers increased.

5			7		8a		8b	9
ars)								
s de dollars)								
Government of Canada direct and guaranteed securities <i>Titres émis ou garantis par le gouvernement canadien</i>			Call and short loans <i>Prêts à vue ou à court terme</i>		Total Canadian liquid assets <i>Ensemble des avoirs canadiens de premier liquidité</i>			
Treasury bills (amortized) <i>Bons du Trésor (val. amortie)</i>	Other 3 years and under <i>Autres De 3 ans ou moins</i>	Over 3 years <i>De plus de 3 ans</i>	Special loans <i>Prêts à vue spéciaux</i>	Other call and short loans <i>Autres prêts à vue ou à court terme</i>				
B406 B113402	B408 B113503	B409 B113504	B467 B113403	B468 B113512	B466 B113252			
16,502	1,206	1,847	1,170	403	26,251			
18,251	1,363	1,890	1,282	451	28,697			
17,803	1,341	2,008	1,233	484	28,230			
17,101	1,480	1,892	1,189	532	27,519R			
18,255	1,382	2,030	1,669	526	28,805			
17,923	1,333	1,972	1,389	549	28,593			
17,636	1,323	2,019	1,018	463	27,759			
17,499	1,327	2,012	856	396	27,763			
16,955	1,334	1,994	1,533	530	27,541			
16,871R	1,526	1,853	1,229	511	27,418R			
17,446R	1,546	1,857	1,258	462	27,629R			
17,131R	1,516	1,875	737	626	27,490R			
15,930R	1,524R	1,805R	1,151R	799R	27,039R			
16,162	1,410	1,833	433	562	25,937			

As of the end of 1982, it was estimated that special call loans by the chartered banks were used to finance about 40 percent of investment dealer short-term inventories, while "other" bank call loans, day loans and PRAs with the Bank of Canada accounted for about 10 percent of dealer overnight financing. Call loans are also made by trust companies, pension funds, life insurance companies, corporations, municipalities, provinces and foreigners—virtually anyone who has a block of surplus funds available for at least 24 hours. At the end of 1982, these "off-street" sources of financing accounted for about 50 percent of total dealer inventory financing. These sources do not show up on the Bank Statement.

Here again, reduced system liquidity, a tight banking system or dealers building inventory (either to earn a positive carry or a capital gain) will put upward pressure on the level of call loans and the call loan rate, and vice versa. The call loan rate is a key rate in the money market.

Acceptability of collateral and the rate of interest on call loans are negotiated by lenders and dealers. Terms of the loan may vary from a demand basis (one day) to specific terms ranging from a few days to several months. Securities eligible for day loans have to be financed in the call loan market when a dealer's position exceeds his line of credit with the Bank of Canada. These securities are often financed at a rate between the day loan rate and the call loan rate.

Most of the call loans are negotiated between 8:30 a.m. and noon, with the majority of the transactions taking place between 8:30 a.m. and 10:00 a.m. when the chartered banks obtain their final yesterday clearing results and get good updated *estimates* on today's clearings (about 9:45 a.m.). It is after the banks have yesterday's clearing actuals plus a good clearing estimate for today that they decide to supply or withdraw funds from the special call loan market.

When a call loan is negotiated, a dealer physically delivers collateral to the lender (or the lender's agent) and the call loan funds are transferred to the borrower's account with the bank. Transfer of securities and cheques is normally completed between noon and 4:00 p.m., although on occasion some transactions may not be completed until 5:00 p.m. or even later.

#### b) Other Call and Short Loans

"Other call and short loans" are usually smaller in total than "special call loans" and are normally made by banks to investment firms, enabling dealers to finance new issue underwritings and long-term bond and equity inventory positions. These loans are not usually called on a day-to-day basis.

### 9. Total Canadian Liquid Assets

The total of items 1, 2, 4, 5, 7 and 8 represents the Canadian liquid assets subtotal: Bank of Canada notes and deposits, day-to-day loans, Treasury Bills (at amortized value since November 1981), Government of Canada direct and guaranteed bonds, call and short loans to stockbrokers and investment dealers. However, not all these items are liquid in a market sense. For example, long Canada bonds are not totally liquid in large size, and short Canadas have also developed illiquidity aspects from time to time. On the other hand, there are some security classes which are normally considered liquid (e.g., BAs, chartered bank







a tendency for lower short-term interest rates), while the reverse holds if the ratio falls.

### 13. Free Liquid Asset Ratio

The "free liquid asset ratio" is free liquid assets (entry 11) expressed as a percentage of total Canadian dollar major assets (entry 27). During the 1970s, the free liquid asset ratio replaced the liquid asset ratio as the main measure of chartered bank liquidity on the asset side of the balance sheet. The reason for this is that the free assets and the free ratio reflect changes in secondary reserve requirements, while the broad liquid asset ratio does not. That is, if the Bank of Canada reduces the secondary reserve requirement, the free liquid asset ratio rises, while the liquid asset ratio does not change (implying that the Bank may want to drain off this "free" liquidity).

As with the liquid asset ratio, the Bank's view of the minimum level for this ratio has fallen over time. Near the end of 1988 this ratio stood at 5.0 percent versus 13.0 percent in the late 1960s.

### 14. Holdings of Selected Short-Term (Canadian Dollar) Assets by Banks

In addition to the short-term paper held under Canadian earning liquid assets (short Canadas, Treasury Bills, call and day loans), the banks also hold two other categories of short-term paper, payable in Canadian dollars and issued for a term of one year or less. These two asset classes, which are not considered official liquid assets by the Bank, are broken out separately on page 2 of the weekly Bank Statement under the title "holdings of selected short-term assets". Both of these asset classes are included in the less liquid asset section. Since November 1981, all such paper acquired by banks is classified as securities. Prior to November 1981, only paper purchased from third parties was classified as a security. Paper purchased directly from a customer (i.e., from the issuer) with an established line of credit with the bank was classified as a loan.

#### a) Short-Term Paper (Included in Less Liquid Canadian Assets)

The first entry is Canadian dollar commercial and finance company short-term paper (with a term of one

year or less) and provincial/municipal Treasury Bills. These classes are also included in the security section of the appropriate less liquid Canadian assets section.

12	13	14a	14b	15	18
CHARTERED BANK ASSETS (Millions of dollars) ACTIF DES BANQUES À CHARTRE (En millions de dollars)					
Canadian dollar assets Avoirs en dollars canadiens					
Liquid assets Avoirs de première liquidité					
As a ratio of total Canadian dollar major assets Pourcentage des principaux avoirs en dollars canadiens					
Total	"Free" liquid assets Ensemble des avoirs de première liquidité	Holdings of selected short-term assets Divers avoirs à court terme	Bank paper(1) Papier à court terme(1)	Chartered bank instruments(2) Effets bancaires(2)	Total Canadian liquid assets plus short-term assets Ensemble des avoirs canadiens de première liquidité plus actifs à court terme
		B470 B113263	B471 B113264		
11.8	7.1	3,868	6,107	36,226	1,344
12.6	8.0	4,491	6,446	39,624	1,176
12.4	7.7	4,604R	6,048	38,882R	1,180
12.0	7.3	4,270R	6,071R	37,861R	1,173
12.6	7.9	4,832	6,381	40,017	1,069
12.6	7.9	4,225	5,951	38,769	1,136
12.1	7.5	4,796R	5,869	38,424R	1,245
12.1	7.5	4,561R	5,992	38,316R	1,270
12.0	7.2	4,628R	5,841R	38,010R	1,152
12.0	7.3	4,400R	6,173R	37,991R	1,128
12.0	7.3	4,168R	6,057R	37,853R	1,207
11.9	7.2	3,885R	6,215	37,589R	1,204
11.6	6.9	4,856R	5,997R	37,891R	1,005R
11.2	6.5	4,120	5,649	35,706	980

#### b) Chartered Bank Instruments (Not Included in Total Canadian Dollar Major Assets)

The second category of paper held is chartered bank instruments consisting of Bankers' Acceptances issued by other banks and non-operating deposits (inter-bank deposits) with other banks.<sup>10</sup> Prior to November 1981 this series included the BA series, but the second element was restricted to bearer term deposit notes (BDNs) issued by other banks. Entry 14b involving only bank instruments is not included in total Canadian dollar major assets.

The Bank of Canada does not include either class of

<sup>10</sup> When a bank purchases its own BAs for investment, these are included in loans—see entry 20a.

In 1973, chartered banks initiated an inter-bank overnight lending market to allow banks with excess reserves to lend them for one day to banks which were short of funds.

Inter-bank deposits are discussed in more detail in chapter 3, part II.

securities in the total Canadian liquid asset series even though the market defines them as liquid. However, it does include these two series in a special liquid asset section (entry 14), appearing after the normal measures of Canadian liquid assets. Increases in the entry 14a and 14b series reflect an increase in banking system liquidity and generally signal lower interest rates. Decreases reflect bank sales of paper (or failure to replace paper as it matures) which usually signals upward pressure on interest rates.

### **15. Total Canadian Liquid Assets Plus Short-Term Assets**

Total Canadian liquid assets plus short-term paper gives a grand total which includes the “traditional” liquid assets as well as the “special” liquid assets (i.e., entry 9 plus entries 14a and 14b.) This is the broadest published measure of liquid assets in the banking system.

### **16. How Monetary Policy Impacts on Chartered Bank Liquid Asset Holdings**

When the Bank tightens or eases the banking system, banks will normally react to this *in the short run* in one of two ways (or a combination of both). Some will focus the adjustment in their liquid asset positions. If, for example, the Bank tightens the system, a point may be quickly reached when some banks will reduce their day and call loan financing for dealers and/or increase the interest rate. Also, banks may begin to mature or sell off their Treasury Bills or bid less aggressively for Treasury Bills at tender. These classes of liquid assets relate closely to Bank of Canada policy since they are controlled at the head offices of the chartered banks. The less liquid assets discussed below are more a function of the underlying economy-wide demand for credit at the branch level. Also, banks are reluctant to reduce their less liquid asset holdings for two reasons. First, less liquid assets normally have a higher yield than liquid assets. Second, the illiquidity of certain less liquid assets often means that these assets cannot be sold prior to maturity without large losses being incurred.

Other banks will usually adjust their liabilities, and especially their inter-bank deposit rates, Certificate of Deposit (CD) rates and/or bearer term note (BDN) rates.

A Bank of Canada policy to tighten the banks (through, for example, a reduction of excess cash) is quickly transmitted via the banks to money market dealers. If the banks respond to tightness by raising their inter-bank, BDN and CD rates, for example, dealers are forced to compete by raising rates on their offerings of Treasury Bills, BAs, commercial and finance company paper. On the other hand, if the banks respond by reducing their holdings of lower yielding liquid assets, then the outright sale of securities and/or the probable drop in day and call loan financing available, and the higher cost, will force dealers to lower their offering prices on securities and/or bid more aggressively for “off-street” financing, and/or reduce their inventory of securities. All of these developments also put upward pressure on interest rates.

### **17. Less Liquid Canadian Assets**

There are two main categories of less liquid Canadian dollar assets—loans and security purchases. Generally speaking, the chartered banks look on the loan component as their *raison d'être* and the key to their total lending effort. There are seven main classes of loans included in the less liquid Canadian asset section and three categories of securities.

Loan demand and securities purchased over time are a function of the economic fundamentals such as consumer and business spending, inventory accumulation (which is heavily financed in the money market and through bank loans), inflation, interest rates and corporate cash flow. The demand for mortgage money is related to the building cycle.

### **18. Loans to Provinces and Municipalities**

The first loan category includes loans to provinces and municipalities. Although the revised WFS no longer shows a provincial-municipal split, the provincial loan component is relatively small since provinces with large short-term requirements can usually borrow at lower rates in the money market through a provincial Treasury Bill or note programme, and they prefer to borrow longer term funds in the public bond market.

Municipal loans, by contrast, are much more significant. This reflects the fact that most municipalities are too small to bear the administrative costs of an ongoing short-term money market

programme. The series is normally quite seasonal. Specifically, municipal loan demand usually rises early in the year, before property tax revenues start coming in, and then eases lower as tax collections are used to pay down the loans.

## 19. Canada Savings Bond Loans

The second class of loans, Canada Savings Bond loans, are made to individuals at a preferential rate to finance newly issued CSBs in November, including those CSBs purchased on the payroll savings plan. Therefore, these loans show an even more pronounced seasonal trend, rising sharply in late October-early November of each year and then gradually running off through to September/October of the following year as CSBs bought outright are redeemed and payroll savings plan instalment contract payments are made. Effective November 5, 1986, CSB sales financed by banks under the Monthly Savings Plan were discontinued. As well, the banks sold to the government a participation in the major portion of loans advanced for payroll purchases of CSBs.

14b	15	18	19	20a
		Less liquid assets <i>Avoirs de seconde liquidité</i>		
ings of ted short- assets s <i>avoirs à</i> <i>terme</i>	Total Canadian liquid assets plus short- term assets <i>Ensemble des avoirs canadiens de première liquidité plus actifs à court terme</i>	Loans <i>Prêts</i> Provinces and municipal- ities <i>Provinces et municipa- lités</i>	Canada Savings Bonds <i>Obliga- tions d'épargne du Canada</i>	General <i>Prêts g- Business Prêts aux entre- prises</i>
- Chartered Bank (1) instruments(2) <i>Effets bancaires(2)</i>  (1)				
B471		B426	B430	
63 B113264		B113501	B113544	
6,107	36,226	1,344	52	82,162
6,446	39,624	1,176	44	82,829
6,048	38,882R	1,180	35	82,269
6,071R	37,861R	1,173	28	82,806R
6,381	40,017	1,068	29	82,360
5,951	38,769	1,138	38	80,848
5,869	38,424R	1,245	35	83,042
5,992	38,316R	1,270	40	82,784
5,841R	38,010R	1,152	21	82,958
6,173R	37,991R	1,128	33	82,184R
6,057R	37,853R	1,207	24	83,096R
6,215	37,569R	1,204	32	82,966R
5,997R	37,891R	1,005R	35R	84,751R
5,649	35,706	980	22	84,242

## 20. General Loans<sup>11</sup>

The general loans category is by far the largest, most important and most closely watched loan series. This category of loans is broken down each week into two elements—business loans and personal loans.<sup>12</sup> These loans can be either term loans or demand loans. Term loans are considered to be loans written with a specified date for retirement, whether or not there is a commitment for making regular payments. All other loans are demand loans. No breakdown of data is presented for either non-performing loans or under-performing loans.

<sup>11</sup> The Bank Act spells out certain restrictions on the banks regarding the size of loans that can be made without board approval and the minimum security required on various types of loans, including mortgages and securities. These restrictions are not onerous and can, in any case, be overridden in certain instances.

In 1981-82, recession, poor corporate profits, high interest rates and the eroding state of corporate balance sheets, all combined to substantially increase the number of loan defaults and potential loan defaults in Canada. This, along with the Canadian bank exposure to the forced rescheduling of major loans for Eastern block and developing countries, led the federal Department of Finance to apply a degree of moral suasion on the Canadian chartered banks in order to "encourage" prudent management and reduced exposure to large loan losses.

Initially, this suasion was applied on the liability side of the banking system's balance sheet when the Inspector General of Banks (IG) told the chartered banks that certain forms of financing would (temporarily) not qualify for the definition of bank capital, and thus, could not be used to build the capital base available for loan leverage. Later in 1981, the Minister of Finance increased the suasion when he shifted to the asset side of the balance sheet and applied suasion to reduce bank lending used to finance takeovers. Finally, in 1982, the Inspector General of Banks also used asset-related suasion to limit loan size for individual credits.

In 1983, the Inspector General set out precise definitions of primary and secondary capital to loan leverage and also set capital adequacy guidelines. These definitions were further refined in 1985, particularly with respect to "perpetual" debentures.

<sup>12</sup> Under the new chartered bank reporting system implemented in November 1981, an increased amount of detail on the loan portfolios of the chartered banks is available. This includes the important split of general loans between business and personal loans on a weekly rather than a month end basis.

19	20a	20b	20c	21	22
aid assets seconde liquidité					
Canada Savings Bonds Obligations d'épargne du Canada	General loans <i>Prêts généraux</i> Business <i>Prêts aux entreprises</i> Personal <i>Personnels</i> Total <i>Total</i>			Residential mortgages <i>Prêts hypothécaires à l'habitation</i> Non-residential mortgages <i>Prêts hypothécaires sur immeubles non-résidentiels</i>	
B426 B113501	B430 B113544	B431 B113545	B425 B113533	B429 B113543	B432 B113546
52	82,162	43,273	125,435	50,370	4,067
44	82,829	43,908	126,737	51,127	4,154
35	82,259	44,786	127,044	52,232	4,217
28	82,806R	45,273R	128,079R	53,652R	4,294
29	82,360	44,480	126,840	51,999	4,226
38	80,848	44,725	125,574	52,105	4,213
35	83,042	44,853	127,895	52,300	4,240
40	82,784	45,084	127,868	52,527	4,190
21	82,958	45,053	128,012R	53,114R	4,239
33	82,184R	45,126R	127,309R	53,425	4,280
24	83,096R	45,354	128,450R	53,631	4,319
32	82,986R	45,561R	128,547R	54,237	4,339
35R	84,751R	45,878R	130,629R	54,890R	4,352R
22	84,242	45,798	130,040	55,169	4,226

#### a) Business Loans

The largest category included in general loans is business loans, usually accounting for 60-75 percent of total general loans. These are made by Canadian banks and foreign banks chartered in Canada. General loans and business loans rose about \$2.8 billion when foreign bank data was first incorporated into the Bank Statement in November 1981.

This series covers a wide range of loans which are detailed in table C8 of the monthly *Bank of Canada Review*.<sup>13</sup> The detailed data include:

—loans to financial institutions broken down as follows:

- \* loans to government financial institutions (these are typically commercial enterprises with autonomous management which maintain financial accounts separate from the government that established them);

- \* loans to private financial institutions (these include investment dealers, deposit taking

institutions such as banks, credit unions, *caisses populaires*, trust companies and mortgage loan companies, as well as insurance companies, pension funds, sales finance and consumer loan companies and financial leasing companies);

—loans to non-financial corporations and unincorporated businesses in the private sector (these include all corporations, unincorporated businesses and unincorporated branches of foreign corporations operating in Canada except financial institutions and government enterprises, and they are classified using Statistics Canada Standard Industrial Classifications), which include:

- \* agriculture, comprising agricultural industries (such as grain dealers) and related service industries (such as veterinary and harvesting);
- \* fishing and trapping;
- \* logging and forestry;
- \* mining and oil and gas (including firms primarily engaged in exploration and production of oil and gas);
- \* food, beverage and tobacco products;
- \* leather, textile and apparel products;
- \* metal products;
- \* transportation equipment products;
- \* petroleum products;
- \* construction industry, including builders and developers (land developers and those engaged in residential and non-residential building activity);
- \* transportation, communication and other utilities;
- \* wholesale trade;
- \* retail trade;
- \* service industries; and
- \* multiproduct conglomerates.

—loans to non-financial government enterprises (these include all Canadian corporations where the government holds at least 50 percent of the voting stock and any subsidiaries of those companies, as well as all separately constituted boards and commissions of government that carry on a business and have their own borrowing authority);

—loans to institutions including private non-profit institutions, health, education and religious institutions;

—loans to governments and their agencies that do not carry on a business or do not have their own borrowing authority;

<sup>13</sup> This section draws extensively on the publication, "Notes to the tables", *Bank of Canada Review*.

—loans against factored receivables; and

—Canadian dollar loans to non-residents (these include loans to individuals, corporations or other organizations not ordinarily resident in Canada).

Table 8C in the *Bank of Canada Review* also shows a detailed breakdown of foreign currency loans to individuals, business firms (by sector), governments and their enterprises and loans to non-residents. These data are not discussed extensively here because the chartered bank asset statement mainly focuses on bank activity in Canada.

Under the 1980 Bank Act, there were several new types of loans banks could make, which are now included in business loans. These include “factoring receivables”.<sup>14</sup>

Finally, when a bank purchases *its own* Bankers’ Acceptances for investment purposes, these are included in business loans. However, when a bank buys a competitor’s BAs these are included in entry 14b.

<sup>14</sup> Factoring receivables are created when a factor—in this case a Canadian chartered bank *subsidiary*—undertakes a firm’s credit and collection activities. That is, the factor assumes the management of a client’s receivables or guarantees a client’s accounts receivable for a fee. Here, the banks are providing trade credit through their subsidiaries via loans to the client company against the receivables as collateral. Factors also provide their clients with valuable reports, including daily lists of cash received and sales processed, weekly and monthly analysis of accounts receivable including outstanding balances, the length of time receivables have been outstanding, and the size and utilization of credit lines.

The fee charged by a factor is usually a function of sales volume adjusted to take into account the industry dealt with, whether the firm sells to wholesalers or retailers, the volume of business, terms of sale, average invoice size, and the customer mix. The fee is usually 1-2 percent of sales revenue.

From the company’s point of view, factoring is attractive because the firm’s bad debts are eliminated. Funds that normally would be tied up in accounts receivable are freed up and operating and computer costs are reduced. All of these costs savings should pay the factor’s commission with cost savings left over to increase the firm’s cash flow.

The factoring receivables series is quite small, reflecting a general withdrawal by the banks from this business in 1982-83 when aggressive competition and relatively poor economic conditions held factoring fees at levels where it was difficult for banks to make a profit and cover increased loan losses.

The total of these loans shows several important pronounced patterns. Loans rise sharply in almost any week covering the 15th of the month and the month end (especially the year end) and show much less growth in the “off weeks”. This is because tax dates, interest and dividend payment dates and fiscal year ends normally fall at mid-month or month end. There is also a pronounced monthly seasonal trend which is discussed in chapter 5.

#### b) Personal Loans

The personal loan series generally conforms to the “loans to Canadian individuals for non-business purposes” shown in table C8 of the *Bank of Canada Review*. The personal loan category includes loans to individuals to purchase or carry securities. These data are shown separately in table C8 for marketable stocks and bonds and securities purchased under a tax shelter plan. The former category excludes loans to investment dealers and brokers and loans to individuals for the purchase of new issue CSBs. CSB loans are reflected in entry 19. Tax shelters include loans for the purchase of registered savings plans such as RRSPs.

The personal loan category also includes loans to individuals to purchase consumer goods and services. This includes loans to purchase consumer goods and services even if these loans are secured by marketable stocks and bonds. Table C8 in the *Bank of Canada Review* shows the loan data separately for the purchase of private passenger vehicles (regardless of how the loan is secured), mobile homes, and loans for the renovation of residential property.

Table C8 shows a separate figure for consumer loans which were made under a Personal Loan Plan. These loans usually have a fixed interest rate (calculated daily and charged monthly), a fixed term and are fully repaid in instalments typically running from six months to five years.

Finally, the table shows chartered bank credit card loans (outstanding balances) to individuals for the purchase of consumer goods and services.

In 1983, competition for consumer loans increased when business loans fell sharply. This led the banks to introduce several new innovations in the personal lending field. The first was the mass marketing of variable rate *personal line of credit packages* to the upper scale segment of the consumer loan market. The Bank of Montreal, for example, offered a personal line of credit ranging from a low of \$2,500 up to

\$50,000 and more in some cases. Once the line is established, the individual receives a separate cheque-book to draw on the line of credit. (In 1985-86 several institutions allowed access via credit cards.) Monthly statements are issued to the borrower by the bank, and the borrower has to make a minimum monthly payment at 3 percent of the outstanding balance or \$50, whichever is greater. Thus, the facility approximates a three-year personal term loan but is immediate, convenient and flexible, enabling a borrower to match cash flow with cash needs and/or to pay down more expensive credit card loans outstanding. For unsecured loans, the rate was prime plus about 1.5 percent although, when a customer put up liquid security, the rate was significantly reduced to prime plus 1/4—1/2 percent. Interest rates are set each month and interest is calculated on the average daily balance outstanding.

A second innovation in late 1983, again using the variable rate approach for a personal line of credit package, was the Royal Bank's introduction of a variable rate option for consumer loans such that consumers would have a choice between fixed rate and variable rate loans. However, while the line of credit packages initially introduced were aimed at a small segment of the market, variable rate personal loans were aimed at the whole market. Also, under the Royal's programme, people are able to shift from one to the other without penalty to take advantage of swings in interest rates.

The interest rate charged on the variable rate option is indexed to a personal loan base rate which moves as market conditions change. Since the base rate for a variable rate loan is almost always lower than the base rate for a fixed rate loan, the net effect of introducing the variable rate option was to lower consumer borrowing costs in a world where interest rates remain unchanged or fall. Overall, the variable rate was about 1.25 percent below the fixed rate. Variable rate loans also offer other features, including provisions to allow consumers to adjust their payments, the term of the loan (which can run as long as 25 years) or the form of the loan (fixed or variable rate) each year without penalty. Thus, for example, in an environment of rising rates, people with a variable rate loan could increase their payments, hold their payments unchanged and lengthen the amortization period or convert the variable rate loan to a fixed rate.

Another Royal Bank innovation introduced in April 1984 was the "buy back" car loan plan. This was targeted at two groups of people—those who cannot

pay off a full car loan in three to four years and those who lease.

Under this programme, instead of a borrower taking out an \$11,000 loan for three years to finance an \$11,000 car purchase, the Royal will do a "buy back" loan. Here, the bank calculates the remaining value of the car after three years (the purchase price less depreciation). Then, while it charges interest on the full \$11,000 loan amount (the purchase price of the car), it only requires the borrower to repay the loss of the car's value over three years; it does not require the borrower to repay what the car is worth after three years—the buy back amount. (The borrower pays an extra 1/4 of 1 percent on the interest rate as a premium to an insurance company to guarantee the buy back amount.) The fact that the buy back amount is not included for principal repayment purposes means a significant drop in the borrower's monthly payments.

However, while the car purchaser pays less on a month-to-month basis, the buyer is not getting something at a discount. The car purchaser using a buy back loan ends up with less than the buyer who financed the full \$11,000 in the usual way and then paid off the loan three years later. Specifically, the buy back purchaser does not own the car at the end of the contract, whereas he would own the car and be debt free had he repaid the full \$11,000 loan.

At the end of the loan's term, the buy back car buyer/borrower has four options. First, he can turn the car over to a designated dealer (where the insurance broker has already guaranteed the buy back value of the vehicle) who will arrange for its sale at the end of the term of the loan. (The car has to be in good mechanical and physical condition, and there is an extra charge if it is driven more than 24,000 km per year.) The funds obtained from this sale are used to retire the bank loan. If this option is chosen, the car buyer is effectively leasing the car. Second, the individual can pay the bank the amount still owing (the buy back value) as a balloon payment and end up owning the car. Third, he can sell it privately for more than the buy back amount, repay the bank and pocket the profit. Fourth, he can refinance the residual value and keep the car.

The major disadvantage of buy back car loans for the consumer is that the buyer ends up with no equity in the car. Further, the borrower will end up paying more interest on the loan. This occurs because interest is paid on the full amount of the loan, but the buyer is not paying off the full principal amount. The slower principal is repaid, the higher the total amount of





payments arising from the higher interest rate.<sup>17</sup> Further, some borrowers, with a large proportion of equity in their homes, were able to achieve greater flexibility of repayment by taking out ordinary demand loans and paying off their mortgages. However, borrowers for the most part were not greatly attracted to these types of mortgage options as the net impact was often to increase the size of their debt.

The second development occurred because borrowers became increasingly reluctant to commit themselves to the usual five-year term mortgages, expecting that at some point within that period mortgage interest rates would decline. In these circumstances the renewable-term mortgage, but with shorter terms than were common in the past, proved popular. Thus, by 1980 a number of lenders had introduced mortgages with terms as short as six months.

In 1981 the third twist appeared: variable-rate mortgages (allowing a rate change each month, usually based on the prime lending rate). And, for a small fee, borrowers could switch to a fixed rate mortgage. Payments on variable-rate mortgages are generally fixed for up to five years, with the amount of principal repaid each month (if any) determined by the prevailing level of interest rates.

Fourth, there was also a tendency on the part of mortgage lenders towards shortening amortization periods, especially following the large rate decline in 1982. This reflected both the higher proportion of payments applied against principal in variable-rate mortgages as rates declined and also the decision by borrowers renewing mortgages at lower rates in 1983 and early 1984 to shorten amortization periods rather than reduce monthly payments.

Finally, especially during 1981-82, another popular market response to mitigate the impact of high interest rates, particularly on new-home buyers, was the increased use of vendor "buy downs". Here, home sellers, usually real estate developers, offered

mortgages at rates below market for the initial term. Builders would then typically add the cost of the buy down either wholly or in part to the price of the house. The attraction of this type of financing for the buyer was the lower monthly payment.

A second wave of innovation occurred in 1984. Here, the major focus was on mortgage repayments which offered the home-owner a significant opportunity to save interest through shortening the term of the mortgage.

The Bank of Montreal pioneered this round of innovation when it introduced its "10+10" mortgage in late January 1984. Under this programme, home-owners have two methods of paying off a mortgage faster. First, although not new, individuals have the option to prepay up to a maximum of 10 percent of the original principal amount of the mortgage once a year at any time. There are no fees or penalties for this, in contrast to the three-month interest penalty which existed at some lending institutions at the time the programme was announced. Second, a person is allowed to increase the monthly mortgage payment by up to 10 percent (which all goes toward reducing the principal) once a year at any time. But, a person is not locked in. Once a year, at any time, the home-owner can also reduce the monthly payment to a level that would repay the mortgage within the original amortization period. There is a reasonable \$25 administration fee each time a home-owner increases or decreases a payment.

Canada Trustco and then Canada Permanent quickly copied the Bank of Montreal's mortgage market initiative and enriched it with their "15+15" plan. Canada Trust also went further and began allowing weekly and bi-weekly mortgage payments which have the effect of increasing the payments for a full year. Then, late in 1984 the Bank of Commerce offered borrowers a weekly payment option and the ability to increase monthly payments up to one hundred percent. Again, these plans allow the mortgage to be paid off sooner. *However, the weekly and bi-weekly payment options were not new; credit unions and caisses populaires had been allowing weekly mortgage payments for many years.*

Canada Trustco did achieve a breakthrough in March 1984, however, with its three-month pilot "mortgage burning" contest. Here, the company computer selected a residential mortgage at random each month from those taken out or renewed during the month. The person whose mortgage was selected was then asked a skill testing question and, if the person answered correctly, Canada Trust would

<sup>17</sup> Typically, the additional mortgage principal would be deposited in a savings account and withdrawn gradually to meet part of the monthly mortgage payments until the next renewal date. Since this additional loan would be amortized, like the mortgage itself, over a longer period than the term of the mortgage, the borrower would be able to make periodic withdrawals from the savings account greater than the incremental mortgage payment. The net effect would be to temporarily lower the borrower's net monthly outlay to service his debt, but the debt itself would be greater than it would otherwise have been.



“burn” the mortgage up to \$100,000.

Late in 1984, competition among lenders produced two more wrinkles to increase the flexibility of mortgages for consumers. First, several banks began to give commitments to new home builders that the mortgage rate on new houses would not change significantly for the approximately six months a new house was in pre-construction and under construction. That is, the mortgage rate was capped. This feature was then passed on from the builder to the home buyer, thus encouraging the buyer to purchase the new house at a low pre-construction price without fear that the mortgage rate would be dramatically higher in six months. And, if rates fell during the period, lenders were allowing the buyers the lower rate.

A second feature was introduced by Toronto Dominion Bank—Portability Plus. This was designed to lower mortgage rates for people selling their existing home and buying a new one. Under the Portability Plus plan, home-owners can take their existing mortgage rate with them and use it when they buy a new home. For example, suppose a home-owner has an existing mortgage at 10 percent with a principal of \$25,000 and a two-year term left to run. The person wants to buy a new house requiring a \$50,000 mortgage. Under Portability Plus, the consumer can apply his existing mortgage at 10 percent to the new home and obtain a new \$25,000 mortgage at current interest rates for the two years. If the two-year rate was 11 percent, the blended cost of the new mortgage would be about 10.5 percent.

The programme can also work another way. If a home-owner wants to buy a new house but doesn't have enough cash to pay off a mortgage with a high rate, the buyer can apply the existing mortgage on his current home to the new home and then borrow the extra principal needed at a lower rate.

The TD programme also applies to people who may want money for home additions or renovation. They can increase their mortgage principal but retain the rate on their existing mortgage, obtain the current interest rate on the additional amount, and pay the blended rate.

On balance, the programme increases home-owners options when they consider the purchase of another home, and it offers flexibility to existing owners wishing to take advantage of the equity in their existing home.

Finally, in 1984 the federal Parliament approved a mortgage scheme to help mortgagors handle high and/or volatile interest rates. The mortgage interest insurance plan allows a home-owner to insure a

mortgage of up to \$70,000 against an interest rate increase of more than two percentage points, up to a maximum of 12 percentage points. The insurance fee is 1.5 percent of the principal amount of the mortgage. The premium is the same regardless of the term of the loan, and it can be paid in a lump sum or added to the mortgage. If mortgage rates increase by more than two percentage points, the home-owner receives 75 percent of the additional mortgage payment from the insurance plan. Any increase of up to two percentage points is borne by the mortgagee. Since interest rates fell from 1984-87, this plan has not proved popular to date.

From 1985 through 1988, a third round of mortgage innovations occurred which centred on the maturity term of mortgages. The first of these, in 1985, was the “multiple term mortgage”. This vehicle eases the client's decision on which mortgage term to choose. Here, instead of having to pick one term for the mortgage, the borrower spreads the risk of picking the wrong term by dividing the loan into different maturities. Each portion is charged the interest rate applicable to its term. For example, a \$100,000 mortgage could be divided into five different \$20,000 maturities, running from one to five years. After five years, the borrower would have paid a blend of interest rates.

An obvious advantage to this type of loan is that only part of it comes due each year. Thus, if interest rates rise, the borrower is not hit immediately with increased payments on the entire mortgage.

A disadvantage is that home-owners could face a large increase in the number of decisions they have to make depending on how the loan is structured. This would be hard for people who find it difficult to make this type of financial decision.

A more serious disadvantage stems from provisions in the federal Interest Act. Here, the initial loans were registered in such a way that the home-owner's options diminish with each passing year. After the first year, the borrower is able to renew the one-year part of the loan for up to four years. The two-year portion can be extended up to three years when it comes due. And after four years, the total principal still outstanding can only be renewed for one more year. This restriction can pose problems for home-owners in future years. Because the loans can become so restrictive, people with loans were generally given the option to renew each portion for up to another five years.

The second innovation was term extension by lenders. In 1985, London Life Insurance Company

began to offer 10-year mortgages, but at 12 percent they attracted very little interest. However, late in 1986 Canada Trust moved to provide 10-year mortgages at 11 1/2 percent, only 1/4 percent above the five-year rate. This move was quickly followed by Prudential Insurance Company of America at 11 3/8 percent. Then, in March 1988 one trust company began to offer 20-year mortgages.

Term extension by banks and trust companies, however, generally had to await the third innovation—the long-awaited launch of the NHA mortgage backed pass-through security into the market, led by the Canadian Imperial Bank of Commerce and Scotiabank in late 1986. There were two features of this new security which favoured mortgage term extension. First, the legal basis for this security was tailored to encourage financial institutions to issue longer term mortgages.<sup>18</sup> Specifically, Canada Mortgage and Housing Corporation was empowered to give a “timely payment guarantee” on 10-year securities issued in the capital market by financial institutions and backed by a pool of 10-year NHA-insured mortgages. The timely payment guarantee by CMHC is, in effect, a federal government guarantee on the securities and ensures that the holders of such securities will receive the regular interest payments in the event that a mortgagor defaults on his mortgage.

The second key feature is the nature of the pass-through certificate. From the lender’s perspective, the key to the development of the market for longer term mortgages is that the pass-through certificate offers the issuer a mechanism to get the longer term mortgages off its books and reduce its borrowing/lending mismatch should interest rates rise or the yield curve invert. More generally, the MBS security can become a key instrument for financing mortgages in Canada.

The first two issues, although they did not lengthen term, proved to be highly popular with investors in late 1986 and set the stage for more issues in 1987-1988. The key features of the Commerce and Scotiabank mortgage backed issues were as follows:

- \* each unit represents an interest in a pool of NHA mortgages which have both monthly interest and principal repayment guaranteed by CMHC;
- \* units were in minimum \$5,000 denominations;
- \* the term was approximately four and one-half years;

- \* interest is paid monthly at 9 1/4 percent—75 basis points over comparable term Government of Canada bonds at the time of issue;
- \* each certificate is assignable and transferable, i.e., the pass-through certificates are tradeable and thus have liquidity;
- \* the banks service the mortgages in the pool for a fee, being the difference between the return on the underlying mortgages (about 10 3/4 percent) and the return on the certificate (9 1/4 percent); and,
- \* these securities are qualified investments for RRSPs, RRIFs and deferred profit sharing plans

The major imponderable for the purchaser of these securities is the blended monthly payment of principal and interest. Under normal circumstances, the regular monthly payment over five years will repay about 6 percent of the principal, so when the certificate matures buyers will get back only 94 percent of the original \$5,000 per unit investment. However, the repayment prior to maturity could be substantially higher thus posing lenders with the risk of reinvesting at a lower rate. This reflects the fact that mortgagors can increase their monthly instalment payments by up to one hundred percent once in any year and can repay up to 10 percent of the original mortgage without penalty. Uncertain circumstances, further amounts can also be paid off.

By the end of 1988 over 130 MBS pools had been issued covering some \$1 billion of MBS outstanding.

a) *The Impact of Consolidating Chartered Bank Mortgage Loan Subsidiaries into the Weekly Financial Statistics*<sup>19</sup>

Until November 1981, the mortgage series shown in entry 21 only reflected mortgages carried on the books of chartered banks. Beginning in November 1981, the assets and liabilities of *all majority-owned subsidiaries* of the banks were consolidated with those of the associated banks.<sup>20</sup> Since most bank subsidiaries

<sup>18</sup> See footnote 16.

<sup>19</sup> This section draws heavily on an article titled, “The new chartered bank statistical reporting system”, published in the *Bank of Canada Review*, November 1981, pp. 35.

<sup>20</sup> This consolidation included several different types of subsidiaries: bank service corporations, mortgage loan and investment corporations, venture capital corporations and bank subsidiaries engaged primarily in leasing and factoring.

are small relative to the size of the parent banks, this consolidation would not normally have a significant impact on consolidated bank assets. However, there was one major exception; *the consolidation of the mortgage loan subsidiaries did have a significant effect on both bank assets and liabilities*. The asset side impact is discussed here because residential mortgages, both conventional and those insured under the National Housing Act, make up by far the largest proportion of the assets of the bank subsidiaries. Asset data for chartered bank mortgage loan subsidiaries is shown in the WFS on page 13 and is discussed in chapter 8.

Consolidation of these assets with the ordinary chartered bank assets shown in the WFS prior to November 1981 increased the chartered bank mortgage series shown here in entry 21 by over 50 percent and the chartered bank "major assets" series noted below in entry 27, by about 7 percent in November 1981. Consistent historical data on these new series were published by the Bank of Canada in March 1983.

The rationale for the rapid growth in mortgages held by the mortgage loan subsidiaries of the chartered banks during the 1970s was explained by the Bank of Canada in its November 1981 *Review* article, as follows:

Through the 1970s the banks held about 25 per cent of their mortgage portfolios on the books of their respective mortgage loan subsidiaries. Over this period, the assets of these subsidiaries grew at an average annual rate of 31 per cent or about twice the average rate of growth experienced by other financial institutions. While asset growth of other financial institutions has continued at a steady pace since late 1979, asset growth in the banks' mortgage loan subsidiaries accelerated sharply. This acceleration was connected with the substantial increase in the volume of mortgages sold by the banks to their respective subsidiaries. As a result, by mid-1981 approximately 40 per cent of the banking system's mortgage portfolio was held on the books of the subsidiaries.

This more aggressive use by the banks of their mortgage subsidiaries relates to the recognized need to match more closely the term to maturity of assets and liabilities to lock in operating spreads. While the banks have generally practised a policy of matching terms to maturity, their efforts in this direction were hampered by the fact that personal term deposits have typically been pre-encashable with a relatively small interest rate penalty. (Through 1980, the penalties for early withdrawal were increased significantly in an

effort to discourage this practice.) Consequently, through the latter half of 1979 and into 1980, in the face of rising and uncertain interest rates, personal savers encashed their holdings of longer term chartered bank fixed-term deposits and placed these funds in higher yielding shorter term deposits. The resultant pressure on bank earnings reinforced the banks' awareness of the need to match maturities. While there was some organizational advantage in having a separate unit responsible for match-funding, the decision to use the subsidiaries was in large part related to the fact that the subsidiaries have traditionally not permitted pre-encashment of their liabilities. By offering non-encashment term deposits through their subsidiaries, the banks had no need to change the characteristics of their own fixed-term deposit instruments. Furthermore, the liabilities of the mortgage loan subsidiaries are not subject to reserve requirements. The interest rates offered on the mortgage subsidiaries' deposit liabilities can, therefore, be more competitive with those offered by other institutions than those on similar instruments issued by the chartered banks in their own name.<sup>21</sup>

22	23	24	25a	25b	25
	CHARTERED BANK ASSETS (Millions of dollars) ACTIF DES BANQUES A CHARTE (En millions de dollars)				
	Canadian dollar assets Avoirs en dollars canadiens				
	Less liquid assets Avoirs de seconde liquidite				
Non-residential mortgages Prêts hypothécaires sur immeubles non-résidentiels	Loans Prêts	Total	Securities Titres	Provincial and municipal Provinces et municipalités	Corporate Sociétés
	Leasing receivables Créances liées au crédit-bail	Total			Corp tion with Soci asse aux
B432 B113546	B433 B113547	B428 B113542	B418 B113507	B434 B113	
4,067	2,834	184,103	1,685	10,495	17
4,154	2,843	186,081	1,880	10,476	16
4,217	2,852	187,562	1,872	10,635	17
4,294	2,866	190,092R	1,731	10,413R	17
4,226	2,842	187,004	1,872	10,598	17
4,213	2,855	185,923	1,869	10,552	17
4,240	2,850	188,564	1,899	10,835	17
4,190	2,863	188,757	1,850	10,554	17
4,239	2,860	189,397	1,910	10,593	17
4,280	2,864	189,040R	1,681	10,426R	17
4,319	2,870	190,701R	1,716	10,304	17
4,339	2,871	191,232R	1,619	10,328	17
4,352R					
4,226	2,874R	193,785R	1,646	10,688R	17
	2,888	193,324	1,720	10,262	17

<sup>21</sup> "The new chartered bank...", *op.cit.*, pp.12-14.

## 22. Non-Residential Mortgages

The non-residential mortgage series was a new entry emerging out of the implementation of the new bank reporting system in November 1981. This series includes mortgages on hotels, stores, office buildings, garages, theatres, warehouses, industrial plants, institutional properties, farms and vacant land. Prior to November, these mortgage loans were included in general loans.

## 23. Leasing Receivables

Entry 23 was also a new entry in November 1981 and reflects the changes in the 1980 Bank Act to allow banks into big ticket financial leasing through wholly-owned subsidiaries. Here, a bank's leasing subsidiary borrows money in the market, or from the parent bank, and uses the funds to purchase fixed capital equipment which the subsidiary leases to its corporate and government clients. The lease charge reflects the cost of the equipment, the cost to the bank subsidiary of the funds borrowed to purchase the equipment, the capital cost allowance it receives on the equipment, administrative costs and a profit spread which varies according to a number of factors including the possibility that the lessee may default.

Bank subsidiaries are active in leasing in four main areas—computer equipment, production machinery, transportation equipment (motor vehicles, aircraft and ships) and office equipment.

Unlike factoring receivables included in general loans, leasing receivables are shown separately in entry 23, given their relatively larger size and anticipated growth.

## 24. Total Loans

The total loans series represents the summation of the seven loan categories discussed above.

## 25. Securities (Held)

The second major less liquid asset category is bank holdings of securities. Entry 25 includes provincial and provincially guaranteed notes and bonds, municipal bills and bonds and corporate securities (debt and preferred and common equity).

All securities covered by entry 25 are carried at

amortized value, although prior to November 1981 municipal and corporate securities could not be shown with an amortized value in excess of the market value.

These security categories tend to be a residual—a parking place for money not loaned out in one of the seven main loan categories.

### a) Provincial and Municipal Securities

The government security class, reflecting purchases of provincial and municipal securities, is small.

25a — 25b — 25c — 25d — 26				
Billions of dollars) (En millions de dollars)				
Securities Titres	Corporate Sociétés	Corporations associated with banks Sociétés associées aux banques	Total Total	Total Total
	B418 B113507	B434 B113548	B415 B113255	B414 B113254
1,685	10,495	171	12,350	196,453
1,880	10,476	167	12,524	198,605
1,872	10,635	172	12,679	200,240
1,731	10,413R	173	12,317R	202,410R
1,872	10,598	170	12,639	199,643
1,869	10,552	172	12,593	198,516
1,899	10,835	172	12,906	201,470
1,850	10,554	173	12,576	201,333
1,910	10,593	173	12,676	202,073R
1,681	10,426R	173	12,280R	201,320R
1,716	10,304	173	12,193	202,895R
1,619	10,328	173	12,120	203,352R
1,645	10,688R	172	12,505R	206,290R
1,720	10,262	172	12,155	205,479

### b) Corporate Securities

Holdings of corporate securities is, by far, the most important securities category. With respect to debt securities, there are very few restrictions on what the banks can hold. Since November 1981, the three entry 25 items include all short-term securities issued by corporate borrowers with an original term to maturity of one year or less (including BAs issued by other banks). Bank purchases of their own BAs are included in business loans. Prior to November 1981, entry 25 *excluded* such securities if they were issued directly to a bank by the borrower. Rather, securities issued

directly were included in the relevant sub-category under general loans.

Under the 1980 Bank Act, banks are restricted to 10 percent of the equity in companies, although this figure can temporarily be exceeded for up to two years if the company is in financial difficulty. Extensions can be granted by the Minister of Finance. This legislation was amended in 1987 to allow banks into a much wider range of businesses.

Chartered bank holdings of corporate securities were up sharply in the second half of the 1970s, reflecting huge takedowns of income debentures and floating rate term preferred equity by the banks during 1977 and 1978. This heavy buying reflected slack loan demand and the fact that the floating rate income debentures and term preferreds had a natural appeal for the banks (floating rate and tax free return). These financing vehicles were largely eliminated by the November 1978 federal budget. In 1982-84 corporate security holdings rose again as banks bailed out companies by converting business loans to equity and convertible debentures.

#### c) Corporations Associated with Banks

The 1980 Bank Act also permitted the banks to own all or any number of voting shares in a bank service corporation, any export financing corporation, a mortgage loan corporation as a subsidiary, a venture capital corporation as a subsidiary, real estate investment trusts, mortgage investment companies and factoring or leasing corporations, if these are bank subsidiaries. For example, a bank venture capital investment is reflected as an equity investment in the securities section. The government can, under the Bank Act, make regulations restricting the power of a bank to own shares. Here again, upcoming Bank Act amendments will expand the bank's ability to enter other business fields.

With the new bank reporting system, securities of corporations associated with banks include all common and preferred shares, debt securities and the chartered banks' share of the earnings of these companies. "Associated companies" are those in which a bank owns at least 20 percent and not more than 50 percent of the voting shares.

#### d) Total (Securities Held)

Entry 25d is the total of entries 25a-25c.

## 26. Total (Less Liquid Assets)

The total of loan items 18-23 and security item 25 represents the Canadian less liquid asset subtotal.

## 27. Total Canadian Dollar Major Assets

The total of the liquid and less liquid loan and security classes (entry 9 plus entry 26) is total Canadian dollar major assets.

This series does not include net Canadian dollar items in transit; customers' liabilities under acceptances, guarantees and letters of credit granted; Canadian dollar operating or other deposit balances with other banks (e.g., inter-bank loans/deposits discussed in entry 14b); and bank premises.

25d		26	27	28	29
Total Total		Total Total	Total Canadian dollar major assets <i>Ensemble des principaux avoirs en dollars canadiens</i>	Net foreign currency assets <i>Avoirs nets en monnaies étrangères</i>	Total major assets <i>Ensemble des principaux avoirs</i>
B415 B113255	B414 B113254		B499 B113251	B410 B113520	B400 B113250
12,350	196,453		222,704	-1,745	220,959
12,524	198,605		227,292	-2,168	225,124
12,679	200,240		228,470	-2,133	226,337
12,317R	202,410R		229,929R	-2,073R	227,856R
12,639	199,843		228,448	-2,118	226,330
12,593	198,516		227,109	-2,072	225,036
12,906	201,470		229,229	-2,681	226,547
12,576	201,333		229,096	-1,660	227,435
12,676	202,073R		229,614R	-1,866R	227,748R
12,280R	201,320R		228,738R	-1,850R	226,888R
12,193	202,995R		230,523R	-2,254R	228,269R
12,120	203,352R		230,841R	-2,323R	228,519R
12,505R	206,290R		233,329R	-1,805R	231,525R
12,155	205,479		231,416	-2,253	229,163

continues  
suite

## 28. Net Foreign Currency Assets

In addition to Canadian dollar assets, the Canadian banks and foreign banks chartered in Canada (following the 1980 Bank Act revision) also make loans denominated in foreign currencies (mainly U.S. dollars) and purchase foreign-pay securities, both to

facilitate their domestic operations and for profit. Page 3 of the Bank Statement does not set out the foreign assets of the banking system, but it does set out "net foreign currency assets". This series, expressed in Canadian dollars on the Statement, includes all foreign assets netted against all foreign liabilities whether booked in Canada or abroad.

The foreign currency asset series is defined to include; gold coin and bullion, foreign currency (notes and coin), bank deposits in foreign currencies, foreign securities, foreign-pay securities issued by Canadian borrowers, day, call and short-term loans to investment dealers and stockbrokers in foreign currencies, other loans in foreign currencies, investments in controlled corporations abroad (only until November 1981) and net foreign currency items in transit (i.e., float which can be a net liability). Foreign assets do not include bank premises abroad.

On the foreign liability side, the Bank of Canada includes bank deposits denominated in foreign currencies and other deposits in foreign currencies. These liabilities are subtracted from the assets to obtain the net foreign asset series.

When foreign assets exceed foreign liabilities the series will have a positive sign, while if foreign liabilities exceed foreign assets it will be negative (i.e., the banks have a net liability position in foreign currencies). A negative net foreign asset position is almost always observed for entry 28. This generally reflects the extent to which the banking system is a net buyer of Canadian assets with (cheaper) foreign funds. Because the Bank only presents data showing assets netted against liabilities, this series is difficult to use on a week-to-week basis because the same change in value can occur if foreign assets go up or if foreign liabilities go down. On balance, only large week-to-week swings are important.

In periods of tight credit and rising Canadian interest rates relative to U.S. or Eurodollar rates, the net foreign asset figure tends to show increasingly large minus numbers, while in periods of Canadian monetary ease relative to the rest of the world, the negative figure declines. Indeed, there have been short periods when the net foreign asset figure has been positive.

Both foreign assets and foreign liabilities have historically been fairly liquid, being controlled at bank head offices and responsive to policy changes. As a result, the Bank of Canada considered *net* foreign assets to be a liquid asset adjustment item during the 1960s. However, with the greater volume of syndicated loans, and especially floating rate *term loans* in the 1970s, the foreign asset series is no longer defined as a liquid asset because term loans are not liquid.

Foreign assets and liabilities are discussed in more detail in a section dealing specifically with chartered bank foreign currency items in chapter 3. The Bank of Canada also publishes a detailed breakdown of total foreign assets and liabilities (booked in Canada and booked abroad) in the *Bank of Canada Review*, tables C11, C12 and C13.

## 29. Total Major Assets

The last entry on the summary balance sheet for the chartered banks is total major assets. This entry is the total for Canadian dollar major assets (entry 27) plus net foreign currency assets (entry 28). This series, however, is a misnomer since it does not add total Canadian major assets to total foreign assets to arrive at total major assets.

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# CHAPTER 3

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## AN EXPLANATION OF THE CANADIAN CLEARING AND SETTLEMENT SYSTEM; AND CHARTERED BANK LIABILITIES

## I. THE CANADIAN CLEARING AND SETTLEMENT SYSTEM

Before launching into a discussion of chartered bank deposit liabilities, it is important to set out in summary how individual payment items, such as cheques, clear through the Canadian financial system. This will show how the static bank deposit entries discussed in this chapter are altered on a day-to-day basis.

### 1. The Automated Clearing and Settlement System<sup>1</sup>

Each business day, Canadian banks usually process and clear five to ten million cheques, worth \$10-25 billion. Until November 1984 the CBA, and then the CPA, held a morning meeting usually beginning at 9:00 a.m. at each of the ten clearing centres in Canada to undertake the official calculation of gains and losses associated with the cheques processed the previous day.<sup>2</sup> In this manner, a net debt or credit position for each direct clearer (typically a schedule A bank) was prepared.

By 9:30 a.m. the net balances were calculated for each direct clearer and a report was made to each of the participating direct clearers (schedule A banks up to 1984) and, shortly thereafter, to the Bank of Canada.

In November 1984 the daily sequence for cheque clearing changed when the CPA implemented a new Automated Clearing Settlement System (ACSS) to replace both the old paper-based system and the need for the morning clearing meetings at the regional centres. In fact, this new system reduces the cost and improves the efficiency of the settlement process and also provides more accurate and timely information to the direct clearers about their overnight clearing gains

or losses. In the process, it was possible to eliminate the need for regional clearing houses across the country.

Under the new system, the direct clearers (currently eight schedule A banks plus six large non-bank deposit-taking institutions and the Bank of Canada) process all cheques received during the day through their own data centres as under the pre-1984 system.<sup>3</sup>

Under normal operating circumstances, direct clearers have until midnight local time to encode the cheques received during the day with the dollar amounts involved (using magnetic ink), capture the information on computer, sort the items by institution on which they were drawn and prepare a summary clearing log for each physical delivery of cheques going to the other direct clearers i.e. there is a midnight cutoff for cheques received during the day which also defines "final exchange before settlement."

Between 7:00 p.m. and midnight local time each business day, bags of cheques and other payment items are exchanged among the direct clearers via physical shipments to the nearest data centre for each direct clearer. Concurrent with each shipment, the sending direct clearer records the corresponding clearing gain with the other clearer and inputs this data via ACSS to the central processing CPA computer facility at the Toronto IBM data centre. *This permits a continuous on-line updating of the net clearing gain or loss positions for each direct clearer in the system.* The physical and electronic exchanges of payment items are generally complete by midnight local time.

Between midnight and 9:00 a.m., cash managers of the chartered banks (and any other direct clearer) can call up their overnight clearing data on a video display terminal. At this point, the banks check the actuals against their yesterday forecast for today.

By 8:00 a.m. the next morning local time, bank accounting departments "complete" the debits for the payor's account and the credits for the payee's accounts and banks may start to release the physical cheques cleared. It is at this point that each direct clearer has sufficient data to accurately determine its clearings. Most of the reported clearing results will be expected by the banks and other direct clearers (e.g., the banks already know when their own security

<sup>1</sup> This section draws on the article "The Detailed Schedule of the Daily Clearing and Settlement System" by James Dingle, Securities Advisor Bank of Canada, February 1988 in "Money and Electronic Banking—the Law of Payment and Clearing," Insight Educational Services, Toronto Ontario, 1988.

<sup>2</sup> Under the new banking legislation passed in 1980, the CBA clearing system was absorbed by the Canadian Payments Association on February 1, 1983. This allows non-banks which become members of the CPA to participate directly in the national payments system and to help develop the clearing system in Canada during the 1980s—1990s.

<sup>3</sup> The banks also forecast the next day's final clearing results based on internal information available today, i.e., large cheques that each bank knows have been written on it or will clear in its favour the next day.



transactions settle and they know most of the cheques which are clearing in favour of the Bank of Canada or government), although a part is not known because it reflects the dollar amounts of the millions of cheques exchanged in the evening. The banks and other direct clearers learn of the Bank of Canada drawdown or redeposit at about 8:15 a.m. Ottawa time.

*At 9:30 a.m. the ACSS system is closed to further entries ("the initial closing time") and "preliminary" net gains and losses are available from ACSS, although adjustments can be made up to 11:00 a.m. to handle corrections.*

At 11:00 a.m. local time (10:00 a.m. in Vancouver), "final" net gains and losses are available on ACSS.

At about 1:30 p.m. Ottawa time, the Bank of Canada obtains each direct clearer's net gain or loss in hard copy. The Bank then posts each direct clearer's account with its net gain or loss under yesterday's date, i.e., retroactive settlement (see point 4 below). (Note: At this point, it is too late for the direct clearers to effect any trade in the market that would offset the Bank of Canada's D/R.)

By 2:30 p.m. Ottawa time, chartered bank applications for an advance are due (later applications will be processed but the interest rate usually exceeds the Bank Rate).

And 3:30 p.m. Ottawa time is the deadline for a "final adjustment" to any settlement entry.

At 4:00 p.m. Ottawa time, the Bank of Canada establishes the final closing balance for each direct clearer for yesterday and, at this point, yesterday's clearings are complete.

From this clearing schedule, it can be seen that the chartered banks and other direct clearers will have almost complete information for the prior day's clearings between 8:30 a.m. and 10 a.m. and it is during this period that they set their cash management policy for the current day.<sup>4</sup> As noted in chapter 1, the banks set this policy with an eye on both their operating need for cash and their need to meet the statutory reserve requirement at the end of each two-

week averaging period. Chartered banks react to the clearing data via asset/liability adjustments. Specifically, each bank looks at its cumulative reserve amount and decides how to react so as to move the cumulative reserve figure, and hence the average excess cash position, to the desired level for the next day. Given that the chartered bank knows where its cumulative position has to come out to be on target for its primary reserves, it will usually want to add or subtract reserves in order to get its reserve position closer to target.

The liquid asset elements which are used for the adjustment include day and call loans, Treasury Bills and Bankers' Acceptances as well as net foreign assets, although the bulk of the asset side adjustment usually falls on Bills, call loans and net foreign assets. In addition, the cash manager may also advise a liability adjustment (e.g., net runoff or increase in inter-bank deposits, CDs or BDNs).

Until July 16, 1986, the transactions described above did not produce same day cash (currency deposits or advances from the Bank of Canada were the only sources of same day cash). Thus, chartered banks, wanting to meet their reserve requirements at the end of the averaging period, faced a degree of uncertainty about cash reserves at the close each day.<sup>5</sup> (Since July 16, 1986, retroactive settlement has reduced these uncertainties.)

The Bank of Canada drawdown or redeposit is also an unknown until the next morning (see section 3 following). As the end of the averaging period approaches, most cash managers will try to go into the final day of the period with sufficient reserves to protect against the largest expected final day clearing loss. However, as noted in chapter 1, there is now much less concern about being offside and less stigma associated with taking advances at the end of averaging periods.

The Bank of Canada will also have to settle for its own transactions with other direct clearers. Since the Bank is itself a direct clearer, this settlement is automatically taken care of in the clearing process. For example, if the Bank credits more to some banks than it debits from others in a day's clearings, it automatically alters its own deposit liabilities owing to the chartered banks and other direct clearers.

<sup>4</sup> The banks also start to tell their corporate customers what cheques will hit their accounts that day and the corporate treasurers begin to structure their accounts for the day. In those cases where the firms have on-line real time computer links to the banks, they can determine their daily results between midnight and 8:30-9:00 a.m., since all items have to be in by midnight and corporations are unaffected by the Bank of Canada drawdown or redeposit.

<sup>5</sup> Prior to July 16, 1986, since advances and cash were the only source of *same day funds* in the reserve system, advances most often showed up on the last or second last day of an averaging period.

## 2. The Bank of Canada's Drawdown or Redeposit

The other key element in the day-to-day sequence is the Bank of Canada's daily drawdown or redeposit. As noted above, the Bank knows the closing reserve positions for each direct clearer by 4 p.m. each day. It also knows the dollar impact of all federal government and Bank of Canada transactions in the system to have effect in the clearings the following morning. Given this, and given an estimate of the demanded level of excess reserves for the next day, the Bank decides on the drawdown/redeposit to increase or decrease the level of bank reserves for the next day in order to achieve its immediate monetary policy objectives.

At about 6:00 p.m. each night, following the D/R decision, the Bank informs the Department of Supply and Services (DSS) of the total D/R. DSS then splits the D/R into the amounts relevant for each direct clearing institution. (As noted above, there were eight schedule A banks as direct clearers in early 1988 plus six large non-bank deposit-taking institutions and the Bank of Canada.)<sup>6</sup> This split is done according to a formula which reflects each clearer's share of total Canadian dollar deposits. (DSS does the relevant accounting and paperwork around 7:00 a.m. the next morning.)

At 8:00 a.m. DSS prepares individual cheques drawn on the Bank of Canada in the case of a redeposit and physically delivers them to the Bank (Ottawa) between 8:00 and 8:30 a.m. In the case of a drawdown, DSS prepares cheques drawn on each direct clearer payable to the Bank. These items are exchanged between direct clearers before the 9:30 a.m. cut-off time.

Between 8:00 and 8:30 a.m. the Bank of Canada notifies each direct clearer by telephone or telex of its particular dollar portion of the drawdown or redeposit for the day.

This 24-hour cycle of market transactions—the movement of payment items to direct clearers, the evening physical exchange of the paid payment items among direct clearers, the calculation of net clearing gains and losses by the CPA and the consequent adjustments in the direct clearers' accounts at the Bank of Canada—occurs on every business day of the year.

<sup>6</sup> The criterion to become a direct clearer requires that the institution clear 1/2 of 1 percent of the payment items in the system.

## 3. The Shift to Retroactive Settlement (Same Day Settlement) of Cheques and Other Payment Items Between CPA Direct Clearers<sup>7</sup>

### a) *The Mechanics*

On July 10, 1986, the Bank of Canada and the CPA jointly announced a very significant change in the methodology for clearing cheques and other payment items of CPA direct clearing members, following recommendations of the CPA. Specifically, the Bank of Canada would make the daily clearings coincide with the underlying transactions by shifting to retroactive settlement of the daily clearing of cheques and other payment items. This, in effect, eliminates most float between direct clearers by eliminating the one-day lag in the settlement of the daily clearing of cheques and other payment items among banks and other deposit-taking direct clearing institutions.

The mechanism used to eliminate the effect of the one-day lag (float) required a change in the dating of clearing settlements recorded in the accounts at the Bank of Canada for the financial institutions participating directly in the clearing process. The new accounting procedure, initiated on July 16, 1986, provides settlement on a retroactive basis. That is to say, it is designed to ensure that the dating of the clearing results on the books of the Bank of Canada will typically be the same as the dating of the associated deposit or encashment transactions between financial institutions and their clients.

Specifically, before July 16, 1986, the overnight gains and losses for each clearer were recorded and settled at the Bank of Canada in the afternoon of the following day. Thus, there typically was a one-day lag in settlement; during this one day the clearing items were reflected as float. Under retroactive settlement, this lag was eliminated by keeping the Bank of Canada's books open into the following day until the clearing is completed and settlement takes place. That is, the effective date for the settlement of clearing gains and losses is now the same day that most payment items are deposited by customers and are exchanged between financial institutions. This substantially reduces float.

<sup>7</sup> This section draws heavily on an article titled, "Technical note: Introduction of retroactive settlement for the daily clearing of cheques and other payment items", by J.F. Dingle, in *Bank of Canada Review*, August 1986, pp. 3-6.

Finally, retroactive settlement applies to Bank of Canada advances. Under retroactive settlement, the amount of an advance will not be reflected in the clearings until the following morning (11:00 a.m.) when the daily clearing process is completed; advances made involve the provision of value that is also dated back to the preceding business day.

#### *b) Advantages of Same Day Settlement*

The advantages of shifting to same day settlement among direct clearers are enormous. This was pointed out by the CPA in its July 10, 1986, release as follows:

One of the main and most immediate benefits of this change in the settlement procedure will be the simplification of banking arrangements between deposit-taking institutions and their large customers, namely corporations and certain governments. These arrangements have typically involved charges levied by financial institutions in order to offset the fact that they credit such a customer's account on the day that a deposit of cheques is made, and may begin to pay interest on it, yet do not receive the corresponding increases in their settlement balances at the Bank of Canada until the clearing process is completed on the subsequent business day. In order to calculate the charges, financial institutions have had to monitor the typical patterns of receipts and disbursements for each major client, patterns which would vary over time and were costly to measure. The large customers, on the other hand, came to devote significant resources to the management of their payments so as to reduce the charges as much as possible. The sophisticated techniques which were developed often had the effect of passing the burden along to other participants in the payments system. It was therefore a situation in which the resources being applied seemed likely to grow further, without any resulting increase in efficiency in the Canadian economy as a whole. The announced change in the settlement procedure will largely eliminate this misallocation of resources and therefore make the payments system more efficient.<sup>8</sup>

<sup>8</sup> Under the new system, items in the clearings do not earn or pay interest. Thus, fewer resources need to be devoted to cash management for the same degree of efficiency. For example, it is no longer necessary for financial institutions to monitor and analyse the patterns of receipts and disbursement of clients in an effort to estimate the average cost associated with payment items in transit before they are settled. It is also no longer necessary for major clients of the financial institutions to devote resources to adjusting the timing or routing of payments.

The new procedure will also remove an existing distortion in the use of various means of making payments (i.e. between electronic payments and paper transactions). Millions of payments a year are already being made in electronic form on magnetic tape. The settlement process relating to exchanges of magnetic tapes between financial institutions has been structured in such a way that the receiving institution gains in the clearings exactly on the date the payments are due, in contrast to the settlement for cheques. The announced change will standardize the speed of settlement for both paper and electronic payments, and set the scene for the more rational development of various means of making payment.<sup>9</sup>

Other advantages include more accurate balance sheet data for the direct clearers and the Bank of Canada, and probably tighter Bank of Canada control over interest rates because of a lower and more stable level of float.

Finally, the shift to same day settlement eliminated a major problem introduced into the Canadian money market in April 1986 when the Department of Finance moved to implement an ill-conceived policy of charging and paying interest on float.<sup>10</sup>

<sup>9</sup> Press Release, Canadian Payments Association, July 10, 1986.

<sup>10</sup> On April 1, 1986, the federal Finance Department implemented a new policy to charge one day's interest (at prime less 2.5 percent) on cheques clearing in its favour from banks—the length of time the cheque existed as float. Similarly, Ottawa would pay the same interest for one day on its cheques being deposited with banks.

The key to this proposal's devastating impact on the money market was that Finance specifically hit the banks for one day's interest on bank and dealer cheques for payment to the Receiver General regarding the purchase of new issue Treasury Bills and new bond issues. And in mid-April 1986, in a move that surprised Finance and the dealers, the chartered banks began to pass Finance's new charges on to bond and money market dealers on the basis that the banks were not prepared to absorb costs which were dealer generated.

At this point, an understanding of the asymmetry of dealer new issue purchases and maturities is critical. Dealers buy far more new issues than they have securities maturing, since the *raison d'être* for a successful dealer is to buy and sell as many Bills and marketable bonds as possible. In the 1986 market, major dealers were buying \$400-600 million in Bills at tender each week and maturing only about 10 percent of their purchases. As a result, the float charge would potentially add about \$235 per million to the dealer cost of buying new issue Bills alone. Thus, for taking on, say, \$500 million net new Bills each week, dealers would have had to pay a net float charge of about

\$117,000 per tender, or \$6.1 million per year. This potentially added about 10 basis points to the average dealer cost of Bills. Given that dealers make less than 5 basis points in commission on Bill trades, the net float charge potentially put dealers into an immediate loss position, which could only be made up by shifting the incidence to security buyers. In determining the ultimate incidence, market power is important. The banks clearly had the power to pass all their dealer generated costs on to dealers, but dealers did not have the power to pass their full cost on to their customers in the form of lower yields.

The float interest charge potentially had very negative implications for money market dealers and for the efficient functioning of capital markets in Canada. First, and of immediate importance, was the fact that no dealer makes enough money in its money market operation to pay a \$3-10 million per year float charge.

Second, because dealers are limited in their ability to shift the charge to securities buyers, dealers would have to dramatically cut back both their bidding for new issue Treasury Bills, when the amounts bid for exceed expected maturities, and their soliciting of pre-tender orders. The "When Issued" market would also be less active as no dealer would short outstanding Bills to clients if they had to cover the short at tender. This would mean less market liquidity, cost Ottawa placing power, and increase their cost of T-Bill financing.

Third, dealers would have been encouraged to buy and sell aggressively in the secondary market (where there is no float charge) and end up the week with a profitable net maturity position. It was not in Ottawa's interest to have dealers and banks playing arbitrage games in the Bill market.

Fourth, there would be a distorted money market yield curve. In particular, dealer/bank reaction would be to bid aggressively for one- to two-week secondary Bills in order to match their desired Bill tender win with their maturities. In the first week of intended implementation, for example, maturing Bills were bid as low as 2.5 percent with an offering of only 1 percent as of late Wednesday and early Thursday. These same Bills the previous week were yielding normal rates of 10.5 percent. Distortion was also evident at the tender with the three-month and six-month Bills averaging 9.02 percent and 9.29 percent, but tailing to a wide 9.21 percent and 9.50 percent respectively, even with major Bank of Canada buying.

Fifth, the Bank of Canada may have been forced to run an easier cash management policy (as it had to do the first week) to provide a positive dealer carry sufficient to offset the float interest impact. Alternatively, the Bank of Canada may have had to buy more Bills and either monetize more debt than it wanted or feed the Bills out into the market over the week (with no float charge). In either case, Finance's move seemed to reduce the Bank of Canada's flexibility in managing bank cash and interest rates.

### c) *The Disadvantage of Retroactive Settlement*

The biggest problem with retroactive settlement is that the Bank of Canada no longer can close its books for the Statement week on Wednesday at 5:00 p.m., since the Wednesday data cannot be finalized until Thursday afternoon. This means that the Bank of Canada can no longer produce either its balance sheet or the balance sheets for the other direct clearers on Thursdays. Under same day settlement, these data can only be produced on Friday.

As a result, market participants do not have timely information on the banking system to assess current market conditions prior to the Thursday Treasury Bill tender and before trading commences on Friday morning. The lack of timely information early Friday is particularly significant given the prospect of more volatile money markets on Friday. This occurs because under back-dating the previous "three times" weighting for bank reserve holdings for Mondays shifts to Friday (although it is much more logical to have Friday reserves count for Saturday and Sunday). And, with the final day of reserve averaging periods frequently occurring on a Friday, the Canadian money market is often more unsettled on this day. Thus, major market participants asked the Bank for the following:

- \*that the Bank provide all market participants with the spot and cumulative reserve position of the banking system *on a daily basis*. This would provide dealers and chartered banks with some timely information on the banking system prior to the Bill auction.
- \*that the Bank continue to publish the *Weekly Financial Statistics* package on Thursday but with a Friday supplement. This is because there is important data in the WFS not affected by the back-dating procedure. This includes chartered bank balance sheet data and monetary aggregate data for the previous week, and data for the current week on exchange markets and interest rates.

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In conclusion, the move to implement float interest proved to be ill conceived. *But the end result was that it provided immediate impetus for adopting retroactive settlement to eliminate this element of float and thus float interest.*

\*in the event the Bank continued to opt for a Friday release date, market participants asked that the Bank provide selected indicators of current market conditions on the Telerate system as early as possible on Friday mornings. Dealers asked for the major components of the Bank of Canada balance sheet, including Bank of Canada purchase and resale agreements, chartered bank cash reserves, the spot and cumulative excess cash figures, secondary reserve asset holdings, chartered bank liquid asset holdings and the overnight money market financing rate for the current week.

The Bank of Canada responded to these requests by providing a small amount of data Friday morning on Telerate. The information currently provided is inadequate for timely market evaluations.

#### 4. Future Trends in the Canadian Clearing and Settlement System

The ACSS system, discussed in part 1, will eventually form the core of a national payments system involving electronic funds transfer, a national electronic point of sale network and a national network of shared automated teller machines. To deal with these developments, a CPA Technical Committee has been established. It has a three-part mandate:

- (i) to determine which existing standards are applicable to shared ATM networks; (ii) to determine in what way the standards currently in use for telecommunications interconnection and security, for example, could be made stronger, and (iii) to make recommendations to the Senior Planning Committee about the development of necessary new standards in, for example, the area of settlement procedures.

The CPA's Board of Directors has received preliminary reports by this Technical Committee. In the first report

the Technical Committee recommended, first, that existing international standards for the physical characteristics of plastic cards and the data contents of the magnetic stripe on the back of the cards be adopted by the CPA as standards for the Canadian deposit-taking industry, and that these standards be widely publicized by the CPA. Second, the Technical Committee recommended, and the Board has agreed, that the responsibility for acting as the Canadian

Registrar for Card Issuer Identification Numbers be transferred from The Canadian Bankers' Association to the Canadian Payments Association. Given expectations of the increasingly wide use of payment cards in the years to come, this registry function is an integral part of the CPA's second objective. Initial steps to implement this recommendation have already been put in train.

Third, the report also examined certain legal and operational problems that might arise from the use of pre-authorized payments to facilitate transactions moving through either shared ATM networks or networks of terminals at the point of sale. The Board has agreed that pre-authorized payments are, in fact, an inappropriate means of facilitating variable-amount transactions on shared ATM or POS networks, and in March issued a one-page policy statement to this effect ...

Fourth, the report identified a number of technical requirements for shared ATM networks and the Board has asked the Technical Committee to refine these requirements and recommend standards for ultimate adoption by the CPA. Finally, the Technical Committee's report made an attempt to describe the flow of messages and the calculations necessary for the settlement of transactions in shared ATM networks, that is, the daily process of acknowledging and settling debt.<sup>11</sup>

## II. BANKING SYSTEM DEPOSIT LIABILITIES

A fairly complete liability statement for the banking system is presented at the bottom of page 3 and on page 4 of the weekly Bank Statement.<sup>12</sup> This is

<sup>11</sup> "The Canadian Payments Association", Excerpt from remarks by Serge Vachon, Chairman of the Canadian Payments Association, Montreal, April 15, 1985.

<sup>12</sup> Pages 3 and 4 do not show all chartered bank liabilities, just as pages 2 and 3 do not show all assets. The principal exclusions are advances from the Bank of Canada, bank guarantees and letters of credit (excluding BAs which are shown explicitly), the shareholders' equity component of bank capital (debentures outstanding are shown), a large amount of foreign currency liabilities, and accumulated appropriations for losses (since 1967). Also the liability data do not show accumulated profits which, since 1970, have been included each month under "other liabilities", an entry not shown on the weekly balance sheet. These last two items have become increasingly important in recent years and should be shown separately on the Bank Statement covering each month end.

Column		23	24	25a	25b	25c	25d	26	27	28	29	
Average of Wednesdays and Wednesday Moyenne mensuelle des mercredis ou données du mercredi	CHARTERED BANK ASSETS (Millions of dollars) <i>ACTIF DES BANQUES A CHARTER (En millions de dollars)</i>										continued suite	
	Canadian dollar assets <i>Avoirs en dollars canadiens</i>										Net foreign currency assets <i>Avoirs nets en monnaies étrangères</i>	Total major assets <i>Ensemble des principaux avoirs</i>
	Less liquid assets <i>Avoirs de seconde liquidité</i>											
	Loans <i>Prêts</i>											
	Leasing receivables <i>Créances liées au crédit- bail</i>	Total <i>Total</i>	Securities Provincial and municipal <i>Provinces et municipi- alités</i>	Corporate <i>Sociétés</i>	Corporations associated with banks <i>Sociétés associées aux banques</i>	Total <i>Total</i>	Total Canadian dollar major assets <i>Ensemble des principaux avoirs en dollars canadiens</i>					
	B433 B113547	B42B B113542	B418 B113507	B434 B113548	B415 B113255	B414 B113254	B499 B113261	B410 B113520	B400 B113250			
1987	M	2,834	184,103	1,685	10,495	171	12,350	196,453	222,704	-1,745	220,959	
	A	2,843	186,081	1,880	10,476	167	12,524	198,605	227,292	-2,168	225,124	
	M	2,852	187,562	1,872	10,635	172	12,679	200,240	228,470	-2,133	226,337	
	J	2,866	190,092R	1,731	10,413R	173	12,317R	202,410R	229,929R	-2,073R	227,856R	
1987	M 6	2,842	187,004	1,872	10,598	170	12,639	199,643	228,448	-2,118	226,330	
	13	2,855	185,923	1,869	10,552	172	12,593	198,516	227,109	-2,072	225,036	
	20	2,850	188,564	1,899	10,835	172	12,906	201,470	229,229	-2,681	226,547	
	27	2,863	188,757	1,850	10,554	173	12,576	201,333	229,096	-1,660	227,435	
	J 3	2,860	189,397	1,910	10,593	173	12,676	202,073R	229,614R	-1,866R	227,748R	
	10	2,864	189,040R	1,681	10,426R	173	12,260R	201,320R	228,738R	-1,850R	226,888R	
	17	2,870	190,701R	1,716	10,304	173	12,193	202,895R	230,523R	-2,264R	228,269R	
	24	2,871	191,232R	1,619	10,328	173	12,120	203,352R	230,841R	-2,323R	228,519R	
	J 1	2,874R	193,785R	1,645	10,688R	172	12,605R	206,290R	233,329R	-1,805R	231,525R	
	8	2,888	193,324	1,720	10,262	172	12,155	206,479	231,416	-2,253	229,163	
Changes from:		Variations par rapport à la:										
1986	J 9	165	15,657	460	-551	4	-87	15,571	18,691	31	18,723	
1987	J 1	14	-461	75	-426	-	-350	-811	-1,913	-448	-2,362	

Column		1a	1b	1c	1d	1e	1f	2a	2b	2c	2d	
Average of Wednesdays and Wednesday Moyenne mensuelle des mercredis ou données du mercredi		CHARTERED BANK LIABILITIES (Millions of dollars) <i>PASSIF DES BANQUES A CHARTER (En millions de dollars)</i>										BCR Table C2 RBC Tableau C2
		Canadian dollar deposits <i>Dépôts en dollars canadiens</i>										Non-personal term and notice deposits <i>Dépôts à terme ou à préavis autres que ceux des particuliers</i>
		Personal savings deposits <i>Dépôts d'épargne des particuliers</i>										
		Chequable <i>Transférables par chèques</i>										
		Daily interest <i>A intérêt quotidien</i>	Other <i>Autres</i>	Non-chequable <i>Non transférables par chèques</i>	Fixed term <i>A terme fixe</i>	Total <i>Total</i>	Chequable <i>Transféra- bles par chèques</i>	Non-chequable <i>Non transférables par chèques</i>	Bearer term notes <i>Billets à terme au porteur</i>	Other fixed term <i>Autres dépôts à terme fixe</i>	Total <i>Total</i>	
		B484 B113535	B485 B113536	B479 B113645	B480 B113266	B454 B113606	B451 B113522	B472 B113607	B473 B113608	B474 B113609	B475 B113610	B455 B113259
1987	M	28,596	4,178	18,160	25,466	54,539	130,939	11,273	2,693	4,432	28,394	46,792
	A	29,436	4,291	18,515	25,342	54,627	132,211	11,641	2,716	4,539	29,111	48,007
	M	29,705	4,335	19,722	25,502	54,021	133,286	12,089	2,780	4,805	28,886	48,560
	J	29,524R	4,399	21,729	25,117	53,408R	134,177	12,277R	2,754	4,812R	29,654R	49,497R
1987	M 6	30,253	4,421	19,077	25,636	54,243	133,631	11,908	2,740	4,811	28,658	48,116
	13	29,648	4,301	19,481	25,490	54,091	133,010	12,043	2,806	4,734	28,754	48,336
	20	29,546	4,285	19,962	25,454	53,962	133,209	12,376	2,795	4,848	28,861	48,879
	27	29,374	4,334	20,369	25,427	53,789	133,292	12,030	2,778	4,827	29,274	48,909
	J 3	29,752	4,426	21,189	25,358	53,584	134,310R	12,344R	2,762	4,863	29,063R	49,032
	10	29,372	4,337	21,478R	25,137R	53,443R	133,768	12,219R	2,763	4,920	29,531R	49,434
	17	29,634R	4,424	21,935	25,076	53,358	134,427	12,380R	2,764	4,725	30,072	49,940
	24	29,336	4,411	22,314	24,896	53,247R	134,204R	12,165	2,729	4,740R	29,948R	49,582R
	J 1	29,529R	4,572	22,962R	24,894R	53,058R	135,005R	13,186R	2,759R	5,257R	30,479R	51,681R
	8	28,665	4,351	23,625	24,574	53,156	134,371	13,429	2,718	5,086	29,156	50,389
Changes from:		Variations par rapport à la:										
1986	J 9	2,173	41	9,366	-2,839	547	9,287	4,444	373	600	3,265	8,681
1987	J 1	-864	-221	663	-310	98	-634	243	-41	-171	-1,323	-1,292

Average of Wednesdays and Wednesday Moyenne mensuelle des mercredis ou données du mercredi		CHARTERED BANK LIABILITIES (Millions of dollars) <i>PASSIF DES BANQUES A CHARTRE (En millions de dollars)</i>										Other selected liabilities <i>Autres éléments du passif</i>	
		Canadian dollar deposits <i>Dépôts en dollars canadiens</i>										Bankers' acceptances and outstanding payable in Canadian dollars <i>Acceptations bancaires en circulation Débentures libellées en dollars canadiens en circulation</i>	
		Demand deposits (less private sector float) <i>Dépôts à vue (moins effets du secteur privé en cours de compensation)</i>	Total deposits held by general public <i>Ensemble des dépôts du public</i>	Government of Canada deposits <i>Dépôts du gouvernement canadien</i>	Total <i>Total</i>	Term à terme fixe	Total deposits (less private sector float) <i>Ensemble des dépôts (moins effets du secteur privé en cours de compensation)</i>	Estimated net private sector float <i>Solde des effets du secteur privé en cours de compensation (estimations)</i>	Gross Canadian dollar deposits <i>Montant brut des dépôts en dollars canadiens</i>	Total Canadian dollar float <i>Ensemble des effets en dollars canadiens en cours de compensation</i>	B461 B113641	B462 B113523	
		B478 B113260	B465 B113258	B456 B113408	B489 B113409	B477 B113257	B476 B113541	B450 B113521	B460 B113530	B461 B113641	B462 B113523		
1987	M	18,788	196,519	3,252	2,016	199,771	-677	199,094	-697	27,837	1,999		
	A	20,175	200,393	3,510	1,967	203,903	-757	203,146	-780	28,018	1,996		
	M	20,768	202,613	2,802	1,865	205,415	-680	204,734	-489	28,679	1,991		
	J	21,109R	204,783R	1,605	269	206,389R	-890R	205,498R	-805R	28,498	1,916		
1987	M	6	21,151	202,897	2,473	1,726	205,371	-339	205,032	-143	28,346	1,994	
	13	20,543	201,889	2,054	1,362	203,944	-666	203,278	-711	29,057	1,993		
	20	21,200	203,288	2,435	1,182	205,723	-858	204,865	-823	28,618	1,992		
	27	20,178	202,379	4,244	3,190	206,623	-859	205,764	-280	28,694	1,984		
	J	3	20,971	204,313R	1,696	227	206,010R	-583	205,426R	-538	28,712	1,916	
	10	20,669R	203,870R	1,762	-	205,631R	-1,002R	204,630	-870R	28,480	1,916		
	17	21,234R	205,601R	1,228	100	206,830R	-757R	206,073R	-717R	28,197	1,915		
	24	21,562R	205,349R	1,735	750	207,084R	-1,220R	205,864R	-1,094R	28,601	1,915		
	J	1	22,349R	209,035R	345	-	209,380R	-227R	209,153R	-782R	27,722R	1,915	
	8	20,793	205,553	1,113	141	206,666	-413	206,254	-345	28,432	1,915		
Changes from:		<i>Variations par rapport à la:</i>											
1986	J	9	3,315	21,283	-1,219	-674	20,064	-631	19,434	-501	4,258	-495	
1987	J	1	-1,556	-3,482	768	141	-2,714	-186	-2,899	437	710	-	

Average of Wednesdays and Wednesday Moyenne mensuelle des mercredis ou données du mercredi		CHARTERED BANK LIABILITIES (Millions of dollars)			continued <i>suite</i>	CHARTERED BANK FOREIGN CURRENCY ITEMS (Millions of dollars)					
		<i>PASSIF DES BANQUES A CHARTRE (En millions de dollars)</i>				<i>EFFETS EN MONNAIES ETRANGERES DES BANQUES A CHARTRE (En millions de dollars)</i>					
		Gross Canadian dollar Demand Deposits <i>Dépôts à vue en dollars canadiens (montant brut)</i>				Net foreign currency business with Canadian residents (booked at chartered banks in Canada) <i>Opérations en monnaies étrangères avec des résidents canadiens (sièges et succursales canadiennes seulement)</i>					
		Personal chequing Compte de chèques personnels	Other <i>Autres</i>	Total <i>Total</i>		Assets Avoirs nets en monnaies étran- gères	Securities Titres	Loans Prêts	Deposits Dépôts of banks Dépôts des banques	Other <i>Autres</i>	Total <i>Total</i>
		B486 B113537	B487 B113538	B457 B113640		B410 B113520	B483 B113508	B498 B113527	B481 B113525	B482 B113526	B496 B113528
1987	M	2,790	15,321	18,111		-1,745	2,441	26,801	2,764	8,196	10,960
	A	3,025	16,393	19,418		-2,168	2,460	25,303	3,147	8,501	11,649
	M	3,118	16,969	20,087		-2,133	2,503	25,983	3,555	8,477	12,032
	J	3,128	17,090R	20,219R		-2,073R	2,390	26,995R	3,911	8,736R	12,647R
1987	M 6	3,325	17,487	20,812		-2,118	2,364	25,722	3,607	8,330	11,936
	13	3,061	16,816	19,877		-2,072	2,509	25,847	3,413	8,297	11,710
	20	3,050	17,292	20,342		-2,681	2,561	26,142	3,277	8,689	11,966
	27	3,036	16,283	19,319		-1,660	2,576	26,222	3,925	8,592	12,517
	J 3	3,179	17,209	20,388		-1,866R	2,416	26,648	3,953	8,576	12,529
	10	3,007	16,660	19,667		-1,850R	2,388	26,923	4,108	8,630	12,738
	17	3,183	17,294R	20,477		-2,254R	2,336	27,561	3,843	8,803	12,646
	24	3,144	17,198R	20,343R		-2,323R	2,422	26,847R	3,738	8,935R	12,672R
	J 1	3,681R	18,441R	22,122R		-1,805R	2,470R	26,602R	3,773R	9,081R	12,854R
	8	3,144	17,236	20,381		-2,253	2,341	25,944	3,452	8,801	12,252
Changes from:		Variations par rapport à la:									
1986	J 9	184	2,500	2,684		31	-969	-2,596	-662	685	23
1987	J 1	-537	-1,205	-1,741		-448	-129	-658	-322	-280	-602



virtually identical to table C2 in the *Bank of Canada Review*.

There are four broad deposit liability classes as follows: personal savings deposits, non-personal (corporate and institutional) term and notice deposits, demand deposits and Government of Canada deposits. Under the Canadian Bank Act, a bank may pay interest at any rate on any deposit, in contrast to the U.S. where there are restrictions (which are being phased out) on the rates banks can pay.

The Canada Deposit Insurance Corporation (CDIC)—a federal government Crown corporation established in 1967—guarantees Canadian dollar deposits for all individuals with member institutions (all Canadian banks and foreign banks with Canadian charters are members, and there are about 100 federally and provincially incorporated trust and mortgage firms which are members) up to \$60,000 per depositor. This was increased from \$20,000 per individual depositor effective January 4, 1983. The CDIC is also empowered to borrow up to \$3.0 billion from the federal Consolidated Revenue Fund to make the guarantee effective. Until the CCB and Northland Bank failures, no bank depositor ever needed to make a claim, although there had been thousands of claims from depositors at trust companies and mortgage loan companies. Deposit insurance is very valuable because it deals with the *root cause* of banking crises—the loss of depositor confidence; the Bank of Canada, via its advances can only deal with the *effect* of a bank in trouble.

Up to 1985, legislation governing the CDIC set members' premiums at 1/30th of 1 percent of total insured deposits. However, when the CDIC thought the fund was large enough, it could reduce the premiums and did so each year from 1972 to 1982. At the end of 1981 the CDIC deposit insurance fund stood at \$167.3 million with another \$58.4 million available for drawing from net income which accrued over the years from the excess of interest income over expenses.

In 1982-86 the situation changed dramatically. Huge payments from the fund shifted the surplus to a deficit of over \$1 billion by the end of 1986. A special private sector report recommended that the deficit be covered by a \$1 billion preferred share issue and by raising the membership fee from 1/30th of 1 percent of insured deposits to 1/10th of 1 percent (in two stages). The preferred share issue was never done, but the membership fee was raised to 1/10th of 1 percent effective February 1, 1986.

More changes were also proposed for the CDIC in early 1987. In a bill tabled in early March 1987, Ottawa proposed to increase the fees for deposit insurance further—to \$5,000 per financial institution (FI) plus 1/6th of 1 percent of each insurable deposit. Further, to keep insured institutions in line, the Superintendent of Financial Institutions and the CDIC can intervene in any FI's affairs if the FI is following unsound practices. If the FI does not come into line, CDIC could terminate its deposit insurance on 30-days' notice. CDIC's borrowing facility to back up the guarantee for insured deposits was also increased from \$1.5 billion to \$3 billion.

Since the CDIC legislation was passed raising the insured deposit ceiling to \$60,000 (effective January 4, 1983), *non-insured instruments* of CDIC members must include words on the face of the instrument to indicate they are not insured. Generally, deposit insurance covers all demand and time deposits, (savings and chequing accounts,) money orders and GICs and term deposits with a term of five years or less. Funds in RRSPs and invested in eligible instruments are covered separately. Thus, a person could be covered for up to \$120,000 at the same institution if he has \$60,000 in eligible deposits and another \$60,000 in eligible deposits in an RRSP. Foreign currency deposits and deposits in pooled funds, mortgage and real estate investments, and stocks and bonds are *not* covered.

As with the Bank of Canada's balance sheet and the asset statement for chartered banks, the discussion here is keyed to the actual statement of liabilities. Data are shown by week for the current month and for the latest two completed months, and a monthly average for the latest four months is also shown. The most recent data are generally one week out of date, and the change is shown from the previous week and from the same week a year earlier.

As with the asset side of the balance sheet, bank liabilities were also affected by the passage of the 1980 Bank Act. Specifically, certain Canadian bank deposit categories have been increased both by the inclusion of deposits of foreign banks becoming Canadian banks and by the implementation of a revised chartered bank reporting system in November 1981.

Three changes are worth noting as they affect pages 3 and 4 of the WFS. First, all deposit categories now *exclude* accrued interest. Since November 1981, accrued interest is included in the "other liabilities" entry, which is not shown in the WFS. In most cases,



the impact of this accounting change is small. However, for non-chequable savings deposits, the impact is more significant. Prior to November 1981, most banks actually paid interest to the depositor only at the end of April and end of October but accrued the interest on these deposits each month. Now, the banks accrue the interest in "other liabilities" and only actually add the interest to their deposit liabilities on the date when the interest is payable. This reflects the fact that interest only becomes a deposit component when the depositor can actually claim it.

Second, the consolidation of majority-owned bank subsidiaries with the parent banks in the WFS increases chartered bank liabilities by the same amount as the increase in assets. In particular, the lending activities of these subsidiaries are funded largely by the sale of deposit receipts to the public, typically for a term of one year or more, through the branches of the associated bank. Because the liabilities used to fund the asset side were classified as deposits in the consolidation, deposit liabilities and especially personal fixed term deposits were increased by the consolidation.

Finally, the incorporation of foreign banks as Canadian banks under the 1980 Bank Act also increases deposit liabilities for the Canadian banking system, especially non-personal term deposits.

## 1. Personal Savings Deposits

The banks were even more innovative on the deposit side than on the loan side during the late 1970s and early 1980s. By the end of 1983 banks offered almost an unlimited number of different types of personal savings accounts, ranging from U.S. dollar accounts to special accounts for senior citizens.

Personal savings deposits have five subcomponents: chequable deposits, which can be either daily interest or ordinary chequable deposits; non-chequable deposits, which also have these daily interest accounts and ordinary non-chequable accounts; and fixed term deposits. Under the 1980 Bank Act, each of these five deposit categories carries the low 2 and 3 percent reserve requirements (2 percent for banks with deposits up to \$500 million, plus an additional 1 percent on deposits over \$500 million). The banks theoretically can require several days notice for savings deposit withdrawals, although this is rarely enforced. Each deposit class pays interest differently.

## a) Daily Interest Chequable Deposits

In the early 1980s, computerization and aggressive banking competition led several banks and trust companies to revitalize the traditional chequable savings account by offering a new super "all in one" universal type account—the daily interest chequing-savings account (DICA). These accounts, which typically substitute a monthly statement of transactions for a passbook (although some do offer the passbook) and the return of cheques, are included here in entry 1a. These accounts combine the advantages of chequing privileges with the daily interest feature and monthly payment of interest first introduced for non-chequable daily interest savings accounts discussed as entry 1c below.

At the present time there is no completely uniform daily interest chequing account. The banks and trust companies are all offering slightly different combinations of interest rates and service charges on cheques/withdrawals depending on the minimum deposit balance.

<div> <span>1a</span> <span>1b</span> <span>1c</span> <span>1d</span> <span>1e</span> <span>1f</span> </div>					
CHARTERED BANK LIABILITIES (Millions of dollars) <i>PASSIF DES BANQUES A CHARTE (En millions de dollars)</i>					
Canadian dollar deposits					
<i>Dépôts en dollars canadiens</i>					
Personal savings deposits					
<i>Dépôts d'épargne des particuliers</i>					
Chequable		Non-chequable		Fixed	Total
<i>Transférables</i>		<i>Non transférables</i>		term	
<i>par chèques</i>		<i>par chèques</i>		<i>A terme</i>	
Daily	Other	Daily	Other	fixe	
interest	<i>Autres</i>	interest	<i>Autres</i>		
<i>A intérêt</i>		<i>A intérêt</i>			
<i>quotidien</i>		<i>quotidien</i>			
B484	B485	B479	B480	B454	B451
B113535	B113536	B113645	B113266	B113606	B113522
28,596	4,178	18,160	25,466	54,539	130,939
29,436	4,291	18,515	25,342	54,627	132,211
29,705	4,335	19,722	25,502	54,021	133,286
29,524R	4,399	21,729	25,117	53,408R	134,177
30,253	4,421	19,077	25,636	54,243	133,631
29,648	4,301	19,481	25,490	54,091	133,010
29,546	4,285	19,962	25,454	53,962	133,209
29,374	4,334	20,369	25,427	53,789	133,292
29,752	4,426	21,189	25,358	53,584	134,310R
29,372	4,337	21,478R	25,137R	53,443R	133,768
29,634R	4,424	21,935	25,076	53,358	134,427
29,336	4,411	22,314	24,896	53,247R	134,204R
29,529R	4,572	22,962R	24,884R	53,058R	135,005R
28,665	4,351	23,625	24,574	53,156	134,371

Trust companies led the way with DICAs in 1983. For this institutional class a "standard" daily interest chequing account typically paid interest at a relatively low savings-type rate on the first \$3,000 in the account and at a higher rate on the amount over

\$3,000. This higher rate approximated the going rate on 30-day term deposits. The chartered banks also established DICAs, depending on the size of deposit. However, they were often only paying a low 3 percent fixed rate when the deposit was below a specific minimum level (e.g., \$2,000). This stepped up to a competitive savings rate (e.g., 3/4 percent below the non-chequable savings account rate) when the deposit exceeded the minimum.

In 1984 most institutions went to three and four tier DICAs, with some paying the higher savings rates on the total balance rather than on just the balance above the minimum amount for the particular tier.

In 1986 deposit accounts began to broaden to include a much wider range of services than simply traditional banking services. Canada Trust's "Financial Commander" account was the best example. For banking, the account is similar to a DICA, with a higher interest rate on the total balance if it is over a certain level (\$3,000). However, the account also offers depositors a much wider range of services including:

- \* A pre-authorized personal line of credit which can be accessed by cheque or via Mastercard at any of Mastercard's 60,000 affiliated financial institutions world-wide. The interest rate varies depending on collateral.
- \* Individual portfolio management. Active portfolio management can be incorporated into the account and the account provides for both discretionary and non-discretionary investment options. Segregated reporting for separate portfolios is available. This includes, for example, reporting for RRSPs and U.S. investments.
- \* Collection of interest and dividends and administration of mortgage investments, e.g., collect both interest and principal, collect arrears, take care of renewals and discharges.
- \* Execution of stock trades at substantially reduced brokerage fees.
- \* Specialists to provide tax advice and to handle most aspects of a person's financial matters, including the preparation of income tax returns.

All services are provided on a fee basis.

Banks and other financial institutions calculate the

deposit rate on the *daily* closing balance and pay the interest at each month end. A passbook or monthly statement is usually available. Typically, there are service charges for writing cheques or withdrawing funds. Generally speaking, these service charges are waived as long as a minimum balance is maintained in the account. These minimums were initially set in the \$500-\$2,000 range.

Daily interest chequing accounts offer the saver several advantages over the two other types of "traditional" personal savings deposits discussed below in entries 1d and 1e. First, the quoted interest rate is reasonably competitive with ordinary non-chequing savings accounts. Second, the calculation of this interest on the daily balance ensures that the depositor is not nearly as heavily penalized by a mid-month deposit or a temporary drop in his balance as he would be if the interest were calculated on the minimum monthly balance. Third, the crediting and compounding of this interest each month instead of semi-annually increases the interest return substantially. The higher the level of interest rates, the more this spread widens. Finally, the account offers the chequing feature of an ordinary non-interest bearing chequing account, and the chequing is usually free if the minimum deposit is maintained.

On balance, it can be seen that the DICA is best for those who tend to have volatile savings balances or who tend to carry too much money in their regular non-interest earning chequing accounts.

#### *b) Other Chequable Savings Accounts*

Until 1980-81, "other" chequable deposits represented passbook type chequing savings accounts. These accounts historically paid 3 percent interest semi-annually based on the lowest six-month balance and were subject to a per cheque service charge. Over time these accounts will likely be replaced by daily interest chequing or savings accounts.

#### *c) Non-Chequable Daily Interest Deposits*

There are two types of non-chequing savings accounts. The first is a recent innovation. In 1979-80 the banks introduced new daily interest savings accounts (interest calculated on the average daily closing balance). Though the posted rate is slightly more than the rate on daily interest chequing accounts,

it is about 1/2 percent below the rate on ordinary non-chequing savings accounts. Moreover, some banks have service charges for money withdrawn, although these charges do not normally apply to the first two withdrawals in the month. This account offers the same advantages discussed above for daily interest chequing accounts, except there is no chequing privilege (the *quid pro quo* is a higher interest rate).

In December 1985, Canada Trust introduced another deposit wrinkle, the T-Bill passbook daily interest savings account. This account was a refinement of the tiered savings/chequing account but it directly and specifically takes account of the public's focus on high yielding Treasury Bills. Specifically, the T-Bill passbook rate fluctuates weekly with the 91-day Treasury Bill auction, is calculated on the minimum daily balance and is paid monthly on the total savings balance if it is over \$10,000 (to a maximum of \$1 million). No interest is paid on days when balances are under \$10,000.

If depositors maintain a monthly balance of \$10,000 or more, there is no charge for withdrawals (cheques cannot be written). In months where the minimum balance is less than \$10,000, there is no charge for the first two withdrawals; for additional withdrawals, the charge is \$1.25 for each.

In total, daily interest savings and chequing accounts grew from zero in 1979 to about \$65 billion in September 1988.

#### *d) Other (Non-Chequable Savings Accounts)*

Even though daily interest savings and chequing accounts are showing tremendous growth in the 1980s, the ordinary non-chequable savings account still accounts for a large volume of personal non-fixed term savings deposits. Typically, these accounts pay the highest quoted interest rate. However, this interest is calculated on the minimum monthly balance and is only paid twice a year.

Overall, because the new daily interest accounts typically offer a better deal to the small saver than the traditional non-chequing savings accounts, these latter accounts are likely to shrink in size as more people shift toward the daily interest accounts. (The flow of funds itself could lead banks to widen the interest rate differential between daily interest and ordinary savings accounts to the point where the flow could be sharply reduced or eliminated.)

#### *e) Personal Fixed Term Deposits*

Finally, personal fixed term deposits, unlike savings deposits, pay interest for a fixed period, allowing savers to lock in a rate for the term. These deposits normally have a 30-180 day term but can be for as long as five years. For deposits with a term of less than one year, interest is usually paid at a set rate upon maturity, and the deposit certificate can usually be liquidated prior to maturity. In most cases there will be a penalty.

In the early 1980s some banks also started to offer floating rate term deposits for a longer term (e.g., deposits with a five-year term where the rate is automatically moved to the current rate each year). These longer term securities offer a variety of interest payment features—monthly, quarterly, semi-annually and annually.

With the implementation of the new chartered bank statistical reporting system in November 1981, this series was increased by about \$7 billion in the first week of November 1981. The main reason for this was consolidation of liabilities for majority-owned bank subsidiaries with those of their parent banks. While most of this consolidation had little impact on bank liabilities, the major exception was the consolidation of the bank's mortgage loan subsidiaries. Data for bank mortgage loan subsidiaries are set out on page 13 of the WFS and are discussed in chapter 8.

In March 1983, the Bank of Canada provided end of month estimates for personal fixed term deposits at the mortgage loan subsidiaries over the period 1968-82, thus creating a consistent data series for this period.

#### *f) Total (Personal Savings Deposits)*

Total personal savings deposits shown in entry 1f is the summation of entries 1a-1e. These deposits reflect the general growth of the economy, individual's income, wealth, collective savings habits and the level of interest rates. Savings deposit funds are generally the cheapest and most stable source of deposits for banks and their subsidiaries.<sup>13</sup>

<sup>13</sup> This mainly results from the very low bank servicing costs on non-chequing savings deposits compared to the much higher cost of servicing a chequing account. Also, savings and fixed term deposits are a much more stable and longer term source of funds for the banks and this, along with their lower reserve requirements, means that these deposits are especially attractive to banks.

## 2. Non-Personal Term and Notice Deposits: Corporate, Non-Federal Government, Institutional and Inter-Bank Deposits

Non-personal term and notice deposits include the term deposits of provincial and municipal governments, corporations, institutions and inter-bank deposits. This deposit class is divided into four subcomponents.

### a) Chequable and Non-Chequable Notice Deposits

The two smallest categories are chequable and non-chequable deposits. Typically, these are the deposits of small business firms and are comparable to personal chequable and non-chequable deposits.

In March 1983 the series was revised back to 1972 to include a small amount of "other fixed term deposits" (see 2c below) which were reclassified into these deposit categories when the new Bank of Canada reporting system was implemented in November 1981.

2a	2b	2c	2d	
Non-personal term and notice deposits				
<i>Dépôts à terme ou à préavis autres que ceux des particuliers</i>				
Chequable Transférables par chèques	Non-chequable Non transférables par chèques	Bearer term notes Billets à terme au porteur	Other fixed term Autres dépôts à terme fixe	Total Total
B472 B113607	B473 B113608	B474 B113609	B475 B113610	B455 B113259
11,273	2,693	4,432	28,394	46,792
11,641	2,716	4,539	29,111	48,007
12,089	2,780	4,805	28,886	48,560
12,277R	2,754	4,812R	29,654R	49,497R
11,908	2,740	4,811	28,658	48,116
12,043	2,806	4,734	28,754	48,336
12,376	2,795	4,848	28,861	48,879
12,030	2,778	4,827	29,274	48,909
12,344R	2,762	4,863	29,063R	49,032
12,219R	2,763	4,920	29,531R	49,434
12,380R	2,764	4,725	30,072	49,940
12,165	2,729	4,740R	29,948R	49,582R
13,186R	2,759R	5,257R	30,479R	51,681R
13,429	2,718	5,086	29,156	50,389

### b) Bearer Term Notes

The third component of non-personal deposits, bearer term deposit notes (BDNs), was introduced in 1964 for dealers to buy and resell to clients. This is one of the more important security classes for the money market. BDNs are issued in large denominations (multiples of \$100,000) and in bearer form (requiring no official registration when ownership changes). Like federal Treasury Bills, they do not carry a stated coupon rate of interest but rather are issued at a discount and mature at par with the extent of the discount determining the interest yield. BDNs are not redeemable and are the only negotiable form of short-term new issue direct bank debt which trades in the secondary market.

### c) Other Fixed Term (Deposits)

The last and, by far, the largest item in the non-personal term and notice deposit category is "other fixed term deposits". This series increased sharply in the first week of November 1981 to reflect the inclusion of non-personal fixed term deposits, resulting from both the consolidation of the banks' majority-owned subsidiaries and, especially, the inclusion of notes payable issued by the new *foreign bank* affiliates when they received their letters patent to become Canadian banks. Slightly offsetting this impact was a reduction in this series when a small amount of "other fixed term deposits" were reclassified into "non-personal chequable and non-chequable deposits" with the November 1981 changes in the bank reporting system. In March 1983 the Bank of Canada provided consistent data for the complete "other fixed term deposit" series on a monthly basis back to January 1970.

"Other fixed term deposits" are often referred to as certificates of deposit (CDs) and are normally taken in blocks of \$100,000 or more, although they can be done in smaller size. CDs are corporate or provincial/municipal deposits registered in the name of the original purchaser. They bear interest at a specified rate and mature on a specific day. They are usually issued for terms of a few days out to one year; that is, they are issued for a shorter term than BDNs since, unlike in the U.S., Canadian CDs are usually interest-bearing, non-marketable (non-transferable) and non-negotiable. They have very little liquidity. They may carry a provision for prepayment after notice at the option of the registered owner, subject to

an interest penalty, and some may have a 24-hour call. Most CDs are placed directly by the banks with large corporations and government accounts.

This deposit category also competes directly with money market securities (including the bank's own BDNs) and thus is very sensitive to changes in interest rates. Because of the large size of the individual deposits and the potential for large losses of funds from maturities, the banks can require notice of withdrawal to be given. This enables the banks to be prepared to meet a large CD maturity on a particular day.

Large CDs and BDNs are referred to as chartered bank "purchase money". These two deposit categories reflect direct chartered bank activity to compete for large blocks of funds at different rates in the money market. For all other deposit categories the banks act somewhat passively in the sense that they all basically set the same interest rate and wait for depositors to approach them.<sup>14</sup> Put another way, the banks mainly compete among themselves in the domestic CD and BDN markets.

BDNs and CDs outstanding showed rapid secular growth from 1967 to 1981. This reflected changes in the Bank Act allowing banks full access to the residential mortgage market (with no ceiling on lending rates) and the abolition of interest rate ceilings on deposits. This led to much more competition for large blocks of funds among the banks. It is the volatility of these two "purchase money" series over the interest rate cycle which makes them important for forecasting interest rates.

Finally, an increasingly key component of the "other fixed term" series is inter-bank deposits.<sup>15</sup> This market was first established in 1973 to provide banks with added flexibility in managing their primary cash reserves. Volume was light in the 1970s for several reasons. First, banks already had well-established and efficient reserve adjustment procedures involving the use of liquid assets (e.g., call loans, Treasury Bills

and Bankers' Acceptances) as well as CDs and BDNs on the liability side. Second, there were several conventions which limited the use of the market. These included the facts that

- \* deposits were non-transferable and non-negotiable;
- \* they were only available in a minimum denomination of \$500,000 and in \$500,000 multiples;
- \* they were only available in Canadian dollars;
- \* they were only available for one day at a time;
- \* they could only be purchased or sold up to the bank's line of credit with the Bank of Canada; and finally,
- \* they had to be negotiated directly between institutions.

The latter point proved especially bothersome to several big banks. These banks did not like to use the direct placement of deposits because the transactions revealed more competitive secrets about their cash management than their impersonal transactions in the call loan or Treasury Bill markets.

Finally, inter-bank deposits were not useful to adjust reserves when the Bank of Canada put pressure on all banks to make reserve adjustments in the same direction at the same time.

Following the 1980 Bank Act revisions, there were several key developments which encouraged growth of the inter-bank deposit market. First, the 1980 Bank Act eliminated reserve requirements on these deposits. Second, there were important changes in the inter-bank deposit conventions to encourage both smaller banks and foreign banks to use this market. These were put in place on July 1, 1982, as follows:

- \* the C\$ only convention was dropped;
- \* the one-day term convention was dropped;
- \* the minimum denomination was reduced from \$500,000 to \$100,000, and the \$500,000 multiple was reduced to \$100,000; and,
- \* inter-bank deposit brokers were allowed.

Inter-bank C\$ deposits subsequently expanded from about \$500 million outstanding in early 1981 to about \$2.5 billion at the end of 1985. (And, foreign currency

<sup>14</sup> This changed somewhat in the 1970s. Banks began to compete for personal deposits via monthly service plans introduced in the mid-1970s (i.e., non-price competition). However, this gave way to price competition in the late 1970s and early 1980s via flexible rates on personal term deposits, deposits taken by their mortgage loan affiliates and, finally, via daily interest savings and chequing accounts.

<sup>15</sup> This section draws extensively on an article titled, "The interbank deposit market in Canada", by Thomas Hossfeld, in *Bank of Canada Review*, February 1986, pp. 3-12.

inter-bank deposits booked in Canada expanded from about \$1.5 billion to \$4 billion.)

Inter-bank C\$ deposits now exceed special call loan and other short loans, and the value of turnover is high relative to call loans and Bills. There is active use of these deposits for cash reserve management, as well as for smoothing the gap between large blocks of deposits and the loans they fund. The interest rate on inter-bank deposits also closely parallels the call loan rate because banks have a choice of lending overnight funds in either the inter-bank or call loan markets.

#### d) Total

The four categories of non-personal term and notice deposits are totalled and shown in entry 2d.

### 3. Bank Interest Bearing Private Deposits and Implications for Monetary Policy

The individual deposit categories discussed above all bear interest and, excluding inter-bank deposits which are reserve free, are all subject to the low reserve requirement (see chapter 4 for a description of reserve requirements). It is these deposits for which the individual banks aggressively compete during periods of rapidly expanding loans.

For example, during the period 1972-74, as the Bank of Canada tightened the system, sharply rising demands for bank credit continued to exist. In turn, this led banks to bid very aggressively for large term deposits (to finance these loans), and this was one important factor leading to big increases in M2 (as then defined) at the same time as interest rates were rising sharply. This circular process went against the intent of monetary policy which was to curb both sharply rising interest rates (for foreign exchange reasons) and domestic loan growth. Therefore, the Bank of Canada used moral suasion and obtained chartered bank agreement to impose interest rate ceilings on domestic deposits. The principal focus of this *Winnipeg Agreement* (which existed from June 1972 to December 1974) was not just domestic in nature. The Bank was also trying to alleviate upward pressure on the Canadian dollar resulting from high CD rates. However, this policy also fitted into the domestic scene where it was inappropriate for CD rates to exceed prime.

The *Winnipeg Agreement* turned out to be a mixed blessing. On the one hand it curbed competitive

bidding for domestic deposits. This, in turn, kept domestic interest rates and the Canadian dollar from going higher. On the other hand, because the *Winnipeg Agreement* was not designed to control or reduce the underlying demand for bank credit, and because longer term Canadian deposits, foreign deposits and swap deposits were exempt from the agreement, it can be argued that financing pressure was simply transferred from one deposit class (domestic deposits out to one year in term) to others (domestic deposits and BDNs over one year in term and foreign deposits). This implies that the transmission mechanism for the upward pressure on Canadian interest rates and the exchange rate was simply transferred from short-term domestic deposits to longer term domestic deposits and foreign deposits.

### 4. Demand Deposits (Less Private Sector Float) Held by the General Public (Includes Non-Federal Government and Inter-Bank Demand Deposits)

The third major deposit category is general public holdings of demand deposits—personal and non-personal demand deposits. This includes the demand deposits of provincial and municipal governments and other banks. These accounts are straight chequing accounts (less private float) which do not require any notice of withdrawal. Personal chequing accounts are subject to a per cheque charge. Demand deposits are fully liquid (chequable) and can be interest bearing or non-interest bearing. On all chequing accounts, banks have to hold the higher 10 percent reserve requirement.

In 1983 a key innovation for the personal chequing account component of demand deposits was the mass marketing of *automatic overdraft protection* on personal chequing accounts. The Bank of Montreal, in particular, popularized this vehicle, offering eligible customers overdraft protection up to \$2,500 and automatic protection up to \$50. Under this programme no cash can be withdrawn, and the overdraft must be cleared within 45 days. The rate charged is high—approximately the rate on outstanding credit card balances—so many people prefer the personal line of credit approach.

### 5. Total Deposits Held by the General Public

Entry 5 is a subtotal entry representing total private sector deposits less private float. It includes entries, 1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c and 4.

4	5	6a	6b	7	8e
CHARTERED BANK LIABILITIES (Millions of dollars) PASSIF DES BANQUES A CHARTE (En millions de dollars)					
Canadian dollar deposits Dépôts en dollars canadiens					
Demand deposits (less private sector float) Dépôts à vue (moins effets du secteur privé en cours de compensation)	Total deposits held by general public Ensemble des dépôts du public	Government of Canada deposits Dépôts du gouvernement canadien	Total deposits (less private sector float) Ensemble des dépôts (moins effets du secteur privé en cours de compensation)	Estimated net private sector float Solde des effets du secteur privé en cours de compensat.	
B478 B113260	B465 B113258	B456 B113408	B489 B113409	B477 B113257	B476 B113541
18,788	196,519	3,252	2,016	199,771	-677
20,175	200,393	3,510	1,967	203,903	-757
20,768	202,613	2,802	1,865	205,415	-680
21,109R	204,783R	1,605	269	206,389R	-890R
21,151	202,897	2,473	1,726	205,371	-339
20,543	201,889	2,054	1,362	203,944	-666
21,200	203,288	2,435	1,182	205,723	-858
20,178	202,379	4,244	3,190	206,623	-859
20,971	204,313R	1,696	227	206,010R	-583
20,669R	203,870R	1,762	-	205,631R	-1,002R
21,234R	205,601R	1,228	100	206,830R	-757R
21,562R	205,349R	1,735	750	207,084R	-1,220R
22,349R	209,035R	345	-	209,380R	-227R
20,793	205,553	1,113	141	206,666	-413

## 6. Government of Canada Deposits

The fourth major deposit category is Government of Canada deposits, the location of which is managed by the Bank of Canada as fiscal agent for the Government of Canada. This series is total government cash balances less balances held at non-bank financial institutions and at the Bank of Canada. This latter figure is normally quite small at \$10-25 million. Government deposits with the chartered banks usually track in the \$2-7 billion range.

On April 1, 1986, a new agreement was put in place covering banking arrangements and settlement procedures between the federal government and CPA direct clearing members (of which the banks are by far the most important). The arrangements cover a three-year period and are summarized in the report "Description of Settlement". The following summarizes the new banking procedures.

### a) Total (Including Demand and Notice Deposits)

#### i) Demand Tranche

The demand deposit portion of balances allocated to the banks and other direct clearers by the Bank of

Canada via the allocation formula earns interest at prime minus 2.5 percentage points after deducting the reserves that have to be held against these deposits (presently 10 percent on demand deposits but to be eliminated in 1990). The reserves deducted are based on the average Wednesday balances during the month. Interest is earned on the daily balance and is payable on the first day of the month following the month in which it was earned.

4	5	6a	6b	7
CHARTERED BANK LIABILITIES (Millions of dollars) PASSIF DES BANQUES A CHARTE (En millions de dollars)				
Canadian dollar deposits Dépôts en dollars canadiens				
Average of Wednesdays and Wednesday Moyenne mensuelle des mercredis ou données du mercredi	Demand deposits (less private sector float) Dépôts à vue (moins effets du secteur privé en cours de compensation)	Total deposits held by general public Ensemble des dépôts du public	Government of Canada deposits Dépôts du gouvernement canadien	Total deposits (less private sector float) Ensemble des dépôts (moins effets du secteur privé en cours de compensation)
	B478 B113260	B465 B113258	B456 B113408	B489 B113409
1987 M	18,788	196,519	3,252	2,016
A	20,175	200,393	3,510	1,967
M	20,768	202,613	2,802	1,865
J	21,109R	204,783R	1,605	269
1987 M 6	21,151	202,897	2,473	1,726
13	20,543	201,889	2,054	1,362
20	21,200	203,288	2,435	1,182
27	20,178	202,379	4,244	3,190
J 3	20,971	204,313R	1,696	227
10	20,669R	203,870R	1,762	-
17	21,234R	205,601R	1,228	100
24	21,562R	205,349R	1,735	750
J 1	22,349R	209,035R	345	-
8	20,793	205,553	1,113	141

The allocation to each direct clearer is the ratio of its total Canadian dollar deposits to the Canadian dollar deposits of all direct clearers. The Canadian dollar deposits of indirect clearers are included with the deposits of the direct clearing institutions which act as their agents in the clearing process. The allocation ratios are updated by the CPA each year, before the end of May for implementation in July, to reflect the level of Canadian dollar deposits at each financial institution at December 31 of the previous year. Where an institution has failed to publish the previous year's December 31 data by March 31 of the year of computation, the CPA relies on that institution's latest available data. Allocation ratios are also recalculated by the CPA to reflect the impact of an institution becoming a direct clearer, ceasing to be a direct clearer or changing its clearing agent.



## ii) Fees for Regular Services and Processing Charges on Demand Deposits

As part of the new settlement procedures, the direct clearing institutions were able to unbundle the services provided to the federal government and price them separately. (Previously, the banks provided many free services to Ottawa on cheque handling, the most important being free cheque cashing.) The following summarizes the payment for individual services.

### *\*Processing Government Payments*

The fee charged the government for processing paper items (e.g., cheques and money orders) is ten cents per item. The fee charged for processing electronic payments (e.g., direct fund transfers and magnetic tape transfers) is one cent per payment. A blended fee (weighted average) is calculated each month and paid the following month by Ottawa.

### *\*Deposits*

Large deposit facilities are tendered. (These include deposit facilities needed by income tax offices involving extensive day-to-day paperwork by the financial institution—FI.) A deposit facility may involve handling and processing cash, cheques, credit card slips negotiable at the appropriate card-issuing institution or other negotiable instruments. Compensation for direct clearers who process these deposits through an approved Receiver General facility, which is not tendered and which is not “exceptional”, is at the rate of \$3.00. The rate for processing exceptional deposits which meet agreed criteria for identifying such accounts is negotiated with individual financial institutions (FI) after each presents documentation and an analysis on volumes. Compensation respecting exceptional deposit processing is retroactive to the date on which the settlement takes effect or the date on which the FI advises the Receiver General, whichever is later. A list of specific deposits that any FI wishes to be defined as exceptional is supplied by that FI. This list is updated from time to time.

### *\*Departmental Bank Accounts*

All such accounts are tendered.

### *\*Bank-Remitted Taxes*

Individuals can make their income tax payments at direct clearing institutions the same way they can pay some of their regular utility bills. However, as of this writing FIs are not allowed to charge individuals for this service. Thus, Ottawa agreed to pay compensation for the processing of individual tax remittances to FIs at the rate of eighty cents per item until legislation comes into force which will permit all FIs to charge tax remitters. After legislation comes into force, no compensation will be paid by the government.

### *\*Annual Adjustment of Service Charges*

Service charges are indexed to wage increases. Specifically, the FIs can raise fees in line with any annual increase above 3 percent in financial industry labour costs. The series used is published by Statistics Canada in “Employment, Earnings and Hours” table 2.1 (“Estimated Weekly Earnings, Firms of All Sizes, By Industry, Canada”), line 701-703 (“Savings & credit institutions”), column “Average weekly earnings (excluding overtime): Salaried employees”. Annual adjustments are made on the first and second anniversaries of the agreement (April 1, 1987, and April 1, 1988), based on the latest 13 months of available data, with compensation arrangements being subject to renegotiation on the third anniversary. In the event that there is a delay beyond the third anniversary, the annual adjustment procedure will apply until the renegotiation process is completed.

### *\*New Services*

Compensation for handling and processing new services is negotiated prior to the new service being implemented.

## iii) Non-Customer Cashing of Federal Government Payment Instruments

The “Description of Settlement” also sets out a list of criteria allowing people to cash government payment instruments at financial institutions *where they do not have an account*. However, the direct clearers have asked the government not to publicize



the ease with which non-customers of financial institutions could cash federal payment instruments. This is to ensure that a shift in non-customer cheque encashment patterns does not materialize (such a shift would precipitate a renegotiation of the blended cheque processing-Direct Funds Transfer fee), and to hold down the inevitable increase in fraudulent cashing of stolen cheques. The criteria, which allow universal cashing of federal cheques, are summarized below:

—Non-Customer Definition:

- \* A non-customer is an individual who does not have an account with any branch of the encashing financial institution or does not hold a credit card issued by it.

—Payment items included:

- \* All federal government payment instruments including payroll cheques, social welfare cheques, family allowance cheques, Unemployment Insurance Warrants, and interest payments.
- \* The government reserves the right to restrict items included, with appropriate notice.
- \* No item which is altered should be accepted for encashment.

—Amount Limitation:

- \* Items in excess of \$750 need not be accepted by the bank or other financial institution. However, if they are accepted, compensation and fraud-loss reimbursement will be paid as if their value was \$750.

—Service Charges:

- \* No charge to the person cashing.

—Identification Requirement:

- \* One piece of identification is required if it is a positive, unalterable identification item containing a photograph and specimen signature of the holder (e.g. passport, civil service ID card, Ontario driver's licence with photograph, etc.).

- \* At least two pieces of corroborating alternative non-positive forms of identification are required if positive identification cannot be supplied (e.g. credit card bearing cardholder's signature, driver's licence with no photograph, Old Age Security Card, etc.). Non-positive identification must bear a specimen signature of the holder in order for such identification to be accepted.

- \* Particulars of all identification presented at the time of presentation of the item for encashment are to be recorded on the reverse side of the item by an officer of the financial institution cashing the item.

- \* Identification will not be accepted if there is evidence of any form of alteration.

- \* Payment instruments are cashed only for the payee when endorsed by that payee; no second endorsements are accepted.

- \* The payee must be an individual and not a business enterprise (either incorporated or unincorporated).

—Fraud Losses:

- \* Fraudulent instruments, for which identification criteria have been met and which have been processed in accordance with agreed procedures, will be compensated in full by Ottawa up to a maximum of \$750 per instrument.

—Other:

- \* Each financial institution may apply its own internal authorization procedures prior to cashing any government payment item.

- \* Stale-dated government payment instruments may be cashed regardless of the age of the item. At the discretion of the encashing branch, a stale-dated item may be sent on collection to the Receiver General.

b) *Term Deposit (Notice Tranche)*

Entry 8b sets out the federal government's notice tranche deposit. Before setting out the mechanics, some background on this deposit, which was new in 1986, is worthwhile.

The government position up to 1985 was that it should be receiving a better interest return than the old formula provided, i.e., better than 90 percent of the three-month Treasury Bill tender rate on deposits above \$100 million, calculated on the minimum weekly balance and paid quarterly. This reflected Ottawa's view that a large part of its deposits are not like ordinary demand accounts; rather, federal deposits embody characteristics of fixed term deposits especially when they exceed 4-5 billion.

By contrast, the direct clearing members of the CPA (mainly the banks) took the position that federal deposits are not as valuable as the government thinks since the banks had excess liquidity in the mid-1980s and simply did not need these funds. Second, federal deposits were viewed as potentially highly volatile and hard to predict (given that the banks do not have complete information on the timing of government cheque clearing). A key problem here is that drawdowns and redeposits come too late for banks to offset their impact in the money market. Finally, the banks have to hold a 10 percent reserve requirement against federal demand deposits versus only 3 percent for regular term deposits.

With divergent views on the value of Ottawa's balances, it was decided to solve the impasse by moving to a system whereby the government auctions some part of its cash balances not needed to pay the bills for ongoing government spending in a given 1-2 week period, and not needed to manage the daily drawdown/redeposit (about \$2 billion). This new system is similar in concept to the Treasury Bill tender and is also managed by the Bank of Canada as fiscal agent. The key features of the tendering system for term deposits with direct clearing banks and other CPA direct clearers are set out below:

- \* Only direct clearing CPA members can bid for the deposits. Initially, tenders were held weekly. However, there may be occasions when an auction is not held (e.g., if government balances are very low) or where more than one auction is held in a week (e.g., balances are very high).

- \* The amount of deposits to be offered for tender along with the issue date and the maturity date are transmitted via an electronic message service to eligible bidders between 4:30 and 5:00 p.m. on the day before the tender. Also provided is the date of the next tender and the date of advice about its size.

- \* Tenders were initially held on Tuesdays for settlement Tuesday (under retroactive settlement), although in 1987 auctions were usually held twice a week. Bids must be in by 9:15 a.m. Most tender results are available by 9:30-10:00 a.m. This includes the successful bidder's results plus the overall high, low and average rates at the auction, the percent allotted at the lowest yield, the anticipated date of the next auction and the maturing amount at the next auction.

- \* The deposits are non-callable and initially were normally for a fixed seven-day term. However, auctions with terms as short as two days and as long as 28 days were done in 1986 and 1987 and auctions for terms other than seven days are fairly regular now.

- \* Each participant is limited to four bids. Each bid must be for a minimum of \$5 million with multiples of \$1 million. Bids must be to two decimal places. Tenders are accepted in declining order of accepted yields.

- \* For tenders equal to or above \$2 billion, each participant is required to limit its bid value to the total tender amount multiplied by two and one-half times the participant's predetermined ratio of Receiver General balances. Thus, if Ottawa tenders \$5 billion and a bank normally gets 15 percent of a redeposit, it should not bid for more than 37.5 percent of the tender (\$1.876 billion). For tenders less than \$2 billion, the total value limit assumes a tender size of \$2 billion. In 1986 the tenders ranged from a low of \$200 million to a high of \$2.4 billion.

As with the Bill tender, the Minister reserves the right to accept or reject any or all bids in whole or in part, including the right to accept less than the total amount of the offering. Funds offered but not bid for or offered and withdrawn are redeposited with each direct clearer as per the formula for allocating demand deposits.

- \* Interest is paid by bidders to Ottawa on the maturity date.

- \* Settlement is made at the Bank of Canada via the regular daily drawdown or redeposit of government balances on the day of issue and the day of maturity. On the issue day, each successful

bidder receives a redeposit equal to the amount of the funds won at tender. This deposit is blended with the regular daily drawdown or redeposit so there is only one net transaction. On the day of maturity, the reverse occurs; here, each participant credits the amount of the maturing deposit plus interest to the government's demand account with that institution. On that day, the participant receives a drawdown as per the usual procedure and blended, as above, equal to the maturing principal amount plus interest.

The first tender was for \$700 million in the first week of April 1986. This proved to be good timing for Ottawa because of the inverted yield curve which existed at that time. Thus, instead of Ottawa receiving 90 percent of the previous week's three-month Bill tender average (which would have been 9.17 percent), the first auction saw chartered bank tenders average 11.63 percent for one-week deposits (high bid 11.90 percent; low 11.50 percent). In 1987 tender amounts ranged from \$100 million to \$4.9 billion and the amount of outstanding term deposits peaked at \$12.3 billion following the CSB campaign.

## 7. Total Deposits Less Private Float (Net Deposits)

Total deposits less private sector float is the sum of entries 5 and 6 above.

## 8. Net Float (Total Float, Federal Government Float and Private Float)<sup>16</sup>

### a) General

The next entry in the banking system liability statement is the "estimated net private sector float" in the system. This was a new Bank of Canada entry in 1978 when the Bank undertook to publish a float figure which *excluded* federal public sector float (i.e., float related to Government of Canada and Bank of

Canada transactions). Prior to 1978, the Bank made no distinction between the two types of float; it just estimated the total float, both public and private (shown in entry 8e). This total was deducted from gross deposits (entry 9) to obtain net deposits (entry 7). The *private float* figure, which is shown on the Bank Statement (as entry 8e) reflects the Bank's desire to obtain a more usable and precise definition of float for calculating the monetary aggregates.<sup>17</sup> Before proceeding to a discussion of private versus federal public sector float, it is worthwhile discussing float from a more general perspective.

Each business day, approximately 5-10 million cheques worth \$10-25 billion are cleared in Canada. Float refers to the total value of cheques and other banking system items being transferred from one account to another—items in the process of being settled and cleared within the financial system.<sup>18</sup> Float has to be deducted from total banking system gross deposits to eliminate double counting. This is because, when the proceeds of a cheque are credited to one account, total bank deposits will be double counted until the cheque has been "cleared" (i.e., returned to the issuer's bank and debited from the issuer's account). Thus, the demand deposit and total deposit entries are shown with private float subtracted out.

There are, however, two types of float. "Debit float" is the float referred to above where an account initially receives a credit and the final clearing

<sup>17</sup> If the monetary aggregates are defined to include private deposits and not federal government deposits, then only private float should be subtracted from gross private deposits. If the monetary aggregates were defined to include federal government deposits as well as private deposits, then *both* public and private float would be deducted from gross deposits to obtain net deposits.

<sup>18</sup> Conceptually, from the point of view of a bank customer, float can be subdivided into five categories. Invoicing float represents funds tied up in billing for goods and services sold. Mail float represents funds tied up from the time a bill is mailed to a customer and the return cheque is received. Processing float refers to funds tied up in the usual sorting and recording process which takes place prior to the cheque being deposited in a bank. Availability float represents funds tied up between the time a cheque is deposited to an account and the funds are credited to become "good funds".

For the writer of a cheque, there is also disbursing float. This refers to funds available in an account until the cheque clears.

<sup>16</sup> The discussion of both private and public sector float which follows relies heavily on the article, "A note on revised estimates of float and the effects on monetary aggregates", in *Bank of Canada Review*, February 1978, pp. 19-31.

transaction involved is to debit an account. "Credit float" involves the opposite transaction. It is created when an issuer's account is debited first, before the receiver's account is credited. For example, when a certified cheque is issued, the account on which it is drawn is immediately debited and total deposits decline until the transaction is completed by the depositing of the certified cheque.

It can be seen that the existence of debit float means total bank demand deposits are *overstated* and have to be reduced by the amount of the float. Here a cheque is credited in one account but not debited from another.<sup>19</sup> Credit float means they are *understated*. *If debit float exceeds credit float, uncleared items will on balance lead to total deposits being overstated by the amount of the net debit float.* Here, total net float would be a positive entry to be subtracted from gross deposits to obtain net deposits. *If credit float exceeds debit float, the reverse holds—i.e., net float would be negative and would be added to gross deposits to obtain net deposits.*

Until 1978, the Bank of Canada subtracted *total* net float (debit float less credit float, entry 8c) from gross private demand deposits (entry 5) each week in order to eliminate double counting and so arrive at net deposits and the various monetary aggregates to be discussed in chapter 5. This was justified on the grounds that the federal float was likely to be small and, in any case, was hard to identify. However, this total float adjustment is misleading in principle because it includes two separate and distinct elements of float—private float and federal government float—the latter including items in transit to/from the Government of Canada and Bank of Canada. The Bank argues that to preserve consistency, *only private sector float should be deducted from private demand deposits* because only private sector deposits are included as part of the major monetary aggregates. This becomes especially important if federal government float is volatile, since its inclusion in float would then cause distortions in the major monetary aggregates. Also, the monetary aggregates would be more stable if net demand deposits were more stable. These distortions became quite large in the 1970s, so it became desirable to eliminate them. Since 1978, this has been done on a weekly basis by the Bank of Canada.

<sup>19</sup> Once this debiting occurs, gross deposits decline to their original level and the float element is reduced by the same amount.

#### b) *Retroactive (Same Day) Settlement*

Before setting out the method of arriving at public and private sector float in subsections d and e below, it is important to reiterate that Canada shifted to retroactive settlement among direct clearers on July 16, 1986. This dramatically reduced the level and volatility of float, both public and private. However, neither float component has been completely eliminated. This could only be achieved in a world with complete electronic funds transfer. Also, while there may not be Bank of Canada float on page 1 of the balance sheet, there may be federal float elsewhere in the system, so government float in total may not be zero.

The reason for this is that even with retroactive settlement, not all cheques can be delivered to other direct clearers and also charged against client accounts within 24 hours; i.e., there is not one hundred percent processing efficiency. Second, there is internal processing float.

#### c) *Total Canadian Dollar Float*

Total float is a figure which is reported at each month end by the banks. However, it is not possible to obtain a direct measure of all cheques in transit each week. The Bank of Canada has to use its available data to obtain a weekly *estimated* float figure—a figure which is calculated as a residual from both weekly and monthly data. The weekly float estimate is set out in entry 8c. It is estimated by the Bank, based on the difference between total Canadian dollar major liabilities reported by the chartered banks (deposit liabilities and advances from the Bank of Canada) and their total major assets (including net foreign currency assets), which are reported subject to revision as of Wednesday each week.

Secondly, the estimate includes the net balance of other liabilities and asset items on the basis of the most recent month end data. In simple terms, if the chartered banks report that their total assets rose \$500 million in a given week, the Bank knows total liabilities must increase \$500 million. If the reported deposits and other liabilities rose \$700 million, the Bank estimates that net debit float increased \$200 million from last week's level. When this is subtracted from gross deposits, the balance sheet balances.

It can be seen that any measurement error on the asset or liability side of the chartered bank balance sheet will affect float. Thus, the weekly float figure is

subject to revision. Indeed, even monthly float figures have to be revised when bank assets or liabilities are revised for a month.

8e	9	8c	10
Estimated net private sector float <i>Solde des effets du secteur privé en cours de compensation (estimations)</i>	Gross Canadian dollar deposits <i>Montant brut des dépôts en dollars canadiens</i>	Total Canadian dollar float <i>Ensemble des effets en dollars canadiens en cours de compensation</i>	Other self <i>Autres et Bankers' acceptances outstanding Acceptations bancaires en circulation</i>
B476 B113541	B450 B113521	B460 B113530	B461 B113641
-677	199,094	-697	27,837
-757	203,146	-780	28,018
-680	204,734	-489	28,679
-890R	205,498R	-805R	28,498
-339	205,032	-143	28,346
-666	203,278	-711	29,057
-858	204,865	-823	28,618
-859	205,764	-280	28,694
-583	205,426R	-538	28,712
-1,002R	204,630	-870R	28,480
-757R	206,073R	-717R	28,197
-1,220R	205,864R	-1,094R	28,601
-227R	209,153R	-782R	27,722R
-413	206,254	-345	28,432

There were particularly large problems with float in the three or four months surrounding November 1981, which led to very substantial float revisions for the period July 1981 to March 1982. These problems occurred because, in addition to a record November CSB campaign and the usual chartered bank balance sheet adjustments in October-November, the Bank of Canada began to reflect the operations of foreign banks in the WFS in stages beginning in July 1981.

Further, and of much more consequence, was the Bank's introduction of its new statistical reporting system effective November 1, 1981. While accounting adjustments necessitated by the new system did not affect the methodology for calculating total float, the changes did provide more information which the Bank also used to improve its already recorded estimate of float. Unfortunately, some of the banks, and especially the new foreign banks, did not fully understand the new reporting system, so a further

source of float distortion was evident in the period November 1981 to March 1982.

The problems with float in late 1981 and early 1982, and the problems this created for defining net demand deposits and thus M1, led the Bank of Canada to send out several "Note to Users" reports with the *Weekly Financial Statistics*. These notes cautioned the analyst on the interpretation of the figures and advised that float, net demand deposits and M1 would all be revised. In the statement week ended March 18, 1982, the Bank advised the public via a "Note to Users" that total float and private float would be revised for the period July 1981 to March 1982 to correct statistical measurement problems. It also indicated that these revisions would reduce net float by \$300-600 million, leading to an increase in net demand deposits and all the monetary aggregates by the amount of the float reduction.

Finally, in March 1983, in a special technical note, the Bank corrected a systematic reporting error in the net foreign currency asset series. This led to reduction in private sector float covering each month from February 1968 to October 1982.<sup>20</sup>

#### d) Public Sector Float

Using techniques originally developed in the mid-1970s and updated in April 1985, the Bank of Canada estimates federal government float which is associated with any federal government or Bank of Canada clearing transaction.<sup>21</sup> This figure is not set out

<sup>20</sup> "Technical note: New and revised monetary and credit aggregates", in *Bank of Canada Review*, March 1983, p. 29.

<sup>21</sup> Federal float was sharply reduced by the July 16, 1986, shift to retroactive settlement. Over time it will be reduced further through electronic funds transfer. For example, on the collections side EFT is being used for certain tax collections and post office receipts. On the payments side, CSB interest and some civil servant salaries are now paid directly into individual savings accounts. Within a few years, unemployment insurance payments, family allowances and old age pensions will be paid directly into savings accounts, further reducing government float.

The banks have been trying to persuade the federal government to make more use of electronic funds transfer for payments. This is because the banks have to process federal cheques at ten cents per cheque, while they argue that the cost of cheque processing is higher. Also, this cost is significantly higher than the estimated cost of processing via EFT. Further, the banks would benefit by having the deposits faster. An electronic system would also benefit

explicitly in the Bank Statement. However, it can be calculated by subtracting entry 8e from entry 8c.

To arrive at federal government float, the Bank estimates the debit and credit components of government float separately. Debit float includes all cheques and other payments which, upon completion, clear *against* the Government of Canada (Receiver General) or Bank of Canada. These cheques include: all government disbursement cheques, such as payments to civil servants and government suppliers; programme payments, such as family allowances and old age security; income tax refund cheques issued but not debited from the government account; and cheques issued by the Bank of Canada to purchase securities from the private sector or to repay the government's maturing debt.

On the other side, public sector "credit float" includes transactions which, upon completion, will clear *in favour* of the Government of Canada or Bank of Canada, e.g., uncleared items resulting from such factors as corporate and individual tax payments. Also included will be cheques issued to the government/Bank of Canada by the private sector in payment for new issues of government debt or secondary market purchases of securities by the private sector from the Bank of Canada.

The elements of government debit and credit float are estimated directly as of Wednesday each week by the Bank of Canada using its knowledge of government cheque clearing procedures. In cases where it is difficult to tell if some government transactions are being cleared on a Wednesday, the Bank also uses econometric techniques to estimate what percentage of certain items are being cleared on a Wednesday.

In the "Description of Settlement" agreement between the federal government and CPA members, which initially covers the three-year period from April 1, 1986, to April 1, 1989, the procedure for calculating float and paying/collecting interest on float was set out as follows:

The Receiver General is to provide the data on the government's gross receipts and payments flows to each of the direct clearers. The data will show the

both government and the public. In the former case, government would save via reduced paper, printing and postal system costs. In the case of the public, line-ups at tellers' wickets to deposit cheques would be reduced or eliminated, and recipients of government cheques would be protected against mail disruptions and thefts.

total clearing for each monthly period along with the particular institution's share of the total.

The calculation of float and the interest to be paid on float balances will be made by the Receiver General each month and will provide the amount of interest owing to or by each of the institutions which are party to the agreement. Interest will be due and payable in the month following the month for which float is being calculated.

The calculation of float will be based upon each institution's daily cash flows multiplied by the average transit time for the industry for each payment instrument. For the purpose of determining average transit times for the industry, a payment item will be said to be in transit from the day on which value is given or received by the institution, until the day on which value is given or received by the Bank of Canada.

In the case of both departmental bank accounts and deposit facilities which are to be tendered, other than Revenue Canada Taxation and Revenue Canada Customs & Excise taxation deposits, float will be attributed to each institution in accordance with the allocation percentages applied to the demand tranche. It is the intent that any accounts or deposits with a large dollar volume of activity will be subject to the specific analysis procedures applied to the taxation deposits ...

If the Description of Settlement is implemented prior to the taxation deposits being awarded by tender, the float will be calculated with respect to Revenue Canada Taxation and Revenue Canada Customs & Excise taxation deposits on the basis of a survey of actual volumes during the first month of the agreement.

After the aforementioned taxation deposits have been tendered, the winning tenderer will measure the actual daily cheque volumes of each direct clearing institution and provide this data to the Receiver General which will in turn take this data into account in determining the net float position of each institution for purposes of compensation.

The Receiver General will make detailed payment arrangements with the direct clearers.

The interest compensation on float will be calculated at the rate of prime minus 2.50 per cent.

Float transit times will be revised at least annually or as new procedures are implemented or as more complete information becomes available. The industry and the government will agree to all float transit times prior to their inclusion in the float model.<sup>22</sup>

<sup>22</sup> "Description of Settlement" (mimeo), Department of Finance, April 1, 1986.

e) *Estimated Net Private Sector Float (Includes Provincial and Municipal Float)*

Given the calculation for total float (entry 8c), until December 1985 the Bank estimated government float separately and subtracted government float from total float to arrive at *private float, which was estimated as a residual*. This private float figure (entry 8e) was then deducted from gross private demand deposits to obtain the net private demand deposit component of the monetary aggregates. Since December 1985, the banks have been asked to report their estimated private float directly each week so private float and total float are both estimated independently; they are not calculated as residuals.

In a 1978 study, the Bank of Canada found that exclusion of government float from total float for the prior decade produced a private float figure which was, on average, about \$133 million less than total float on a weekly basis (up to 1978). However, the reduction on a monthly, quarterly and annual basis was only \$91 million, \$80 million and \$77 million respectively (see footnote 15). Thus, all private demand deposits net of float were increased by these amounts as were all the monetary aggregates. Despite the fact that these levels were higher with the revised calculation procedure, their trend rates of growth were only marginally affected, though the net effect was to increase the growth of the monetary aggregates slightly.

Private float is volatile, although there are predictable patterns. For example, private float often rises in the first week of each month and sometimes over month ends, reflecting the fact that these are heavy cheque writing periods in the private sector. On the other hand, private float usually falls in late November following the clearing of CSB purchase cheques.

Distortions such as mail strikes and storms (which cause power blackouts affecting data centres) also upset private float.

The somewhat predictable behaviour of private sector float can be an important technical factor in forecasting tightness or ease in the system on a very short-term basis. The banks can usually predict when float will be high.<sup>23</sup> For example, as noted above, float

tends to rise in the first week of each month, and banks can make allowances for this in their cash management. On the other hand, when large *unanticipated clearings* occur, some banks can be left tight, forcing short-term interest rates to rise unless offset by the Bank of Canada.

## 9. Gross Canadian Dollar Deposits

The gross Canadian dollar deposit entry is the total of all private and government deposits plus net private float—entry 7 plus entry 8e.

## III. OTHER SELECTED LIABILITIES OF THE BANKING SYSTEM

Beyond the Canadian dollar deposit liability items discussed above, page 4 of the Bank Statement sets out two other chartered bank liability series.

### 10. Bankers' Acceptances Outstanding<sup>24</sup>

The first series shown under "other liabilities" is Bankers' Acceptances (BAs) outstanding. Bankers'

<sup>24</sup> Bankers' Acceptances were first introduced into the Canadian money market in June 1962 in order to help develop the Canadian money market. At that time, they could only be issued in Canadian dollars and only used by Canadian borrowers to finance a limited range of activities as set out in the Bank Act of 1954. The term was also limited to 30 to 90 days. Originally, the minimum acceptance fee charged by the banks was 1 1/4 percent per annum. Finally, the Bank of Canada allowed money market dealers to do PRAs on BAs (see entry 2 on page 1 of the *Weekly Financial Statistics*), although this was restricted in 1968 to encourage the BAs to trade more actively. A limited market developed in the first two years (\$9-10 million outstanding) because of the high cost and because the banks restricted the BAs to only top credits.

In 1965, the stamping fee was reduced and BAs outstanding increased to almost \$200 million. BAs outstanding began to increase sharply in the second half of the 1970s, with outstandings rising from about \$400 million in 1970-73 to about \$3 billion in 1979 as the banks cut the stamping fee to 1/2 or 3/4 percent and allowed lesser quality credits to use the facility. Also, the Bank of Montreal introduced several new innovations to the BA market in February 1978 and in the process created the so-called First Bank Acceptance (FBA) which, when copied by other banks, helped increase the volume of BAs outstanding. First, the Bank of Montreal announced that it would stamp BAs with no restrictions on the use of the

<sup>23</sup> In deciding to drain or flush the system, the Bank of Canada looks first at net demand deposits. If, for example, gross demand deposits increase \$100 million while float is up \$90 million, then the Bank will act as though net deposits are up \$10 million.

Acceptances are commercial drafts usually drawn by a corporate borrower on a BA line of credit with a big

funds by the borrower, thus leading to a substantial increase in activities that could be financed by BAs. (These expanded activity BAs were referred to as IBAs since they were ineligible for rediscounting with the Bank of Canada.) Second, the BMO indicated it would stamp BAs for terms longer than 90 days. Third, it reduced the stamping fee to 3/8 percent, although the reduced fee initially was only available to its most credit-worthy clients, including those clients who could normally access the commercial paper market. Finally, while a typical Bankers' Acceptance could only be issued "at the pleasure of the bank", with its pioneering FBA programme the Bank of Montreal proposed a new *guaranteed term option*, which guaranteed the client short-term borrowings either through a committed direct credit line for a specific term or by using Acceptances. When the borrower required funds on a direct loan basis, the cost of the funds was set equal to the First Bank Rate, plus a set charge for the borrowing (about 1/4 percent). The First Bank Rate was the Bank of Montreal's bid rate each business day at 9:30 a.m. for prime 30-day BAs multiplied by one plus the current required minimum average primary reserve ratio for all banks and rounded up to the next highest 1/8 percent.

In 1980-82, BAs outstanding increased sharply as the cost of issuing commercial paper and borrowing from the banks at prime rose relative to the "all-in" cost of borrowing using BAs. This surge in BAs outstanding led the chartered banks to again make a number of changes to their BA programmes. First, they raised the minimum stamping fee from 3/8 percent to 1/2 percent in 1981. In 1982, the banks raised it again, initially to 3/4 percent and then to 1 percent, although some foreign banks began to stamp BAs for 1/2 to 3/4 percent in 1983 to generate more revenue when business loans sagged. Second, the minimum term for BAs was lengthened. While one bank was still prepared to issue BAs for terms under 30 days, most banks set 30 days as the minimum term. Third, most banks started to require three to ten days' notice when the borrower wanted to switch from BA financing to bank loans, or vice versa. Such notice was not required prior to 1981. Fourth, the banks started to impose more aggressive limits on the amount of BAs to be issued. Some banks, for example, would not stamp client BAs for more than 50 percent of a client's line of credit with the bank. These changes were made because of the huge increase in BAs outstanding in 1980-82. To a large extent, the banks felt this reflected a stamping fee which had fallen over the years to an abnormally low level, as well as the fact that BA rates in the market tended to trade at an increased spread below commercial paper rates and the prime lending rate (reflecting the general lender desire for both high quality and liquidity). Further, with the passage of the Bank Act leading many foreign bank affiliates to become Canadian banks, the new foreign banks had to hold primary reserves. This increased their cost of deposits and led to less price

six bank and "accepted", in effect guaranteed, by the borrower's bank. This series represents BAs issued by a bank but not purchased by the same bank. If a bank buys its own Acceptances, they are included in business loans and netted from BAs outstanding on both the asset and liability side of the balance sheet.

When accepted or stamped (agreed to be paid) by a Canadian chartered bank, BAs constitute a direct and unconditional legal obligation not only of the issuer but also of the accepting chartered bank. They rank equally with the bank's deposit liabilities, although the banks do not have to hold reserve requirements against these contingent liabilities. Two names on the Acceptance (the issuer and the accepting bank) enhance its credit quality. Excluding Government of Canada Treasury Bills, prime acceptances trade at the lowest yield in the short-term money market.

When a borrower's draft is accepted by the bank, the borrower then usually arranges the sale of the accepted draft to a money market dealer, who may hold it himself or resell it to an investor. In any case, the borrower obtains money from the dealer, not from the bank. BAs do not carry a specific coupon rate of interest. Rather, the dealer will bid for BAs on a discounted basis from par (similar to Treasury Bills). In competitive cases, the highest bid (lowest yield cost) wins the acceptance.

Acceptances are issued in bearer form, and the minimum denomination is normally \$100,000. Higher amounts are usually in \$100,000 multiples. They are usually drawn for a term of 30 to 90 days, although the normal term could be as short as ten days or as long as one year. Some banks may offer "roly poly" BAs

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competition by the foreign banks for large corporate loans. Moving beyond the cost of providing the BA facility and the opportunities to improve profits from this source, banks were also concerned that outstanding BAs could be converted into direct loan demand. This did not pose problems when the amount of BAs outstanding was small. But, with so many BAs outstanding and with a very short average term in 1981 (about 30 days), the banks became worried that a large volume of BAs maturing in a few days could be converted into heavy loan demand on very short notice. This would make it difficult to match bank deposit liabilities to the increased loan demand and also to manage bank cash. Finally, the banks became concerned that more and more lower quality borrowers were asking for or increasing their BA facilities, leading the banks to fear additional exposure to defaults. *In spite of all these changes, BAs outstanding continued to soar, hitting \$37 billion in September 1988.*



which, when rolled over several times, could have a term as long as five years.

8c		10	11
Total Canadian dollar float <i>Ensemble des effets en dollars canadiens en cours de compensation</i>		Other selected liabilities <i>Autres éléments du passif</i> Bankers' acceptances outstanding <i>Acceptations bancaires en circulation</i>	Debentures issued and outstanding payable in Canadian dollars <i>Déventures libellées en dollars canadiens en circulation</i>
B460	B460	B461	B462
3521	B113530	B113641	B113523
1,094	-697	27,837	1,999
1,146	-780	28,018	1,996
1,734	-489	28,679	1,991
1,498R	-805R	28,498	1,916
1,032	-143	28,346	1,994
1,278	-711	29,057	1,993
1,865	-823	28,618	1,992
1,764	-280	28,694	1,984
1,426R	-538	28,712	1,916
1,630	-870R	28,480	1,916
1,073R	-717R	28,197	1,915
1,864R	-1,094R	28,601	1,915
1,153R	-782R	27,722R	1,915
1,254	-345	28,432	1,915

When an Acceptance matures, the holder presents it to the "accepting bank". The borrower then redeems the BA with funds on deposit at the bank although, failing this, the accepting bank is required to redeem it. (Dealers can also mature BAs held in safekeeping for their clients.)

BAs can be issued in different currencies, although most BAs outstanding are denominated in Canadian dollars.

Under the 1980 Bank Act, borrowers are no longer limited to the issuance of BAs against *goods* in the process of being manufactured or warehoused awaiting sale; BAs can now be issued by virtually any borrower, including finance companies, utilities and municipal governments.

From the point of view of a borrower, BAs are an alternative to commercial paper and are a close substitute for bank business loans. In fact, they are a form of loan. (When a bank buys its own BAs for investment purposes, these are included in general loans and netted from the BAs outstanding shown on page 4 of the Bank Statement.)

Bankers' Acceptances are often used by small borrowers, by lesser quality borrowers, who find it

expensive and/or difficult to raise money in their own names via commercial paper, or by large and/or high quality borrowers when the bank prime rate is above BA rates net of the stamping fee by 25 basis points or more. Indeed, BAs are very popular with large corporations that can usually raise up to \$1 billion in just five or six business days using this vehicle. The same large, high quality borrower would be lucky to raise half this much money in five or six days in the commercial paper market.

In addition to cost and size advantages, BAs offer administrative advantages to the small and/or infrequent borrower because the borrower does not have to incur either the start-up costs normally associated with a commercial paper programme (\$50,000-\$60,000 to prepare an information memorandum and obtain a rating) or the ongoing costs inherent in keeping a programme running.

## 11. Debentures Issued and Outstanding Payable in Canadian Dollars

Debentures issued and outstanding payable in Canadian dollars constitute the only item in the banking system's capital account to be included in the section dealing with Canadian dollar chartered bank liabilities.<sup>25</sup> (Shareholders' equity, which includes paid-up capital, rest account and undivided profits at the latest fiscal year end, is excluded from the WFS.) Under the Bank Act, debentures outstanding for each bank are limited to half the paid-in capital stock and contributed surplus, retained earnings and general reserve of the bank (equity). They may carry a sinking fund or purchase fund but may not be redeemed or repaid by the bank for at least five years (unless the bank winds up). They may be convertible into shares. In the case of default, debentures rank behind depositor liabilities and all other liabilities of the bank except those that, by their terms, rank equally with or subordinate to such debentures.

<sup>25</sup> Under the Bank Act passed in December 1980, banks are able to issue foreign pay securities, preferred shares with or without voting rights, convertible preferred shares and common shares. This gives them greater flexibility in raising new capital at the lowest possible cost and without necessarily diluting the equity of the common shareholder.

In 1981, the Department of Finance, concerned about bank leverage, exercised moral suasion to discourage banks from issuing debentures and counting the proceeds as long-term capital available for leverage.

Under the 1980 Bank Act, these debentures can be issued in foreign currencies as well as in Canadian dollars and must be at least five years in term.<sup>26</sup>

Unlike deposits, this liability class is not subject to reserve requirements.

11	14	15a
Selected liabilities Éléments du passif	CHARTERED BANK FOREIGN CURR EFFETS EN MONNAIES ÉTRANGÈRES	
Debentures issued and outstanding payable in Canadian dollars Débentures libellées en dollars canadiens en circulation	Net Foreign currency assets Avoirs nets en monnaies étran- gères	Foreign currency Canadian reside (booked at char Opérations en r avec des résidé (sièges et succ Securities Titres
B462	B410	B483
B113523	B113520	B113508
1,999	-1,745	2,441
1,996	-2,168	2,460
1,991	-2,138	2,503
1,916	-2,073R	2,390
1,994	-2,118	2,364
1,993	-2,072	2,509
1,992	-2,681	2,561
1,984	-1,660	2,576
1,916	-1,866R	2,416
1,916	-1,850R	2,388
1,915	-2,254R	2,336
1,915	-2,323R	2,422
1,915	-1,805R	2,470R
1,915	-2,253	2,341

In 1983, the Inspector General of Banks (IG) released a directive setting out new rules for defining a bank's capital base. Under the new rules, banks were required to split their capital into two parts—primary (permanent) capital (redefined as “base” capital in February 1985), which counts fully in the capital base, and secondary capital (redefined as “supplementary” capital in February 1985), which was given some unspecified capital value by the Inspector General. Primary (base) capital was defined to include retained earnings, contributed surplus, reserves and securities considered a permanent part of a bank's balance sheet. Common and straight preferred shares, as well as preferred shares convertible to common shares and perpetual debentures, are included here.

<sup>26</sup> In calculating the maximum amount of debentures that can be issued, foreign pay debentures are valued in Canadian dollars on the day prior to the bank's authorization of additional debentures.

Secondary (supplementary) capital includes all non-permanent capital, such as retractable preferred shares, subordinated debentures (unless they are perpetual, i.e., 99 years or more) and convertible debentures. When these securities are within five years of maturity, the amount counted in secondary (supplementary) capital will be amortized over five years (e.g., a \$100 million bond issue with five years to maturity will lead to a reduction in secondary (supplementary) capital of \$20 million each year for five years).

Because bank capital was so extensively defined in 1983, section 12 below discusses this area in more detail.

## 12. Bank Capital<sup>27</sup>

### a) Components of Base Capital<sup>28</sup>

Base capital for a chartered bank is defined to have three key properties. It is *permanent*; it should be *free of mandatory fixed charges* against earnings; and it should be *subordinated* to the legal position of depositors and other creditors of the bank. Given these criteria, base capital clearly includes common shareholders' equity—paid-up common shares, contributed surplus, general reserve and retained earnings.

However, other forms of capital, though lacking

<sup>27</sup> This section draws upon a detailed 15-page letter to the chartered banks by the Inspector General of Banks titled, “Definition of Capital For Purposes of Measuring The Capital Adequacy of Canadian Banks”, March 3, 1983.

<sup>28</sup> Primary capital was redefined as base capital and secondary capital was redefined as supplementary capital in a February 25, 1985 letter to the chartered banks by the then Inspector General of banks. The terms “base capital” and “supplementary capital” clarified the distinct Canadian character of the definition of capital and the measurement of its adequacy as per the March 1983 guidelines. Under the 1983 terminology, primary and secondary capital (using the 1983 terminology) could mistakenly be equated with primary and secondary capital as defined by bank supervisors in the United States. But, any such comparison would be invalid because of the different treatment that U.S. capital definitions give, for example, to allowances for loan losses, investments in shares or associated corporations and contingent liabilities.

Thus, the change from “primary” to “base” and from “secondary” to “supplementary” was one of form only.

complete satisfaction of all three criteria, possess enough of the criteria to be considered permanent. These include:

- appropriations for contingencies which are considered a form of equity (however, *specific provisions* are netted against assets and excluded from the definition of base capital);
- minority interest common shareholders' equity attributable to consolidated subsidiaries;
- permanent preferred shares (which, if the dividend is cut or eliminated, do not constitute grounds for bankruptcy) are defined as: perpetual preferred shares where aggregate redemption obligations do not, under any circumstances, exceed 15 percent of the issue; and compulsory convertible preferred shares, where conversion to securities otherwise qualified as base capital represents the holders only redemption option.
- long-term convertible preferred shares which meet three criteria: an original term to maturity of 20 years or more; no redemptions occur in the first 10 years; and the maximum redemption obligation in any single year is 5 percent or less of the original issue amount. (A call feature in the bank's favour would not disqualify these shares from being considered base capital, since exercising the call is subject to approval by the Inspector General of Banks.)
- permanent subordinated debentures, defined as: mandatory conversion of convertible debentures into securities qualifying as base capital where there are no sinking fund, purchase fund or other redemption obligations; or, where in the event of a reduction in the common dividend, the debenture interest obligation would be adjusted to reflect a pro rata reduction, down to a maximum of 1 percent of the debenture face amount if the common dividend has been omitted; or, where in the event of a reduction in the common dividend, accelerated conversion of the debentures into securities that would qualify as base capital would be mandatory.

All components of base capital count equally, and there are no limits on the specific source of base capital, although the Inspector General of Banks asked banks to ensure that "the common shareholders'

equity components of base capital remain predominant and at a prudent level."

It is worthwhile noting here that, by the above guidelines, virtually all subordinated debentures would only qualify as supplementary capital. This is because such securities usually do not provide permanent capital, and they are subject to mandatory interest payments which constitute a fixed charge against bank earnings (i.e., they only satisfy one of the three key criteria).

However, as noted above, there are specific situations where bank debentures could have a minimal obligation to meet a cash commitment and, in these cases, they could be included in base capital. Debentures that would qualify as base capital came up for active discussion in 1983 through early 1985. Thus, in June 1985 the IG wrote to the banks setting out the terms and conditions under which perpetual debentures would qualify as base capital.<sup>29</sup> The criteria are as follows:

- \*the debentures shall have a minimum term to maturity of 99 years;
- \*there shall be no sinking fund, purchase fund or similar provisions for retirement of the debentures prior to maturity;
- \*the terms and conditions attached to the debentures may provide that the debentures are redeemable at the option of the issuer at any time after five years of the date of issue but only with the prior written approval of the Inspector General of Banks;
- \*any provision for the repurchase of the debentures and any such repurchase by the issuer or an affiliate of the issuer at any time prior to maturity shall be subject to the prior written approval of the Inspector General of Banks;
- \*in the event of insolvency or winding up of the issuer, no payments with respect to the debentures may be made until all deposit liabilities and other liabilities, other than those that by their terms rank equally with the debentures, have been paid in full;
- \*the terms and conditions of the debentures shall provide that in the event of a reduction in the dividends on common shares from a reference level the interest rate payable on the debentures shall be reduced pro rata;

<sup>29</sup> Letter from the Inspector General of Banks to chartered banks, June 21, 1985.

- \*the terms and conditions of the debentures shall provide for simple interest only on outstanding principal;
- \*the terms and conditions of the debentures shall not provide for any form of compensation with respect to any unpaid payments;
- \*notwithstanding the above, subject to the prior approval of the Inspector General of Banks, the terms and conditions of the debentures may provide that the issuer will issue to the holder common shares in compensation for any payment not made on a "best effort" basis;
- \*other than for interest due and payable, there shall be no term or condition attached to the debentures that is an obligation of the bank which could, during the term of the debentures, be actionable by the debenture holders or any of them;
- \*any amendment, revocation or addition to the terms and conditions attached to the debentures shall be subject to the prior written approval of the Inspector General of Banks, except those modifications which are required for correcting ambiguity or defective or inconsistent provisions;
- \*bank debentures will be considered as supplementary capital during the 20-year period preceding their maturity;
- \*banks are asked to limit to 20 percent the proportion of their base capital which is represented by preferred shares and debentures. Preferred shares or debentures already issued or approved by the IG as being base capital prior to June 21, 1985, were grandfathered.

#### *b) Components of Supplementary Capital<sup>30</sup>*

Supplementary capital is composed of residual financial instruments that possess some of the features of base capital but which substantially fail to meet at least one of the three key elements of base capital. Supplementary capital is defined below.

Bank only components which include redeemable preferred shares defined as:

- \*preference shares that have no redemption obligations (sinking funds or purchase funds) operative during the first five years of the issue, and

- \*preference shares which have no mandatory retirement covenants in the event of missing a dividend.

It is worth noting here that preferred shares with shareholders' retraction privileges occurring within five years of the issue date or shares with restrictive covenants mandating accelerated redemptions in the event of a dividend omission would automatically be excluded from supplementary capital.

Subordinated debentures eligible as supplementary capital are defined as:

- \*debentures that are subordinate to the deposit obligations of the bank;
- \*debentures that have a term at issue of five years or more; and
- \*debentures that have no redemption feature during the first five years.

From this, it will be noted that it is possible debentures may not qualify for either base or supplementary capital. Specifically, performance covenants on such securities that could potentially interfere with a bank's ability to conduct normal banking operations could preclude such debentures from inclusion in supplementary capital; for instance, covenants mandating accelerated redemptions in the event of failure to meet particular earnings coverage tests.

Notwithstanding their separate legal status, the senior securities of subsidiaries will generally qualify for inclusion in consolidated supplementary capital (add-on consolidation components) for measuring capital adequacy for regulatory purposes, providing there are no parent guarantees or other contractual features governing the issue that could in effect rank the investor's claims equal with or ahead of the claims of bank depositors, and that such subsidiary issues otherwise meet the minimum standards established for the equivalent class of bank security.

On this basis, minority preferred shares of subsidiaries will be regarded as an appropriate component of consolidated supplementary capital where the shares may not rank equally or ahead of the deposits of the bank due to a parent bank guarantee or by any other contractual means, and they meet the minimum preferred share tests, i.e., the shares must have no redemption obligations in the first five years and no mandatory retirement covenants in the event of missing a dividend.

Likewise, subsidiary debentures will qualify for

<sup>30</sup> Secondary capital was redefined as supplementary capital in February 1985.

inclusion in consolidated supplementary capital where they may not rank equally or ahead of the deposits of the bank due to a parent bank guarantee or by any other contractual means; they are fully subordinated to the other liabilities of the subsidiary; and they meet the minimum criteria for qualifying bank debentures, namely, the requirement for a minimum five-year term with no redemptions in the first five years and the absence of special restrictive covenants.

For regulatory purposes, there are three general limitations governing the components of supplementary capital. First, the aggregate amount of such capital may not exceed 1.0 times base capital. (In deriving capital leverage ratios for regulatory purposes, however, a bank's share investments in Associated Corporations are to be deducted in full from base capital.) This provision does not preclude a bank from issuing more supplementary capital once it has reached the ceiling for regulatory purposes. However, where there is an excess it can subsequently only be used when the ratio would otherwise drop.

Second, the minimum original maturity of financial instruments included in supplementary capital must exceed five years and must be free of any redemption option or retraction obligation that could take effect in the first five years. (For redeemable preferred shares this limitation only applied to issues after March 3, 1983; it did not exclude issues already outstanding at the time the new guidelines were issued.)

Third, supplementary capital components with a remaining life of five years or less are subject to straight-line amortization over the final five years.<sup>31</sup>

### *c) Capital Adequacy Guidelines*

In 1983, the Inspector General set out capital adequacy guidelines as follows:

As previously indicated, the Inspector General of Banks has relied on the "own funds" concept for conveying guidelines that relate to capital adequacy. Accordingly, in the course of fiscal year 1982, the Inspector General notified the industry that an

<sup>31</sup> Specifically, supplementary capital over five years is counted for 100 percent of value; capital with 4-5 years to maturity is counted at 80 percent of value; capital with 3-4 years to maturity is counted at 60 percent of value; capital with 2-3 years to maturity is counted at 40 percent of value; capital with 1-2 years to maturity is counted at 20 percent of value; and capital with under one year to maturity is not counted for any value.

appropriate optimum leverage ratio for the largest, well diversified Canadian banks should not exceed a multiple of "own funds" to total assets of 30 times. Small, less established banks were simultaneously advised to limit leverage to 20 times, thereby indicating the range for the leverage ratio considered appropriate for capital planning in fiscal 1982.

The Inspector General of Banks intends future capital adequacy guidelines will be consistent with and produce approximately the same results as the previous "own funds" concept of capital adequacy.

As per past practice, capital adequacy standards will continue to be implemented on a bank-by-bank basis, in accordance with the size of the institution, its diversification of assets and liabilities, degree of risk exposures, level of profitability and general management strengths, including liquidity management. Accordingly, capital leverage ratios for each bank will be established in consultation with the Office of the Inspector General of Banks, whereby the multiplier of leverage permitted on base capital will vary by bank and in all cases will exceed the multiplier of leverage attributed to supplementary capital.<sup>32</sup>

In other words, both base and supplementary capital would count in the calculation, but a dollar of supplementary capital would not count equally with a dollar of base capital. In fact, the IG had various ratios which it used internally including assets as a ratio of base capital and a "base capital equivalent". The base capital equivalent included net base capital plus one-third of adjusted supplementary capital net of amortization.

In 1984 banks were active in guaranteeing about \$1 billion of new preferred share equity financings (dividends and the ultimate repayment of the shares). (The bank's fee typically was 3/4 of 1 percent of the value of the deal.) In many cases, these deals were to help a corporate client pay down its bank loan to save interest expense and/or obtain a large volume of funds at the lowest cost (the equity issues of even low rated firms received the same credit rating as the guaranteeing bank). However, the sheer volume of the financing and the riskiness of some of the firms being accorded the guarantee led the IG to become concerned about the riskiness of the financings to the banks themselves; specifically, the IG was concerned about the impact of such transactions on the bank's own ability to issue equity. Thus, in late 1984 the IG

<sup>32</sup> "Definition of Capital For Purposes of Measuring the Capital Adequacy of Canadian Banks", Inspector General of Banks, March 3, 1983.

brought moral suasion to bear by saying he would penalize institutions offering their guarantee by deducting the dollar amount of future share issues so guaranteed from the bank's capital base.

One exception is, however, permitted. In cases where a company is in financial difficulty and is seeking preferred share financing as part of a loan workout, bank guarantees are allowed with no reduction in the bank's capital base.

*In late 1986 and through 1987, a key new development was the British-U.S. joint initiative through the Bank for International Settlements (BIS) to introduce uniform minimum capital requirements based on the risk profile of bank assets.* In July 1988, the BIS finally set out capital adequacy guidelines for the G10 countries. These guidelines were designed to achieve two key objectives. The first objective is to strengthen the soundness and stability of the international banking system. Second, the guidelines are determined in a way that was designed to be fair and consistent in application to international banks in different countries, i.e., to provide more uniform world wide standards for banks operating in global financial markets.

To achieve these two objectives, the BIS had to establish minimum capital standards and, thus, had to obtain general agreement on the definition of bank capital. It also had to establish specific risk factors for different bank assets to allow the weighting of bank assets for credit and country transfer risk (but not for interest rate or exchange rate risk).

From an operational perspective, there are two key issues associated with the capital adequacy guidelines. The first relates to the nature of bank assets. Here, the BIS risk weighting approach sets up five categories for risk weighting of balance sheet and off balance sheet items. On the balance sheet, assets with very low risk were given a risk weighting factor of 0, 10 percent or 20 percent. Moderate risk assets were given a risk weighting of 50 percent. And, finally, higher risk assets were assigned risk weightings of 100 percent. The off balance sheet items are divided into eight categories and converted to credit risk equivalents by first multiplying the nominal principal amounts by a credit conversion factor (0 percent, 20 percent, 50 percent or 100 percent); the resulting amounts are then weighted as per the five risk weighting categories for the balance sheet assets. Thus, when the weights are applied to the various asset categories, both on and off the balance sheet, a risk weighted asset value is obtained for each bank in each country.

The second aspect is the capital required to support

the risk adjusted asset base. Here, the BIS set a two-tier requirement. The tier 1 requirement is that banks have to have "core capital" equal to at least 4 percent of adjusted assets by the end of 1992. Core capital is defined to be common equity (common shares and retained earnings), plus disclosed reserves (appropriations for contingencies), non-cumulative perpetual preferred shares, eligible 99-year debentures and minority interests in the equity of subsidiaries.

The tier 2 requirement is that banks must have "total capital" equal to 8 percent of risk adjusted assets by the end of 1992. Tier 2 capital is defined to be tier 1 core capital plus supplementary capital. Supplementary capital includes: undisclosed reserves and general loan loss reserves (i.e., where the loss provisions are not set against specific loans with specific losses), hybrid debt/equity capital (e.g., term preferred shares), cumulative preferred shares, term subordinated debt, hidden gains above book value for bank premises, and up to 45 percent of unrealized capital gains on securities. During the last five years to maturity, term securities will be reduced in the capital calculation by 20 percent per year and, in any event, are limited to a maximum of 50 percent of tier 1 capital.

Deductions from capital include "goodwill", investments in subsidiaries engaged in banking and finance which are not consolidated in national systems (i.e., consolidation is assumed), and some unspecified holdings of other banks' capital (at the discretion of national authorities).

There are transition arrangements to the end of 1992 and an interim standard for 1990.

Within this broad framework of what could be done, each country has some leeway to set risk weighting groups and risk factors so they can interpret the risk weighting guidelines conservatively or liberally. In Canada, the Superintendent of Financial Institutions (SFI) adopted a conservative approach, partly to ensure the continued strong international reputation of the Canadian banking system and partly because, even with a strict interpretation, Canadian banks generally now already meet the 1992 4 percent core capital guideline and almost meet the 8 percent total capital guideline. Specifically, the SFI does not allow the banks to count general country risk provisions as part of tier 2 capital, even though U.S. banks can count a formula determined amount and Japan can count it all. There are two reasons for this policy; the SFI does not want to define capital in such a way as to discourage Canadian banks from selling off these assets, and LDC loan loss provisions, being



specific and earmarked, should be viewed as a reduction in the value of bank loans and not as capital. Second, the SFI does not allow the banks to include as capital the unrealized capital gains on their real estate holdings above book value (revaluation reserves). By contrast, the U.K. allows this. Finally, the SFI does not allow unrealized capital gains on securities to be counted as part of revaluation reserves, while Japan allows the full 45 percent of gains to be counted. However, partly offsetting these three conservative guidelines is the SFI rule that federal and provincial government bonds and OECD country national bonds would be assigned a zero risk weighting versus 10 percent or 20 percent being assigned in some other countries.

One other short-term concession is that the SFI will allow banks to count "existing goodwill" as part of their core capital during the phase-in period to 1992. Since this component arises when a bank has an asset purchased above its book value, the main goodwill component for Canadian banks arises from their purchase of securities firms (these purchases are recent, large, and for more than book value). But, this existing goodwill will be phased out during the transition phase (1990–1992). New "goodwill" paid after November 1, 1988, will not be counted at all.

13		
CHARTERED BANK LIABILITIES (Millions of dollars) continued		
PASSIF DES BANQUES A CHARTRE (En millions de dollars) suite		
Gross Canadian dollar Demand Deposits		
Dépôts à vue en dollars canadiens (montant brut)		
Personal	Other	Total
chequing	Autres	Total
Compte		
de chèques		
personnels		
B486	B487	B457
B113537	B113538	B113640
2,790	15,321	18,111
3,025	16,393	19,418
3,118	16,969	20,087
3,128	17,090R	20,219R
3,325	17,487	20,812
3,061	16,816	19,877
3,050	17,292	20,342
3,036	16,283	19,319
3,179	17,209	20,388
3,007	16,660	19,667
3,183	17,294R	20,477
3,144	17,198R	20,343R
3,681R	18,441R	22,122R
3,144	17,236	20,381

### 13. Gross Canadian Dollar Demand Deposits

In 1982 the Bank of Canada began to include additional data on gross demand deposits in the *Weekly Financial Statistics*. The Bank now provides a weekly breakdown of demand deposits into personal demand deposits and non-personal (other) deposits. These data allow the analyst to track these two series separately and to examine the relative speed with which individuals and corporations are reducing their reliance on demand deposits.

### IV. CHARTERED BANK FOREIGN CURRENCY ITEMS

Page 4 of the Bank of Canada WFS concludes by presenting six asset and liability series in a category called "chartered bank foreign currency items". The six entries are net foreign assets, which include all foreign currency assets netted against all foreign currency liabilities, and five selected data series on foreign currency business with Canadian residents booked at chartered banks in Canada. This includes foreign currency securities and loans and two classes of foreign currency deposits.

14	15a	15b	16a	16b	17
CHARTERED BANK FOREIGN CURRENCY ITEMS (Millions of dollars)					
EFFETS EN MONNAIES ETRANGERES DES BANQUES A CHARTRE (En millions de dollars)					
Net foreign currency assets	Foreign currency business with Canadian residents (booked at chartered banks in Canada)				
Avoirs nets en monnaies étrangères	Opérations en monnaies étrangères avec des résidents canadiens (sièges et succursales canadiennes seulement)				
	Securities Titres	Loans Prêts	Deposits Dépôts	Other Autres	Tot Tot
B410	B483	B498	B481	B482	B4
B113520	B113508	B113527	B113525	B113526	B1
-1,745	2,441	26,601	2,764	8,196	10
-2,168	2,460	28,303	3,147	8,501	11
-2,133	2,503	25,983	3,565	8,477	12
-2,073R	2,390	26,995R	3,911	9,736R	12
-2,118	2,364	25,722	3,607	8,330	11
-2,072	2,509	25,647	3,413	8,297	11
-2,681	2,561	26,142	3,277	8,689	11
-1,660	2,576	26,222	3,925	8,592	12
-1,866R	2,416	26,648	3,953	8,576	12
-1,850R	2,388	26,923	4,108	8,630	12
-2,254R	2,336	27,561	3,843	8,803	12
-2,323R	2,422	26,847R	3,738	8,435R	12
-1,805R	2,470R	26,602R	3,773R	9,081R	12
-2,253	2,341	25,944	3,452	8,601	12

### 14. Net Foreign Currency Assets

The net foreign currency asset data shown in entry 14

on page 4 is a repetition of the same data shown on page 3, entry 28. The series is a product of *all* foreign assets netted against all foreign liabilities (about 95 percent are denominated in U.S. dollars).

Foreign currency assets and liabilities of the Canadian banks expanded rapidly during the 1970s. In fact, the rates of growth substantially exceeded those of Canadian dollar operations. These trends were most apparent during the last half of the 1970s when foreign currency assets and liabilities grew at an annual rate of over 25 percent compared with about 16.5 percent for Canadian dollar counterparts. With this rapid growth, the foreign currency business of the banks has come to play an increasingly important role in the functioning of the Canadian financial system and as part of the complex linkages between Canada and international financial markets.

The foreign currency assets of the Canadian banks include three basic components. About 40-60 percent of all foreign currency assets consist of standard Euro-currency commercial *loans* (either in syndication with a group of banks or involving only one bank) to both Canadians and non-residents. This business probably accounts for 80-90 percent of all Canadian banks' foreign profits. The typical loan has a term of five-eight years and an interest rate tied to the London three- or six-month inter-bank offered rate (LIBOR). Normally, the loans are made in U.S. dollars.

Another 25-40 percent of the Canadian banks' foreign currency assets consist of *deposits with other banks* (inter-bank deposits). These deposits, which are short term in nature, serve as working balances to accommodate foreign transactions and as a liquidity safety valve for the banks' U.S. and Eurodollar commercial loan activity (e.g., to match the term of deposit inflows or to take positions on interest rate changes). Because the gross spreads seldom exceed 1/4 percent, this business generates very little profit.

The remaining 5-20 percent of "other" foreign currency assets consist of foreign securities which are mainly issued by Canadian corporations. A small part of this component is call loans (e.g., short-term U.S. dollar loans to investment dealers and bond dealers/stockbrokers), and a third element is gold coin and bullion. "Other" foreign assets also include accrued interest and items in transit.

On the foreign liability side, there are two main components. The first is deposits of "other banks", inter-bank liabilities which accounted for the majority of total foreign currency deposit liabilities. The second element, "other deposits", or non-bank deposits, includes deposits of bank customers, multi-

national companies and official international institutions including central banks. Foreign liabilities also include accrued interest and the foreign currency debentures of the banks.

As noted in the discussion of net foreign assets on page 3 of the Bank Statement, foreign liabilities typically exceed foreign assets so that net foreign assets are usually negative. This generally reflects the extent to which Canadian banks are net buyers of Canadian assets with foreign funds.

Foreign currency assets and liabilities can be booked in Canada or booked abroad. The business with Canadian residents booked in Canada is discussed further in entries 15-16 below. However, before discussing foreign business of Canadian residents, it is worthwhile noting that foreign asset and liability business with non-residents rose considerably faster than the business with Canadian residents in the latter half of the 1970s and in the early 1980s. After 1980, the relatively large drop in foreign liabilities booked in Canada can be attributed in part to the 1980 Bank Act which established a 3 percent reserve requirement against foreign deposits of residents booked in Canada. Since there is no formal reserve requirement on foreign deposits if they are raised abroad, the Bank Act encourages chartered banks to reduce foreign deposits booked in Canada and replace them with foreign deposits booked abroad. From December 1980 to early 1983, foreign currency deposits were exempt from reserve requirements *only* if they were issued to non-residents in registered form. However, this regulation was relaxed in early 1983 when bearer term deposit notes were allowed to be issued abroad free of reserve requirements so long as they were designated as not for sale to Canadian residents. This led to increased use of non-resident foreign currency deposits.

*Many of the foreign banks licensed in Canada since 1980 are especially active in borrowing foreign funds outside Canada from non-residents, in both the deposit and commercial paper markets (reserve free), to help fund their foreign currency lending programme at a more profitable spread.* Foreign buyers especially like the paper of foreign banks in Canada, since they can buy it at a relatively high yield with a parent bank guarantee and free of withholding tax. This became so widespread in the early 1980s that it had to be discouraged by moral suasion from the Inspector General of Banks (now the Superintendent of Financial Institutions). This was done by the IG setting a guideline limiting foreign currency sources of dollar assets. (However, this guideline still leaves the



banks free to fund all foreign currency loans with reserve free foreign deposits.)

In the end, however, the fact that a large volume of foreign deposits are reserve free encourages banks to run net foreign assets negative. However, if the NFA series is negative (foreign currency deposits are taken to finance Canadian dollar loans), the foreign exchange exposure would normally be covered by a forward contract to reconvert the Canadian dollars back to the foreign currency at a fixed exchange rate when the deposit matures.

One final point is worth noting. The banks can somewhat reduce the impact of Bank of Canada tightening by increasing foreign liabilities (e.g., U.S. Eurodollar CDs) by more than foreign assets. However, foreign currency deposits are not looked on as a large net source of money to finance Canadian dollar operations.<sup>33</sup> In a given week, if the negative figure increases or if a positive figure declines by, say, \$100 million, then this is a rough measure of the extent of the net inflow.

### 15. Foreign Currency Business with Canadian Residents (Booked at Chartered Banks in Canada)

The comments above deal mainly with global foreign asset and liability business of Canadian chartered banks. However, the Bank of Canada also provides five specific data series in the WFS covering "foreign currency business with Canadian residents" (which is also booked in Canada). These data, which are 95 percent U.S. dollars, are discussed below.

#### a) Securities

On the asset side, the WFS shows two series—the value of foreign currency securities purchased from Canadian residents and booked at chartered banks in Canada as well as foreign currency loans granted to Canadian residents and booked in Canada.

<sup>33</sup> Although the banking system may be able to escape Bank of Canada tightening by resorting to foreign funds to finance domestic loan demand, the *economy* as a whole does not escape. For example, the inflow of funds would put upward pressure on the exchange rate, and the cutting edge of policy eventually becomes a higher valued Canadian dollar rather than higher interest rates.

This series for securities was virtually zero in 1975-76, but it jumped to \$4.5 billion at the end of 1978. The substantial increase in 1977 and 1978 mainly reflected the banks buying U.S. dollar term preferred shares issued by Canadian companies, which gave banks a tax free dividend return under the tax law which existed at that time. However, the Federal Budget of 1978 eliminated this tax advantage. This is the main reason the entry 15a security class has fallen since 1978.

#### b) Foreign Currency Loans (Booked in Canada)

The foreign currency loans entry represents loans made in foreign currencies to Canadian residents (booked in Canada). Thus, if a Canadian company borrows \$50 million U.S. from a Canadian bank in Canada (including foreign banks chartered in Canada), it shows up in this category, although if the same company borrowed the money from a Canadian branch *outside Canada*, it would not be recorded in this data series. Also, this series does not include foreign currency loans to Canadians from non-Canadian banks. If a Canadian company borrows \$50 million U.S. from Citibank in the U.S., this transaction does not show up anywhere on the Canadian Bank Statement. Finally, if a foreign subsidiary of a Canadian company borrows in Canada, it would also not be reported.

	15a	15b	16a	16b	17
RED BANK FOREIGN CURRENCY ITEMS (Millions of dollars)					
EN MONNAIES ÉTRANGÈRES DES BANQUES À CHARTRE (En millions de dollars)					
Foreign currency business with Canadian residents (booked at chartered banks in Canada)					
Opérations en monnaies étrangères avec des résidents canadiens (sièges et succursales canadiennes seulement)					
	Securities Titres	Loans Prêts	Deposits Dépôts	Other Autres	Total Total
			Deposits of banks Dépôts des banques		
0	B483 B113508	B498 B113527	B481 B113525	B482 B113526	B496 B113528
45	2,441	26,801	2,764	8,196	10,960
68	2,460	25,303	3,147	8,501	11,649
33	2,503	25,983	3,555	8,477	12,032
73R	2,390	26,995R	3,911	8,736R	12,647R
18	2,364	25,722	3,607	8,330	11,936
72	2,509	25,847	3,413	8,297	11,710
81	2,561	26,142	3,277	8,689	11,966
50	2,576	26,222	3,925	8,592	12,517
66R	2,416	26,648	3,953	8,576	12,529
50R	2,388	26,923	4,108	8,630	12,738
54R	2,336	27,561	3,843	8,803	12,646
23R	2,422	26,847R	3,738	8,935R	12,672R
55R	2,470R	26,602R	3,773R	9,081R	12,854R
53	2,341	25,944	3,452	8,801	12,252

As noted earlier, these loans are usually made in U.S. dollars for a fixed term (five-eight years). Typically, the loan rate floats on a spread above LIBOR, the spread being recalculated at three- or six-month intervals. *This series includes the U.S. dollar loans to the Government of Canada on its standby credit facility with Canadian banks.*

The series rose very strongly (an annual rate of 30 percent over the period 1975-80), and in the first eight months of 1981 it nearly doubled, from \$10 billion to \$20 billion. The main reason for the jump in these loans in 1981 (about \$4 billion of the increase) was to finance Canadian takeovers of foreign-owned companies, especially in the energy field.

Before leaving the asset section, it is worthwhile noting one other class of foreign asset booked in Canada which is *not* shown on the Bank Statement—deposits with other banks.

## 16. Deposits

On the liability side, the WFS shows two deposit series which, like foreign assets, are about 95 percent in U.S. dollars. These two series represent foreign deposit liabilities booked in Canada and fall far short of foreign assets booked in Canada. This mainly reflects two developments—the replacement of foreign deposits booked in Canada with foreign deposits booked abroad following the introduction of the 1980 Bank Act, and a large increase in foreign currency loans in 1981 which were funded abroad.

### a) Deposits of Banks

The first deposit entry is foreign deposits of banks with Canadian banks in Canada. This weekly entry dates from November 1981.

### b) Other Deposits

Prior to November 1981, the Bank of Canada reported two series—“swapped deposits” and “other deposits”. Now these two are lumped together and called “other deposits”, mainly because swapped deposits are no longer an important source of foreign funds to the banks. In any case, the discussion which follows will split “other deposits” into swapped deposits and non-swapped deposits in order to provide a format for discussing the mechanics of doing a

swap. This is worthwhile because, although swaps have become much less important to the banks since the 1980 Bank Act changes, “split swaps” are quite important in the money market.

### i) Other Deposits—Non-Swapped

Other foreign deposits (non-swapped) booked with Canadian residents in Canada are quite straightforward and represent outright deposits of foreign currencies by Canadian residents with Canadian banks. (This includes chartered bank U.S. dollar daily interest savings accounts—retail deposits—introduced in late 1981.) On these deposits, the depositor may or may not cover the foreign exchange risk in the foreign exchange market, depending on whether or not depositors need foreign currency to make future payments or whether or not they want to speculate against currency changes.

These deposits showed substantial fluctuations in the second half of the 1970s and 1980-81. In 1976, for example, non-swapped deposits rose sharply, reflecting heavy borrowing of foreign currencies by Canadian credits. For example, the foreign currency proceeds from new bond issues were often temporarily deposited with Canadian banks prior to conversion, and this boosted non-swapped deposits significantly. (Both provincial governments and corporations issued foreign pay securities heavily during 1976, in response to the wide interest rate differential between Canada, the U.S. and the Eurodollar market and, also, in the case of corporations, the elimination of withholding tax on new issue debt securities issued for more than a five-year term.)

In 1977 and 1978 these deposits again rose substantially from \$5.8 billion to \$10 billion as depositors began to aggressively speculate about a substantial fall in the Canadian dollar by selling Canadian balances and converting these into U.S. dollar deposits. These deposits continued to rise in 1979 and 1980 and, just prior to the new Bank Act in November 1980, they totalled about \$14 billion.

Since the 1980 Bank Act was passed, requiring banks to hold reserves on these deposits effective February 1, 1981, the banks have quoted less attractive rates to reflect the reserve requirement.<sup>34</sup> As a result, this deposit class showed a decline from 1981

<sup>34</sup> On a 10 percent deposit, the 3 percent reserve requirement adds 30 basis points to the bank's cost of a foreign deposit booked in Canada.

through early 1987. However, these deposits were more than replaced with non-Canadian foreign deposits which are reserve free.

## ii) Other Deposits—Swapped

Since November 1981, swapped deposits are no longer reported as a separate entry in the WFS. This deletion was made because swaps outstanding fell from about \$1.5 billion, over the period 1975-1979, to almost zero. As above, this mainly reflects the 3 percent reserve requirement on foreign deposits booked in Canada with Canadian residents which also applies to swapped deposits. However, swaps are discussed here in a brief digression because banks are doing them as split swaps and because swaps are still very important to money market dealers.

Until the 1980 Bank Act revisions, swapped deposits were, on occasion, an important source of chartered bank deposits (another form of “purchase money”), especially when Canadian monetary conditions were tight and Canadian interest rates high or rising relative to fully hedged U.S. domestic or Eurodollar rates.

A money market dealer or bank “swap” is simply a Canadian corporate’s or individual resident’s Canadian dollar funds converted into a foreign currency, usually U.S. dollars, which are placed on fixed term deposit in a foreign currency bank CD and which the bank has undertaken to reconvert to Canadian dollars for the client through a foreign exchange forward contract to the maturity date of the deposit. Thus, the depositor starts out with Canadian dollars and is repaid in Canadian funds when the deposit and foreign exchange contract mature.

In foreign exchange jargon, the chartered bank or money market dealer sells U.S. dollars at the spot price to the client in exchange for Canadian dollars. Simultaneously, the bank agrees to repurchase the U.S. dollars from the customer for forward delivery (in exchange for delivering the client Canadian dollars) on a specific future date. *Thus, bank swaps outstanding represent the amounts of forward U.S. dollars the banks are committed to purchase from clients in the future.*

The difference in rate between the spot purchase of U.S. dollars for delivery to the client and their forward sale by the client to the bank is taken into account by the bank or dealer in the interest rate calculation. Thus, the yield on the swap deposit is a function of the fixed interest rate being paid for U.S. dollar term

deposits, plus or minus the spread between the spot and forward rate for U.S. dollars, i.e., the yield effect of the forward exchange transaction.

Since the spot purchase and forward sale of the U.S. dollars and the interest rate on U.S. dollar term deposits are negotiated simultaneously, swap rates are quoted to customers on a net yield or “all-in” basis.

It is also important to note that *the buyer of the swap does not have any foreign exchange exposure* because of the simultaneous purchase and sale of U.S. dollars (or other foreign currency) back to the individual bank. However, *the bank doing the swap does have an exposure, which will usually be covered in the foreign exchange market.*<sup>35</sup>

Prior to 1981, banks looked upon client swaps as a deposit instrument to attract funds (at a certain cost) which could then be loaned out, either in U.S. or Canadian dollars.

The mechanics of putting a swap together are outlined below using a set of interest rates and foreign exchange rates for Canada and the U.S. which prevailed in late 1976. This example was chosen because it clearly illustrates how a lender can use the forward foreign exchange market to achieve an attractive return in a security class (swap), *even though the foreign security being purchased has a low nominal rate of interest relative to the same Canadian dollar security.*

Specifically, on November 30, 1976, Canadian 62-day bank deposit rates (e.g., BDNs) and Bankers’ Acceptances were quoted as 8 3/4 percent (per annum basis), while the equivalent 62-day U.S. dollar bank deposit was quoted in London at 4.9375 percent. The spot value of the U.S. dollar in Canada was \$1.0290 (Canadian dollar in New York at US\$ 0.97181), while the 62-day forward rate for the U.S. dollar in Canada was \$1.0363 (i.e., a 73-point premium to spot).

Assume a Canadian client walked into a Canadian bank with \$10 million Canadian. The bank would then arrange a swap as follows: first, convert the \$10 million Canadian to U.S. funds at the spot price;

$$\frac{\text{C\$ } 10,000,000}{1.0290} = \text{US\$ } 9,718,173$$

Second, invest the US\$ 9,718,173 in the Eurodollar deposit at 4.9375 percent for 62 days. This will

<sup>35</sup> If the bank keeps the Canadian dollars obtained on a swap and does not do a forward to offset the swap, then the bank is likely using the money in Canada.

generate US\$ 82,638.21 of interest for 62 days on the basis of the 360-day year for Euro-CDs.

Third, take the total U.S. dollar proceeds that will be received at maturity (US\$ 9,718,173 of principal plus US\$ 82,638.21 of interest, i.e., US\$ 9,800,811.21) and convert these proceeds back to Canadian dollars at the 62-day forward rate of \$1.0363: US\$ 9,800,811.21  $\times$  1.0363 = C\$ 10,156,580.66.

The next step is to calculate the net "all-in" yield to the Canadian investor. This is equal to the total interest and foreign exchange pick up, C\$ 156,580.66, divided by the original amount invested, multiplied by the term of the investment, which now has to be based on a Canadian 365-day year, and expressed as a percent, i.e.,

$$\frac{\text{C\$ } 156,580.66}{\text{C\$ } 10,000,000} \times \frac{365}{62} = 9.218\%$$

Finally, the all-in yield on the swap (9.218 percent) is compared with the return of 8 3/4 percent on the straight Canadian dollar 62-day deposit.<sup>36</sup> Here it can be seen that the investment in a swap deposit produced a 46.8 basis point pick up over the straight Canadian dollar yield. As a result, the lending client should theoretically purchase the swapped deposit.<sup>37</sup>

Nevertheless, attractive swap rates need not always attract a lot of business. Swap deposits are generally more illiquid than other deposits because they are registered in the name of the holder and not done in bearer form. Thus, they require a relatively higher interest rate to attract lenders.<sup>38</sup>

<sup>36</sup> The formula for calculating the all-in yield on a swap is as follows:

$$\text{All in Yield} = \left[ \frac{F}{S} \left( 1 + \frac{Ni}{360} \right) - 1 \right] \times \frac{365}{N}$$

where S = Spot Value of US\$ in Canadian dollars

F = Forward Value of US\$ in Canadian dollars

i = The annual rate of interest on the Eurodollar deposit

N = Number of days funds are invested

<sup>37</sup> Generally speaking, lenders require at least a 10-20 basis point pick-up on a swap compared to a straight deposit to offset administrative and flexibility costs associated with swapped deposits.

<sup>38</sup> It is sometimes difficult to unwind both the foreign security contract and the currency hedge contract at a profit prior to the swap maturity.

*This actual numerical example demonstrates how important the forward premium or discount is in eliminating nominal interest rate differentials between pairs of countries.* In this actual case, the forward premium on the U.S. dollar in Canada was so large that it more than offset a 380 basis point interest rate differential in favour of Canada.

This type of situation need not always prevail however. There will be many occasions when the lender will only pick up marginal yield (less than 10 basis points), and in other instances the swap may actually produce a lower all-in yield than is available on a domestic deposit. Indeed, over time, *given the existence of interest arbitrage, we would expect that significant differences between domestic interest rates and foreign rates, adjusted for the cost of forward cover, would not last very long.* Put differently, the fully hedged yield differential between two countries should be close to zero.

Chartered bank swaps now account for a very small percentage of the total swaps outstanding. Dealer arranged swaps, known as "split swaps," make up the bulk of total swaps, although the banks are also now active in the "split swap" market. Even without the reserve requirement, the rate offered by a dealer on a split swap was almost always better than a one bank swap, since the dealer would always take the highest yielding foreign CD at one bank and combine it with the best foreign currency hedge which was usually offered by a different bank. This allows the dealer to offer a lender a swap which combines the best interest rate and the best currency hedge available in the market at a given point in time.

Swap deposits are a close substitute for Canadian dollar deposits because, as far as the lender is concerned, the swap is a Canadian dollar deposit since there is no foreign exchange risk.<sup>39</sup> Thus, the banks can theoretically use this vehicle to build liabilities and assets and a bigger banking system.

Second, swaps traditionally have been done in "block" size—generally \$5 million or more. The sheer size of the activity ensures that swaps are an important factor in the money market.

Swap and split swap rates compete directly with the rates money market dealers and banks quote on various money market instruments, so an increase in swaps outstanding generally means upward pressure on interest rates. For example, the big jump in bank swaps outstanding through 1974, from \$900 million

<sup>39</sup> There is credit risk, however.

early in the year to a peak of almost \$3 billion in September 1974, was one of the major factors driving short-term rates up in 1974.

On occasion, up to 1980, banks would offer a very attractive swap rate, 50-60 basis points above money market rates, to money market investors. When money market dealers could not come close to matching the chartered bank rate by doing a split swap (where the dealer takes the highest yielding bank CD and combines it with the best forward exchange rate), money market participants would sometimes refer to the attractive bank swaps as being "fabricated." This term was used since it would appear that the all-in rate quoted by the bank to the lender was not strictly built up from actual Eurodollar CD rates adjusted for actual currency hedges quoted and contracted in the market. Rather, some money market participants felt that when banks needed money both quickly and in large size, they would sometimes start by quoting an attractive all-in rate on swaps to their clients to obtain the money and then simply work backwards to create on their books a mix of Eurodollar CDs and CD rates and foreign exchange forward rates to produce the all-in rate.

This then raised the question as to where the bank was "paying up": was it on the U.S. dollar deposit or was it on the forward contract part of the swap? Generally speaking, if a bank paid up on a swap, *it was on the deposit contract* rather than the foreign exchange portion of the transaction. There were two reasons for this. First, the banks usually indicated that if there was a "pay up" decision, it was normally a deposit liability decision taken because the liability side of the bank had been caught with not enough funds to satisfy the given loan demand (and thus had to "pay up" to get the money). On occasion, however, the lending area may have made a large loan and not adequately informed the people responsible for funding it, thus putting the liability managers into an offside position through no fault of their own.

Secondly, banks like to run a clean and businesslike forward book. The foreign exchange departments of most banks are not usually prepared to subsidize other bank departments by offering more attractive rates than they are quoting in the market. Generally speaking, a bank department negotiating client swaps has to take the bank's foreign exchange forwards as given, thus implying that any "pay up" on a swap is really a "pay up" on the Eurodollar deposit.

By the same token, however, there were occasions when an attractive all-in swap rate would *partly* result from an attractive forward hedge. In these instances,

the bank would be assuming some minor foreign exchange risk since the foreign exchange hedge rates, quoted as part of the all-in swap rate to the lending client, would not represent the actual cost to the bank of its covering hedge in the inter-bank market. In turn, this situation might emerge, for example, if a bank were to write forward foreign exchange contracts for clients at rates which were off the market to cover or finance an offside position in spot.

Even where the client's foreign exchange swap was covered at market rates, it is also worthwhile noting that there could be occasions when the entire term is not hedged. For example, a 90-day client swap may only be hedged by the bank in the inter-bank market for 60 days. This means that the bank would be assuming a foreign exchange risk on the "tail" of the U.S. dollar CD.

In summary then, it is important to note that the banks can have a small open foreign exchange exposure on their swapped deposits from several different sources.

The foreign exchange implications of swap transactions will be discussed again in chapter 6. However, it is worthwhile reiterating here that swap deposits involve a spot sale of U.S. dollars to the lender in exchange for his Canadian dollars, and these create a potential demand for spot U.S. dollars by the banks. At the same time, the bank has a commitment to repurchase the U.S. dollars from the customer for forward delivery. Thus, the lending client does not have any foreign exchange exposure on a swapped deposit.

Although the lending client is hedged with respect to his foreign exchange risk, *the chartered bank* does have an initial outright foreign exchange exposure because of its commitment to deliver U.S. dollars to the depositing client at spot and to repurchase the client's U.S. dollars forward at a price set today. The bank has two exposed positions—short U.S. dollars in its spot book and long U.S. dollars in its forward book.

In turn, the bank may or may not react to this by "covering" the forward exposure. A decision to cover or not cover depends on many factors, including expectations for the spot price and how the bank wanted to use funds obtained on the swap.

Normally, however, a bank's foreign exchange department would not want to take an exposed spot or forward position for any extended period of time as a result of expectations for the spot or forward price arising out of client swap activity. This is because the foreign exchange (FX) department usually has no need

for the Canadian dollars obtained on the swap. Instead, the FX department, with an exposure in both the U.S. dollar spot and forward books, would typically cover both positions by entering the FX market to buy the spot U.S. dollar and sell it forward. This offsets the FX exposure taken as a result of the client swap.

The mechanics of this transaction involve the bank converting Canadian funds obtained on the swap to foreign currency and then investing the proceeds in a foreign asset, usually a Eurodollar CD, to the same date the swap matures. This covers the foreign exchange exposure.

However, there is still a time or interest rate risk here, because the future buy back of U.S. dollars has not been done at a fixed price. The bank still has to cover the *forward* exposure. This is done in the inter-bank market for foreign exchange by the bank selling U.S. dollars forward for Canadian dollars to be delivered to it on the day the client swap matures. Here, a net capital outflow results when the chartered bank buys U.S. dollars at spot and sells Canadian dollars. However, this loss is offset when the forward U.S. dollar sale contract matures and U.S. dollars are converted back to Canadian.

Alternatively, the bank may decide *not* to cover all the foreign exchange exposure. This might occur if the bank's foreign exchange books were already unbalanced (e.g., if the bank is already long in the spot U.S. dollar and short the U.S. dollar for forward delivery).

Secondly, the bank may not cover the exposed position if it felt that the Canadian dollar would

undergo a major revaluation before the swap matures. In this case, the bank may act as a speculator (though this is rare) and keep its short U.S. dollar spot position and its long U.S. dollar forward position with the expectation that the U.S. dollars it has to buy back in the future from the client could be bought back at a lower spot price on the day, or closer to the day, the swap matures.

Here, net foreign assets would go negative (or more negative) because of the foreign liability on the swap with no offsetting foreign asset, and the bank will have an open foreign exchange exposure. It is long the Canadian dollar and short the foreign currency in the spot market. Usually, however, the decision to do this is made by the bank as a whole. The result is that the bank's foreign exchange department would usually do the same offsetting swap discussed above, only with the bank's head office instead of in the market. As above, the foreign exchange department itself ends up flat.

One final point is important to note. The WFS, in fact, tells us nothing about the overall foreign exchange exposure of the banking system on these client swaps, although the maximum potential exposure is the total value of swapped deposits outstanding.

## **17. Total (Foreign Currency Deposits Booked with Canadian Residents)**

Total foreign currency deposits booked with Canadian residents is entry 16a plus entry 16b.

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# CHAPTER 4

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## CHARTERED BANK RESERVE REQUIREMENTS

Column	1a	1b	1c	1d	2a	2c	3a	3b	3c	6a	6b	6c
Daily average for period	CHARTERED BANKS: CASH AND SECONDARY RESERVES (Millions of dollars)(1)											BCR Table C10
Moyenne des données	BANQUES A CHARTE: RESERVES-ENCAISSE ET RESERVES SECONDAIRES (En millions de dollars)(1)											RBC Tableau C10
Journalières de la période	Statutory deposits	Cash reserves(2)										
	Dépôts sujets aux réserves	Réserves-encaisse(2)										
	Canadian dollar	Foreign currency	Adjustments for previous periods(3)	Required Minimum	Required as a ratio of total statutory deposits (%)	Actual Montants effectivement détenus	Bank of Canada deposits	Bank of Canada deposits	Excess cash reserves			Cumulative excess reserves for the period
	En dollars canadiens	En monnaies étrangères	Ajustements aux périodes antérieures(3)	requis	En % du total des dépôts sujets aux réserves	Statutory coin and notes	la Banque du Canada	la Banque du Canada	Excédent des réserves-encaisse	Dollar amount of total statutory deposits	As a ratio of total statutory deposits (%)	Montant cumulé des excédents des réserves-encaisse
	Demand	Notice				Billets de la Banque du Canada et pièces (base légale)			En % du total des dépôts sujets aux réserves			
	A vue	A préavis										
	B813	B814	B824	B825	B810	B808	B803	B820/21	B818/19			
1987 F 1-15	19,848	114,236	8,544	20	5,589	3,918	3,512	2,204	5,716	127	.089	1,785
16-28							3,512	2,177	5,690	101	.071	1,416
M 1-15	18,471	112,316	8,189	-248	5,329	3,841	3,057	2,319	5,376	47	.034	657
16-31							3,057	2,342	5,398	69	.050	1,109
A 1-15	18,859	113,151	8,166	59	5,417	3,863	3,043	2,438	5,481	64	.046	962
16-30							3,043	2,457	5,500	84	.060	1,254
M 1-15	19,630	113,326	8,050	-15R	5,499	3,900	3,000	2,572	5,572	73	.052	1,311
16-31							3,000	2,629	5,628	129	.092	1,679
J 1-15	20,251	115,469	8,238	8	5,632	3,912	3,118	2,547	5,665	33	.023	498
16-30							3,118	2,612	5,730	97	.068	1,560
J 1-15	20,646	113,847	8,316	-133	5,613	3,934	3,106	2,563	5,669	56	.039	785
AS AT: J 15	20,646	113,847	8,316	-133	5,613	3,934	3,106	2,673	5,778	166	.116	
Au:												

1 Beginning September 1, 1985 data exclude the Canadian Commercial Bank and Northland Bank.

Depuis le 1er septembre 1985, les réserves de la Banque Commerciale du Canada et de la Norbanque ne sont pas comprises dans les données.

2 The minimum cash reserve requirement for each chartered bank is 10% of reservable Canadian dollar demand deposits, 2% of reservable Canadian dollar notice deposits plus 1% of reservable Canadian dollar notice deposits in excess of \$500 million, and 3% of Canadian residents' foreign currency deposits with branches and offices in Canada, all calculated on a statutory basis.

Le montant minimum des réserves-encaisse que doivent maintenir chacune des banques est de 10% des dépôts à vue en dollars canadiens sujets aux réserves, plus 2% des dépôts à préavis en dollars canadiens sujets aux réserves, plus 1% de la tranche des dépôts à préavis qui excède de 500 millions de dollars, plus 3% des dépôts en monnaies étrangères tenus dans les succursales canadiennes au nom de résidents canadiens, d'après la formule prévue par la Loi.

3 Adjustments for previous periods incorporate revisions to data already reported and used in determining a previous month's required primary and secondary reserves. The appropriate cash and secondary ratios are applied to these revised data and the required primary and secondary reserves for the month in which the revisions are reported are increased or decreased accordingly.

Les ajustements aux périodes précédentes comprennent les révisions aux données déjà communiquées à la Banque et utilisées dans le calcul des réserves-encaisse et des réserves secondaires du mois précédent. Lorsqu'on applique les taux appropriés des réserves-encaisse et les réserves secondaires à ces données révisées, les réserves-encaisse et les réserves secondaires du mois sur lequel portent les révisions augmentent ou diminuent en conséquence.

Column	10	11	12a	12b	12c	12d	13a
Daily average for period	CHARTERED BANKS: CASH AND SECONDARY RESERVES (Millions of dollars)						continued
Moyenne des données	BANQUES A CHARTE: RESERVES-ENCAISSE ET RESERVES SECONDAIRES (En millions de dollars)						suite
Journalières de la période	Secondary reserves						
	Réserves secondaires						
	Required Minimum	Required as a ratio of total statutory deposits (%)	Actual Montants effectivement détenus				Excess secondary reserves
	requis	En % du total des dépôts sujets aux réserves	Excess cash reserves	Day loans	Treasury bills	Total	Excédents des réserves secondaires
			Excédents des réserves-encaisse	Prêts au jour le jour	(par valeur) Bons du Trésor (valeur nominale)		Dollar amount of total statutory deposits
							En % du total des dépôts sujets aux réserves
	B811	B804	B805			B817	B816
1987 F 1-28	5,706	4.00	114	15	15,268	15,398	9,692
M 1-31	5,549	4.00	59	14	15,258	15,331	9,781
A 1-30	5,609	4.00	74	20	16,805	16,899	11,289
M 1-31	5,640	4.00	96	14	18,305	18,415	12,775
J 1-30	5,759	4.00	66	14	17,638R	17,719R	11,960R
J 1-15	5,707	4.00	56	4	16,574	16,635	10,928
AS AT: J 15	5,707	4.00	166		16,701	16,867	11,160
Au:							



## I. CHARTERED BANK CASH RESERVES

Page 5 of the weekly Bank Statement presents the key chartered bank cash and secondary reserve data. These data cover both domestic Canadian banks and foreign banks which received Canadian bank charters under the 1980 Bank Act. This page is keyed to and presents all the reserve data in table C10 of the monthly *Bank of Canada Review*, as well as four additional series relevant to the reserve calculation which are not included in table C10. The top half of the page sets out cash reserve calculations, while the second half of the page elaborates on the secondary reserves. For cash reserves, historical data are included to cover two averaging periods each month for a six-month time period, and the required reserves are also set out for the upcoming month. Until September 1, 1983, reservable days were the nine to twelve "business days" for each two-week period, but since then a weighted averaging procedure has been adopted to, in effect, give recognition to bank reserve holdings on Saturday and Sunday.

The cash reserves data divides into three parts. The first set of data, covering entries 1a, 1b, 1c, 1d, 2a and 2c, includes information relevant to the calculation of *required reserves*. The second set of data covers entries 3a, 3b and 3c and sets out how the required reserves are being held by the chartered banks. The last three entries, 6a, 6b and 6c, deal with excess cash reserves (i.e., actual reserves held less the required minimum).

### 1. Statutory Deposits

There are three deposit categories against which banks have to hold reserves as set out in section 208 of the Bank Act. These categories are shown separately on the Statement. All the deposit categories are predetermined at the beginning of each month.

#### a) Canadian Dollar Demand Deposits

The first deposit category against which reserves must be held is Canadian currency demand deposits. This category is defined in Regulations to the Bank Act to include deposits for Wednesdays which are payable on demand. The federal government demand deposit tranche is included in this category.

This component of the reservable deposit base, and

the two other components discussed below in entries 1b and 1c, are also calculated in a precise way as specified in the Regulations to the Bank Act. Prior to the 1980 Bank Act revision, banks were required to calculate the deposit base subject to reserves by averaging their reservable deposits on four consecutive Wednesdays, ending with the second last Wednesday of the previous month.

This lagged reserve requirement concept was maintained under the Bank Act passed in late 1980. Therefore, the exact deposit categories and the deposit base subject to reserves are still predetermined at the beginning of each month. However, the formula as spelled out in Regulations to the Bank Act, which became effective in February 1981, shows a small technical alteration. The four consecutive Wednesday average ends with the *second Wednesday* of the previous month, not the *second last Wednesday*.<sup>1</sup> The new formula produces the same results as the old one in months where there are four Wednesdays, but the formula period can differ by one week in months with five Wednesdays.

#### b) Canadian Dollar Notice Deposits

The second, and by far the largest, category subject to reserves is Canadian currency time and/or notice deposits. The method of averaging these deposits to arrive at the statutory deposit base is the same as set out above in 1a.

#### c) Foreign Currency Deposits

The last deposit category subject to reserves is foreign currency deposits booked at Canadian bank branches with Canadian residents. Here again, the statutory deposit base is predetermined at the beginning of each month and calculated using the four Wednesday average noted above. For purposes of the reserve calculation, foreign deposits against which reserves have to be held are translated into a Canadian dollar figure at the close of business each Wednesday.

Non-resident deposits and Canadian resident deposits booked outside Canada are not included in the statutory deposit base and thus are not subject to

<sup>1</sup> If a Wednesday is not a reservable day (e.g., a holiday), the calculation is done on the reservable day immediately preceding.

reserves. Over the period 1981 to early 1983, foreign currency deposits were exempt from reserve requirements only if they were issued in registered form to non-residents or Canadian residents booking deposits abroad. In cases where the residency of the foreign-pay paper holder was not known, e.g., in the case of any bearer term note or deposit instrument, the holder was assumed to be Canadian. *Thus, the deposit was automatically subject to reserves.* In early 1983 this regulation was relaxed to permit bearer deposit notes to be issued abroad, reserve free, as long as they were clearly designated as not for sale to Canadian residents.

#### *d) Adjustments for Previous Periods*

The entry "adjustments for previous periods" incorporates revisions to data already reported and used in determining a previous month's required primary reserves. The appropriate cash reserve ratios are applied to these revised data. Then, the required primary reserves for the month in which the revisions are reported are increased or decreased accordingly.

#### *e) Deposits Not Subject to Reserve Requirements*

Under the 1980 Bank Act, certain important deposits which formerly had to have reserves held against them were made reserve free.<sup>2</sup>

First, deposits that are properly held under RRSPs and retirement income plans are now reserve free. There are two reasons for this. Such deposits are unlike ordinary deposits in that they are normally for a longer term, and these plans should not leave banks at a competitive disadvantage to other institutions offering these plans that are not subject to reserves.

Second, deposits from other banks (inter-bank

deposits) no longer carry a reserve requirement on the grounds that these funds are already subject to reserves in one bank. This avoids requiring reserves to be held twice against the same deposits.

Third, non-interest bearing demand deposits with banks by non-bank members of the Canadian Payments Association are now exempt from reserve requirements. This change was made to encourage chartered banks to handle the clearing accounts of smaller near banks, thus facilitating the operations of the Canadian Payments Association.

Fourth, Canadian currency deposits of non-residents (including all bearer term notes or bearer deposit instruments) booked with bank branch offices outside Canada are no longer subject to reserve requirements. This enables Canadian banks to compete in the Euro-Canadian dollar market on an equal footing with other foreign institutions.

## **2. Cash Reserves**

### *a) Required Minimum*

While entries 1a, 1b and 1c set out the deposit base subject to reserves, entry 2a sets out the dollar value of the minimum level of reserves which the banks are required by law to hold. This figure is calculated by applying the relevant required reserve ratio discussed below to the statutory deposit base noted above. There are three key reserve ratios which go into this reserve calculation.

### *b) The Required Reserve Ratios*

The required cash reserve ratios are prescribed by the Bank Act. From February 1968 to January 1981, the required ratios were 12 percent for Canadian dollar demand deposits and 4 percent for Canadian dollar notice deposits. The 1980 Act established new reserve requirements as follows: as of September 1984 the required ratios are 10 percent for reservable Canadian dollar demand deposits, 2 percent for reservable Canadian dollar notice deposits up to \$500 million at each bank, plus 1 percent for the amount by which a bank's reservable Canadian dollar notice deposits exceed \$500 million, and 3 percent for reservable foreign currency deposits (deposits of Canadian

<sup>2</sup> The 1980 Bank Act continues to impose reserve requirements on both non-cashable Canadian notice deposits with a term to maturity of one year or more and cashable notice deposits, which are over one year in term, even if they are not cashable until after one year from issue date. Originally, this requirement was removed in Bank Act draft bills, but successful trust company lobbying has deferred this until the new trust and loan legislation is out of the way. When the new trust and loan legislation is passed, an amendment is likely to be included to the Bank Act to drop this reserve requirement on over one year CDs.

residents on the books of banks in Canada).<sup>3</sup>

Knowing the reserve requirement ratios for the three classes of deposits and the precise deposit base calculated above in entries 1a, 1b and 1c, a required minimum dollar cash reserve figure is calculated for each component of the deposit base. The three components are then summed, and the total is set out in entry 2a. These deposits do not earn interest.

Effective January 1969, the chartered banks were required to maintain the minimum cash reserve ratio on a *half-monthly rather than on a monthly basis*. The two averaging periods shown on the Bank Statement are the reservable days up to and including the fifteenth of the month and all the other remaining days of the month. Until September 1, 1983, reservable days were business days only. Since September 1, a weighted averaging system has been used for reserve calculation purposes. This is discussed separately in entry 3c.

This two-week averaging period gives the Bank of Canada tighter control over bank reserves since chartered banks have less scope to depart from the

required minimum at any point in time, given that they have fewer days to make up any shortfall in reserves actually held (i.e., banks must hold more stable/predictable reserves). Also, any move by the Bank to tighten or loosen encourages or forces chartered banks to respond faster. Thus, the two-week averaging period increases effective control over the system by the Bank.

1d	2a	2c	3a	3b	3c
RESERVES (Millions of dollars)(1) ET RESERVES SECONDAIRES (En millions de dollars)(1)					
Cash reserves(2) Réserves-encaisse(2)					
Adjustments for previous periods(3) Ajustements aux périodes antérieures(3)	Required Minimum requis	Required as a ratio of total statutory deposits (%) En % du total des dépôts sujets aux réserves	Actual Statutory coin and Bank of Canada notes Billets de la Banque du Canada et pièces (base légale)	Bank of Canada deposits Dépôts à la Banque du Canada	Total Total
B825	B810	B808	B803	B820/21	B818/19
20	5,589	3.918	3,512 3,512	2,204 2,177	5,716 5,690
-248	5,329	3.841	3,057 3,057	2,319 2,342	5,376 5,398
59	5,417	3.863	3,043 3,043	2,438 2,457	5,481 5,500
-15H	5,499	3.900	3,000 3,000	2,572 2,629	5,572 5,628
8	5,632	3.912	3,118 3,118	2,547 2,612	5,665 5,730
-133	5,613	3.934	3,106	2,563	5,669

Banks that are not direct clearers only have to meet the reserve requirement monthly.

#### c) Required (Cash Reserves) as a Ratio of Total Statutory Deposits

Entry 2c is the *weighted average* reserve requirement—total required reserves divided by the statutory deposit base. Decreases in this ratio can reflect either a reduction in the individual reserve ratios themselves (only when the Bank Act is changed) or a shift of funds from deposit classes with relatively high required reserve ratios to classes with lower required ratios. Increases in the ratio generally reflect a shift of funds from time deposits to demand deposits. Given fixed reserve ratios, the average requirement can only change when the deposit mix changes.

<sup>3</sup> The reductions in reserve requirements were phased in at six-month intervals over a three and a half year period to avoid distortions in the market which would require substantial Bank of Canada activities to offset the cash injections.

It is worth noting here that because of differential reserve requirements a shift in the deposit mix at any bank, or in the system as a whole, produces a shift in primary reserve requirements. A shift of funds from time deposits to demand deposits, for example, will force banks to hold more cash reserves one month later. This is why banks have usually held more reserves in December when, for example, a CSB campaign has been under way in November (e.g., if people take \$10 billion out of their savings accounts where the reserve requirement is 3 percent, to buy CSBs in November, and the government takes this money and redeposits it in its demand accounts where the reserve requirement is 10 percent, chartered banks would have to begin holding \$700 million more of reserves one month later).

Prior to 1954, central bank control was exerted through a cash reserve requirement of 5 percent against both demand and notice deposits. Here, shifts among the various deposit classes did not affect potential money supply. When the Bank Act was revised in 1954, the Bank of Canada was given the power to increase the cash reserve requirement to 8 percent (which it did) and was also given the authority to vary the cash reserve requirements between 8 and 12 percent. The Bank did not have the power to vary the reserve requirement under either the 1967 Bank Act revision or the 1980 revision.

### 3. Cash Reserves Actually Held (Eligible Reserve Components)

Having calculated the required reserve holdings, banks then have to meet this reserve requirement on a twice monthly basis.

Within this framework, sound management of cash and reserves within the month is critical since the potential claim on bank cash is the total of all deposits. Thus, bank cash acts as the buffer between deposits and withdrawals each day.

When there is a net shortage of cash (actual cash reserves fall below the required reserves), banks will usually raise cash by calling day or call loans, selling liquid securities, issuing CDs or BDNs or borrowing via the inter-bank market. If this is not done, the bank will have to sell less liquid assets or borrow from the Bank of Canada.

Typically, banks will run their actual reserve holdings so that they are onside on the last day or the second last day of each two-week averaging period. This means that they may be offside on some days within the period, as long as this is made up by higher reserve holdings on other days.

Data on the actual reserves held by the chartered banks are shown in entries 3a, 3b and 3c. There are three ways the banks can hold their reserves.

3a	3b	3c	6a	6b	6c
in dollars)(1)			BCR Table C10 BNC Tableau C10		
Actual Montants effectivement détenus	Bank of Canada	Total	Excess cash reserves Excédent des réserves encaisse	As a ratio of total statutory deposits (%) En % du total des dépôts sujets aux réserves encaisse	Cumulative excess reserves for the period Montant cumulé des excédents journaliers des réserves encaisse
Statutory coin and Bank of Canada notes Billets de la Banque du Canada et pièces (base légal)	Dépôts à la Banque du Canada		Dollar amount Montant		
B803	B820/21	B818/19			
3,512	2,204	5,716	127	.089	1,785
3,512	2,177	5,690	101	.073	1,416
3,057	2,319	5,376	47	.034	657
3,057	2,342	5,398	59	.050	1,109
3,043	2,438	5,481	64	.046	952
3,043	2,457	5,500	84	.060	1,254
3,000	2,572	5,572	73	.052	1,311
3,000	2,629	5,628	129	.092	1,679
3,118	2,547	5,665	33	.023	498
3,118	2,612	5,730	97	.068	1,560
3,106	2,563	5,669	56	.039	785

#### a) Statutory Coin and Bank of Canada Notes

Entry 3a incorporates two forms of reserve holdings—vault or till coins (excluding gold coins) with a face value of \$2 or less, and vault or till Bank of Canada paper notes.<sup>4</sup> Coin and paper note holdings now account for over 50 percent of total reserves held. The chartered banknote and coin component of reserves held is predetermined for each month by applying the same four Wednesdays' formula used to calculate the statutory deposit base. That is, to calculate the vault and till money note and coin component (entry 3a), banks are required to average their vault and till holdings at the close of business on Wednesday in each of the four consecutive weeks, ending with the second Wednesday of the previous month.

#### b) Bank of Canada Deposits

The third way chartered banks can hold reserves is as Canadian dollar deposits at the Bank of Canada.<sup>5</sup> This

<sup>4</sup> Under the Bank Act in force from 1968 to 1980, banks were not allowed to count Canadian coin as part of their reserves. This caused problems because banks are required, in practice, to accept coin on deposit. But, since banks do not earn interest on coin and could not count it for reserves, they had a natural aversion to holding coin which manifested itself in coin shortages at certain times of the year. This was solved with the Bank Act passed in December 1980 under which banks, since February 1981, are allowed to count Canadian coins (excluding gold coins) as part of their reserves.

<sup>5</sup> Since 1980 there has been a fourth way for banks to hold primary reserves. Two banks may, with the (written) approval of the Bank of Canada, enter into a written agreement whereby one bank maintains a Canadian currency deposit in a special "reserve account" with the other bank in lieu of deposits at the Bank of Canada. These special reserve account deposits will be deemed to have been deposited at the Bank of Canada. The depositing bank, however, will have to advise the other bank before the last reservable day of each month of the minimum average daily balance that it will maintain in the reserve account during the following month. The bank accepting these special reserve account deposits in turn has to hold the total amount of these deposits in its deposit account at the Bank of Canada, over and above its own reserves. These accounts can be terminated by either of the two chartered banks or by the Bank of Canada withdrawing its approval.

It would appear that this special facility will only be granted to foreign banks which do not have to hold enough reserves to make it worthwhile to have a reserve account at the Bank of Canada. (Regardless of how a foreign bank holds its reserve, it will have access to a line of credit at the Bank of Canada.)

component of the reserve holdings is calculated differently from the eligible note and coin holdings. Here, deposits with the Bank of Canada are averaged for *each* reservable day of the current period.

c) *Total Reserves Held*

Entry 3c is the total of entries 3a and 3b.

#### 4. Weighted Averaging for Chartered Bank Reserves

a) *Seven-Day versus Five-Day Averaging*

Chartered bank deposits at the Bank of Canada is the one element in the reserve calculation which is *not* predetermined at the beginning of each month. Until September 1, 1983, this reserve amount was an average of the reserves held for each *business day* of each two-week averaging period. However, as of September 1, 1983, reserves are calculated on a weighted average basis.

This shift in the calculation procedure was initiated in late 1981 when several of the bigger banks began to question the five-day averaging formula. They felt the system was being abused, especially by new foreign banks aggressively playing the “weekend game”, and that this would also force the big banks to play the weekend game more aggressively and destabilize the call loan market further.

The weekend game came about because, at that time, the chartered bank deposit at the Bank of Canada was calculated on the basis of a five-day week, with each business day equal to one averaging day in the two bi-monthly averaging periods. Saturday and Sunday (and any legal weekday holiday) were not reservable days, thus banks received no credit for reserves held on those days. However, because bank investments earn interest for all seven days of the week, *the banks preferred to aggressively lower their reserves on Thursday and Friday, using these funds either to make interest earning call loans or to purchase short-term interest earning securities to be held over the weekend.* These assets were then liquidated on Monday or Tuesday and the reserve balances restored. When banks acted in this way, they earned three days’ interest (Friday, Saturday and Sunday) but only lost one day’s reserve credit with the Bank of Canada over the weekend i.e., Monday,

when the cheque cleared to pay for the securities purchased on Friday. Put another way, as long as the Friday interest rate was more than 1/3 of the expected Monday interest rate, there was a strong incentive for banks to “over-invest” or “under-borrow” for weekends and holidays (because those periods did not count as reservable days but were included in the calculation of interest on assets held). *This caused what was commonly referred to as “the weekend problem”.*

Specifically, the activity typically pushed both the call loan rate and short Treasury Bill rates sharply lower on Friday and resulted in a general interest rate backup on Monday and Tuesday. In the case of call loans, the Friday/Monday call loan spread could average 250 basis points, although overnight rates sometimes varied as much as 700 basis points from “normal” mid-week levels. For three-month Treasury Bills, the yield variation could be 5-15 basis points. In 1982, the problem caused by five-day averaging led to suggestions that the primary reserve averaging formula be changed in a way that would actually or effectively amount to a move from five to seven reservable days per week. Chartered banks proposed a back-dating approach whereby the reserve level on the first day following a non-reservable day (e.g., weekends) would apply to the immediately preceding days (i.e., Monday reserve levels would count for Saturdays and Sundays).

The Bank of Canada set out a positive response to the bank plan when it stated:

The essential idea is that a system of averaging that actually or effectively included all seven days of the week would smooth out the intra-week pattern in short-term interest rates and thereby make the functioning of the reserve system more predictable. In other words, the daily level of short-term interest rates would no longer be affected by a major technicality and would be more indicative of fundamental money market conditions.<sup>6</sup>

*Thus, the Bank of Canada saw two main advantages for the seven-day reserve averaging system.* First, there would be less distortion and volatility in the market since there would be less incentive for banks to play the weekend game. Second, and a by-product of this, market efficiency would be improved since movements in interest rates

<sup>6</sup> Letter from G.K. Bouey, Governor of the Bank of Canada, to R.M. MacIntosh, President, Canadian Bankers’ Association, dated December 2, 1982.

would reflect more closely the supply and demand for funds for various terms to maturity. Also, there would be a more even pattern of maturity dates for short-term paper. With five-day averaging, although short-term borrowers would love to issue paper on Friday when five-day averaging artificially lowered rates, no lender would buy the paper. Consequently, very few BAs or other short paper matured on Fridays prior to seven-day averaging.

There would appear to be one other relatively small technical advantage. Specifically, foreign buyers of Canadian dollar securities may be willing to hold more Canadian securities. This is because some investors avoided short-term Canadian investments on a Thursday-Friday because of the low weekend rate.

There is one negative, though, from the government's viewpoint. Cheaper financing over the weekend did contribute to some artificial interest in three-month Treasury Bills at the Thursday tender, especially when dealers saw a flush banking system and a sharp break in the overnight rate. As a result, the government was able to obtain a lower overall cost of funds. Under seven-day averaging, with less chance of a reduction in short rates over the weekend, dealers bid less aggressively at the Thursday tender. This may cause the tender average and, therefore, the Bank rate to generally track slightly higher than would otherwise be the case.

In a letter to the chartered banks in December 1982, the Bank of Canada noted:

further study identified certain problems with that approach, particularly in instances where such back-dating would involve two different reserve averaging periods . . . On the other hand, a system of *weighted averaging* based on the present reservable days would seem to avoid these difficulties while achieving the same basic result. (Author's note: the Bank's point is that Saturday and Sunday must be included in the same averaging period as the Monday even if, for example, the Monday was the first day of a new averaging period.)

Specifically, this could be achieved by revising section 4(1)(g) of the existing Reserves Regulations so as to articulate the arithmetic of weighted averaging, and to define the weight for any reservable day as the sum of 1 plus the number of days since the immediately preceding reservable day . . . For example, the typical weight for Monday would be 3, and the weight for the day after a single mid-week holiday would be 2. In this way the reserve impact of lending and borrowing by banks over weekends and holidays would be magnified to be proportionate to

the number of days for which interest would be earned or paid. *The calculation of secondary reserves would also be altered, in that excess primary reserves would be included on a weighted, as opposed to an actual, basis* (emphasis supplied). However, the day loan and treasury bill components of secondary reserves would not be weighted since, unlike cash reserves, they do earn interest.<sup>7</sup>

The text of the proposed new regulation was published in the *Canada Gazette* on June 11, 1983. On August 24, 1983, an Order in Council was passed to revise the Regulations under the Bank Act. This was done by replacing the simple averaging system set out in paragraph 4(1)(g) of the Reserves Regulations with a weighted average system, as follows:

(g) the amount determined to be the amount of deposits in Canadian currency of the bank with the Bank of Canada in respect of the period shall be an amount equal to the quotient obtained by dividing.

(i) the sum of the products obtained by multiplying the amount of deposits in Canadian currency of the bank with the Bank of Canada at the close of business on each reservable day of the period by a number equal to the factor for that reservable day

by

(ii) a number equal to the sum of the factor for each reservable day of the period where the factor for a reservable day equals one plus the number of non-reservable days, if any, elapsed since the immediately preceding reservable day.<sup>8</sup>

The Bank of Canada set out the arithmetic for seven-day reserve averaging in the *Review*, September 1983.

For the first reserve averaging period in September, which ran from 1 September to 15 September, the schedule of weights was as follows:

<i>Monday</i>	<i>Tuesday</i>	<i>Wednesday</i>	<i>Thursday</i>	<i>Friday</i>
			1	1
holiday	4	1	1	1
3	1	1	1	

<sup>7</sup> Ibid.

<sup>8</sup> *Canada Gazette*, p. 5367, June 11, 1983, and Order in Council, August 24, 1983.

The weight for Tuesday, 6 September, immediately following the Labour Day holiday is worth noting. On that occasion the definition "one plus the number of immediately preceding non-reservable days", gave a weight of 4. The sum of the weights for the period was 15.<sup>9</sup>

The new regulations became effective September 1, 1983. This was immediately followed by a much more stable call loan rate.

*b) Seven-Day Averaging with Retroactive (Same Day) Settlement*

The move to retroactive settlement for daily clearings on July 16, 1986, discussed in chapter 3, part I, also necessitated a small change in the way weighted average daily reserve positions of chartered banks were calculated. Under seven-day reserve averaging prior to July 16, 1986, a weight of three was applied to Monday reserve balances in calculating the average reserve position, while other weekdays were typically given a weight of one (see point 4a). This reflected the fact that the Friday clearings were not settled until after the weekend on Monday. However, with retroactive settlement, a bank that invests funds on a Friday for three days over the weekend has the reserve effect of this transaction dated on the books of the Bank of Canada as at the same day. Thus, under retroactive settlement, reserve balances held on Fridays also count for Saturday and Sunday.

Therefore, an Order in Council was passed on June 26, 1986, to take effect July 16, revising the regulations under the Bank Act respecting primary reserves. The new regulation set the weight applied to Friday balances before a regular weekend at three and the weight for balances held on other days at one. These weights are adjusted for days preceding a holiday.

The change in reserve regulations are as follows:

All that portion of paragraph 4(1)(g) of the Reserves Regulations following subparagraph (ii) thereof is revoked and the following substituted therefore:

Where the factor for a reservable day equals one plus the number of non-reservable days, if any, immediately following the reservable day.<sup>10</sup>

## 5. The Concept of Lagged Reserve Accounting

At the beginning of each month, both the chartered banks and the Bank of Canada know the exact deposit base and the exact amount of reserves the banks have to hold for the upcoming month (*the level of required reserves is predetermined* and set out in entry 2a). Against this, the banks and the Bank of Canada also know exactly how much of the required reserve can be met by the previous month's vault and till notes and coin, and this figure is set out in entry 3a. *Thus, the only variable that the chartered banks and the Bank of Canada have to be concerned with for "in-month" operating decisions is the chartered bank deposit at the Bank of Canada*, entry 3b. This one variable bears all the current month's reserve adjustments by both the chartered banks and the Bank of Canada. Chartered banks can and do adjust their deposits at the Bank each day within the month to keep reserves actually held close to the required predetermined target for the month. However, they are unable to influence the average cash reserve ratio for the current month or the reserves actually needed to be held against deposits, since these have already been predetermined. *Thus, the actual observable excess cash reserve ratio, discussed below in entry 6a, reflects Bank of Canada policy, not chartered bank policy.*

Lagged reserve accounting offers a number of advantages which improve the Bank of Canada's control over the supply of reserves and enables chartered banks to manage their reserves more efficiently. From the Bank of Canada's point of view, lagged reserve accounting simplifies cash reserve management and monetary policy, since the Bank knows *in advance* the exact reserves required and how much of this can be met with vault and till cash. Therefore, all it has to be concerned with for in-month monetary control are actual reserves (total and excess) held each day by the banks at the Bank of Canada. These data are readily available.

By contrast, under contemporaneous reserve

<sup>9</sup> "Revision to the reserves regulations: Introducing weighted averaging", *Bank of Canada Review*, September 1983, pp. 17-20.

<sup>10</sup> Technical note: "Introduction of retroactive settlement for the daily clearing of cheques and other payment items", J.F. Dingle, *Bank of Canada Review*, August 1986, pp. 5-6.



accounting (CRA), where reserves would have to be held against the *current* level of deposits, the Bank of Canada would not know precisely what reserves were going to be required. This would hold because the Bank would not know the precise deposit base against which reserves have to be held. Additionally, it would not know what reserves the banks actually held, since the *current* vault cash component of reserves would have to be estimated, given the lags in obtaining the actual data from all the branches of a chartered bank. Thus, there would be elements of uncertainty in calculating both the supply and demand for reserves. Furthermore, if the situation in the financial market were unstable and the Bank of Canada wanted to adjust it, the Bank might find this difficult to do. This would occur because the Bank would not know, for example, if a loose system resulted from a drop in required reserves or an increase in total reserves held by the banks. Given contemporaneous reserve accounting, the Bank of Canada probably would have to make more daily adjustments to the system than it would under the more fixed and predetermined system.

Lagged reserve accounting also helps chartered banks manage their cash and reserve positions more efficiently. That is, it focuses bank attention on only one thing (meeting the reserve requirement) rather than on two things (deriving the reserve requirement and then meeting it). It is difficult and expensive for a bank with many branches to always be up to date in knowing its deposit liabilities and vault cash for all branches across the country on a day-by-day basis.

Overall then, because both the Bank of Canada and the chartered banks know the required reserves in advance and how much of this can be met using vault and till cash, the adjustments each day are less than they would have to be under contemporaneous reserve requirements.<sup>11</sup>

<sup>11</sup> It is interesting to note that some studies in the U.S. show that lagged reserve accounting (LRA) led to increased volatility in interest rates. (See "Lagged reserve requirements: Implications for monetary control and bank reserve management", *Federal Reserve Bank of St. Louis Review*, May 1980, pp. 7-20.) This mainly results because under LRA there is no mechanism which *automatically* eliminates reserve excesses or deficiencies during the current week, since required reserves are fixed and based on last month's deposits. For example, if total reserves increase in a given week, excess reserves will automatically rise. If these excess reserves are then loaned out and subsequently lead to a rise in banking system deposits, *the excess reserves will still remain in the system in the short run regardless of the actions taken by the banks.* On the

## 6. Excess Cash Reserves

Three entries on excess cash reserves complete the cash reserves table shown on the top of page 5 of the weekly Statement. *These three entries are probably the most important pieces of data shown on the entire Bank Statement.*

### a) Dollar Amount of Excess Cash Reserves

The dollar amount of excess cash reserves is total reserves held less required reserves, entry 3c less entry 2a. Banks generally try to keep a low level of excess cash reserves (and may even run their excess cash negative for part of an averaging period), because cash reserves do not earn any interest. Typically, this means that while excess cash reserves will be kept close to zero they will normally be above zero, since banks do not want to run too close to the required minimum, especially late in the period. The higher the level of excess reserves, the more liquidity is in the banking system. This figure will normally range from a low of \$10-25 million, when the Bank of Canada has a tight cash setting, to a high of \$150 million when the Bank of Canada has a loose cash setting. A roughly neutral figure is about \$50-75 million at the present time.<sup>12</sup>

other hand, under contemporaneous reserve requirements, as soon as the banks loan out their excess reserves and end up with increased deposits, bank required reserves would also rise to reflect the higher deposit base, thus using up the excess reserves. That is, under contemporaneous reserve accounting, there is an *automatic mechanism* which serves to eliminate the excess reserves in the short run.

Against the background of LRA, the Bank of Canada has to act to absorb or increase the excess reserves each day in response to the deposit liabilities of the banking system in the previous month. *Because chartered banks are not able to influence their required reserves in the short term, this tends to force the Bank of Canada to supply the reserves needed by chartered banks to meet their required reserves.* Therefore, lagged reserve accounting may tend to encourage the Bank of Canada to passively accommodate growth in bank credit instead of pursuing an active and independent monetary policy.

<sup>12</sup> These figures include Bank advances to the chartered banks, shown on page 1 of the WFS. They have to be netted out of the excess cash figures to obtain a true picture of the liquidity position of the system.



3a 3b 3c			6a 6b 6c		
in dollars, (\$)			BCR Table C10 RBC Tableau C10		
Actual Montants effectivement détenus	Bank of Canada Total Statutory coin and deposits Canada notes Billets de la Banque du Canada et pièces (base légale)	Total	Excess cash reserves Excédent des réserves encaisse	As a ratio of total statutory deposits (%) En % du total des dépôts sujets aux réserves	Cumulative excess reserves for the period Montant cumulé des excédents journaliers des réserves encaisse
BBQ3	BBQ2/21	BBQ1/19			
3,512	2,204	5,716	127	.089	1,785
3,512	2,177	5,690	101	.071	1,416
3,057	2,319	5,376	47	.034	657
3,057	2,342	5,398	69	.050	1,109
3,043	2,438	5,481	64	.046	962
3,043	2,457	5,500	84	.060	1,254
3,000	2,672	5,672	73	.052	1,311
3,000	2,629	5,628	129	.092	1,679
3,118	2,947	5,665	33	.023	498
3,118	2,812	5,730	97	.068	1,560
3,106	2,563	5,669	56	.039	785

At this point, it is important to note that these excess cash figures *taken by themselves* do not provide sufficient information to judge the degree of monetary ease or tightness in the system in the short run. Beyond these data, it is the variation effected in bank assets or liabilities which the banks have to undertake to meet their minimum reserve positions which is important. Thus, it is possible *in the short run* to have low excess cash associated with an easing in credit conditions and vice versa.

#### b) Excess Cash Reserves as a Ratio of Total Statutory Deposits

Although the actual dollar figures are important, excess cash is usually looked on as a percentage of statutory deposits. Since 1974 this figure, which is quoted to three decimal places, has usually ranged from +0.01 percent to +0.08 percent for a full averaging period. On occasion, it has been negative on a spot basis and even negative for part or most of an averaging period (when the system has been very tight. On the other hand, the ratio has also been as high as about 0.40 percent for part of an averaging period when the system has been very loose. A

roughly neutral figure would be about 0.03-0.04 percent for an averaging period as a whole, while 0.01 percent is tight and 0.05 percent or higher is usually loose.

However, during 1987 and 1988, the banking system tended to demand more excess cash (increased liquidity preference) and the Bank of Canada accordingly tended to supply it in order to keep the system from automatically tightening. This increased the neutral cash setting from about +0.03 percent to 0.04-0.06 percent. The reasons for this included:

- increased float uncertainty;
- banks needing more cash to stock ATMs; and
- higher penalties for bank advances.

The actual dollar amount of excess cash and the excess cash ratio for each two-week averaging period are presented in the Bank Statement for the latest five complete months. In addition, data for the current uncompleted averaging period is included as is the spot cash position for the latest day—Wednesday of each reporting week.

*Of all the data on the weekly Bank Statement, the excess cash ratio is probably the single most important in assessing monetary policy.*<sup>13</sup> The Bank has a daily and averaging period target for the excess cash ratio and, therefore, excess cash reserves in order to implement its monetary policy. (This excess cash ratio is set by the Bank each day at about 5:30 p.m.)

While the Bank is obviously concerned with the spot excess cash ratio each day, its operating targets for the excess cash ratio are set for the half-monthly averaging periods. It is the averaging period figures, and their impact on the call and day loan rates, which are the keys to judging Bank of Canada policy in the very short run.

#### c) Cumulative Excess Reserves for the Period

Cumulative excess reserves for the period, entry 6c, is the sum of the daily excess cash reserves for each completed or partially completed averaging period.

<sup>13</sup> This is not to say that excess cash is the only key operating variable, since chartered banks can, in turn, react to a certain level of excess reserves in several ways depending on, for example, individual bank's perceptions of central bank policy, interest rate expectations and expectations of large or small cash drains.

*Nevertheless, the excess cash reserve figures are key to judging the degree of tightness or looseness in the system and for short-run interest rate forecasting.*

## 7. Chartered Bank Cash Reserve Management and Excess Cash Reserves as the Bank of Canada's Control Variable for Interest Rates and Monetary Policy Implementation

### a) *Excess Cash and the Chartered Banks*

In order to show the central role played by the excess cash data in entries 6a, 6b and 6c, it is important to understand how chartered banks manage their cash reserves to achieve two objectives. First, they want to have enough liquidity to handle all net outgoing payments each day (e.g., to meet net loan extensions, net securities purchases and net deposit withdrawals each day). Second, as noted earlier, the banks must also keep sufficient non-interest earning reserves at the Bank of Canada to meet their reserve requirement every two weeks. The job of the bank's cash manager is to meet both the bank's own operating needs and the legally required primary reserve requirement at the lowest possible cost.

From a mechanical point of view, this means each bank will try to adjust both its liquid assets and liabilities each day to achieve its target level of excess cash. Each day, a chartered bank's decision to increase or decrease excess cash for the next day, through buying or selling a wide range of liquid assets or encouraging an increase or decrease in deposits, will essentially reflect each bank's view of three things—the actual reserve level at the close of business today, the expectation of net clearing gains or losses tomorrow and the desired reserve level at the Bank of Canada the following day. In turn, these factors are influenced by such things as loan and deposit growth (e.g., if loan growth is fast, more excess cash will be targeted), market interest rates (not usually very important), the bank's perception of monetary policy and by daily and seasonal factors. If the banks believe monetary policy is tight, as evidenced by recent Bank of Canada cash settings or PRA activity, et cetera, they will tend to target more excess cash.

Finally, depending on its clearings for the day, cash inflows and outflows with its private customers during the day and its transactions with the Bank and the government, each bank will adjust its reserve account with the Bank of Canada as the day wears on. Thus, at the close of business banks may have collectively deposited, say, \$6.40 billion against a predetermined requirement for the averaging period of, say, \$6.30

billion, leading to excess cash reserves of \$100 million.

At this point, it is important to reiterate that chartered banks do not have to meet their required reserves *every day*. Rather, the reserve has to be met on average over a two-week averaging period. From this it can be seen that the banks will tend to react slower and less vigorously to increases or decreases in excess cash reserves early in the period, since they have the remaining days in the averaging period to offset the discrepancy between actual reserves and required reserves. Further, as the banks close in on the end of each averaging period, they have a clearer view of their actual reserve holdings relative to required holdings. However, their manoeuvring room is reduced as the averaging period wears on, since any given daily reserve adjustment carries less weight because it has to be averaged over more and more days in the period. Thus, toward the end of each averaging period the banks begin to move more aggressively to bring actual reserves closer into line with required reserves. The banks all like to follow one basic rule of thumb—to have accumulated sufficient excess cash reserves up to and including the last day of the averaging period to offset the largest expected clearing loss on the last day of the period. In those cases where the last day clearing loss is larger than the biggest expected loss, the bank will hold insufficient reserves. As a result, it would have to ask for a Bank of Canada advance to meet its reserve requirement.

### b) *Excess Cash as the Bank of Canada's Operating Variable for Monetary Policy Implementation*

*Chartered bank cash management is only the beginning of the story and not the important element from the point of view of monetary policy.* Each night at 5:00 p.m. the Bank of Canada observes the closing deposit level for each bank, the excess cash figure for each bank and the excess cash for the system as a whole. At this point, the Bank of Canada makes its decision on whether the collective excess cash figure independently aimed for by the chartered banks is appropriate for its monetary policy (i.e., is in tune with the Bank's short-run target for interest rates, the exchange rate and money supply). If, for example, the Bank observes \$50 million of excess cash and believes a \$10 million figure is needed to encourage higher interest rates and stabilize a weak exchange rate, it will decide on a \$40 million system

drawdown between 5:00 p.m. and 6:00 p.m.

At about 8:15 a.m. the next morning, the Bank informs each bank's cash manager that it will withdraw these funds from the system. The Bank then tells each bank how much it will lose from the drawdown. Given that the chartered banks all know their own reserve positions, the system's excess cash position at the close and the size of the total drawdown or redeposit, the banks can figure out where the Bank of Canada wants the excess cash setting.

The Bank of Canada would then actually draw down \$40 million from the system at 9:30 a.m. Thus, the system for the new day would start out with only \$10 million in excess cash, even though the banks collectively deposited \$50 million in excess cash the night before. The cash manager at each bank would start out the new day against this background of a tight system.

One point is critical here. Even though the chartered banks individually and collectively achieve a certain excess cash figure at the end of each day, the fact that the Bank of Canada can then increase or decrease this figure at the end of each day through its drawdown and redeposit technique means that excess cash and the excess cash ratio always ends up where the Bank of Canada wants it. *It is the fact that the Bank of Canada makes the last transactions of the day, with full knowledge of where the banks already stand, that makes the excess cash data a Bank of Canada policy determined series rather than a chartered bank determined series.*

It can be seen that the cash reserve adjustment techniques are, in fact, the backbone of the Bank's day-to-day smoothing of the system, smoothing which is achieved by a focus on one single control or operating variable—the *excess cash reserve ratio*.

As Governor Bouey stated:

The fact that the Bank of Canada is able to control the total quantity of its deposit liabilities available to meet this demand for cash reserves, gives it the leverage it needs over the behaviour of the chartered banking system. It is the amount of cash supplied by the central bank in excess of the banking system's minimum requirements that is at the heart of the control mechanism. If the central bank is relatively generous in providing excess cash reserves, this will induce the chartered banks to invest more actively in money market instruments, compete less aggressively for deposit inflows, and in due course, lend more freely. These responses of the chartered banks will tend to put downward pressure on the whole structure of Canadian interest rates radiating out from the short-

term money market. Conversely, if the central bank makes excess cash relatively scarce, the banks will have to scramble for the cash they need by liquidating investments and bidding aggressively for deposits, thereby exerting upward pressure directly on short-term interest rates and indirectly on longer term rates....

*In short, monetary policy operates mainly by changing the amount of excess cash available to the banking system beyond the minimum requirements (emphasis supplied).<sup>14</sup>*

It can be seen here that if the Bank follows a policy of *fixing cash reserves*, it must offset changes in the cash reserves arising from all non-permanent events. The techniques for managing excess cash are discussed in more detail in *The Mechanics of Monetary and Debt Management Policy in Canada—A View from the Street* (forthcoming).

In summary, excess cash is the key to the Bank of

<sup>14</sup> "Opening statement by Gerald K. Bouey, Governor of the Bank of Canada", before the House of Commons Standing Committee on Finance, Trade and Economics Affairs, November 28, 1978, in *Bank of Canada Review*, December 1978, p.4.

In a January 16, 1981, "Memorandum on Monetary Policy Prepared for the House of Commons Treasury and Civil Service Committee of the United Kingdom" (in the *Review*, January 1981, p. 19), the Bank updated its analysis of the mechanics as follows:

The Bank of Canada's note and deposit liabilities serve as the ultimate form of cash in the Canadian monetary system. This circumstance gives rise to a demand on the part of the chartered banks for claims on the Bank of Canada as banking reserves and this demand is reinforced by the fact that the banks are required by law to hold minimum average cash reserves against their outstanding deposit liabilities. By varying the amount of reserves in the system the Bank of Canada can affect the desire of the banks to bid for assets or deposits. Thus, for example, by reducing the supply of cash reserves relative to the quantity needed by the system to meet the legal requirement, the Bank of Canada can quickly force at least some of the banks into a position of having to sell off liquid assets or to bid more aggressively for blocks of short-term deposit funds. These portfolio responses by banks will put pressure on the level of short-term interest rates in the domestic money market generally with indirect effects in the same direction spilling over into other areas of Canada's interest rate structure.

Canada's whole control procedure and in its day-to-day operations the Bank controls this excess cash reserve figure in a very close and precise way. *Since the Bank has real control over excess cash, this variable becomes the true operating variable to implement monetary policy.* Specifically, the Bank sets a two-week target for the cumulative excess cash ratio (referred to in the financial community as the estimated "cash setting") and has a very close handle on this figure because of the mechanics of calculating cash reserves.<sup>15</sup> This variable is manipulated to induce banks to invest more or less actively in money market securities or compete more or less aggressively for deposits. These actions induce changes in short-term interest rates which lead to changes in M1 which, in turn, lead to changes in nominal national income. (This says nothing about the magnitude of the impacts.)

It can be seen that the Bank of Canada considers interest rates as an instrument of control which is one step removed from its day-to-day operating variable—the excess cash ratio and the dollar value of excess cash. For the Bank, interest rates are determined in the market as a second round effect. This means interest rates are controlled *indirectly*. In turn, this suggests that excess cash may be a day-to-day policy variable, while interest rates are a weekly or monthly variable. (This view is supported by history which shows that a sharp change in the cash setting need not impact on interest rates immediately but may take up to one to three weeks to be fully felt.)

When a more aggressive approach to interest rates is desired, the central bank may opt to move interest rates *directly* via other techniques, such as open

market operations and Bank rate changes. The interest rate changes, in turn, set up a whole series of interest rate adjustments and asset substitutions which, through the demand for money equation, then influence M1, M2 and M3.

In Canada, the most important objective data which the market can follow to see if the operating target (excess cash) is being met on a day-to-day basis is the call/day loan rate—although these rates can also be heavily influenced by technical distortions (e.g., money market dealers buying or selling inventory). These rates are generally used as a loose guide to whether the Bank of Canada thinks there is too much or too little cash in the system. The Bank also relies on other money market rates, including the rates for bank paper and Treasury Bills. On a daily basis, the best data to follow to judge the impact of the excess cash setting on the market is the spread between call loan rates and Treasury Bill rates shown in chart form on page 16 of the WFS.

## 8. The Linkage Between Excess Cash Reserves and The Expansion/Contraction of Banking System Assets and Deposit Liabilities

### a) *How the Process Works in the Long Run—The Textbook Deposit Multiplier*

If, for example, the Bank should decide on a more expansionary policy, it would provide more cash to the banking system and excess cash reserves would rise. Individual chartered banks, in turn, would respond to this by purchasing more securities (usually liquid assets) which lower interest rates and, through the demand for money function, increase money supply. Alternatively, if a chartered bank responds to its increase in excess cash by lending it out then, although this lending might have no effect on the deposits of the bank doing the lending (if the funds are transferred elsewhere in the banking system), *the system as a whole will eventually show an expansion in deposits to eliminate the exogenous cash injection by the central bank.* Since money supply is made up of bank deposits, the money stock (broadly defined) will, over the longer term, rise in line with the standard textbook money multiplier. *In the end, it is the substitution of earning assets for excess cash that drives the system, and it is the reserve leakage that eventually stops the system from expanding.*

<sup>15</sup> Although the Bank controls excess cash in the very short run, a new setting is necessary for each new averaging period. This can often force the Bank to essentially ratify everything that occurred in the past.

It is also worth noting here that excess cash reserves are, in fact, a very small part of the monetary base. Since the base is key to the monetarist control mechanism, it can be argued that excess cash reserves is a policy entry point into the system for both Keynesians and monetarists. Where the two schools would diverge in their view of excess cash centres on how a change in excess cash reserves impinges on the system. Keynesians would argue the impact would be on interest rates then on money supply, while monetarists would argue the impact would be on the money supply directly via the monetary base. (Of course, Keynesians and monetarists would also differ on far more fundamental grounds as well.)

### b) *How the Process Works in the Short Run*

Notwithstanding the above theoretical discussion, the Bank of Canada would maintain that the deposit multiplier concept, though theoretically nice, does not work in the short run and that using the money multiplier approach is bound to lead us astray *in the short run*.<sup>16</sup> This is because the total reserves that the chartered banks have to hold are not based on their current deposits but rather on last month's deposits. Therefore, in the short run, chartered bank demand for total required reserves is largely *fixed and predetermined* by last month's deposit base, although other factors for the current month (e.g., expectations of clearing losses) will affect bank demand for excess cash this month. Thus, because of the lagged reserve requirement, a cash injection and an expansion in the banking system this month does not bring about an immediate increase in required reserves.

It is against this background that the Bank of Canada injects a particular (fixed and predetermined) amount of reserves. But, with the supply of reserves exogenous and the chartered banks' demand for reserves largely predetermined, *there is no automatic mechanism for the banking system to immediately use up the cash injected by the Bank of Canada*. Both the supply and demand for reserves are largely predetermined, and the system as a whole is over-determined. Here, there is *no definite limit* on the expansion of the system resulting from a given increase in excess reserves. There is not really a textbook multiplier in the short run, since as long as the excess cash stays in the system and the banks do not want to hold it, the banks will expand by acquiring earning assets. But, the minute the banks demand the cash injected by the Bank of Canada (want to hold the excess cash) or shrink in size by allowing CDs, BDNs or net foreign assets to decline, the expansion process stops. When the banks have the excess cash desired (neither more nor less), the cash setting will be neutral.

In fact, the process of expansion never starts if the chartered banks initially want to hold *all* the excess cash injected by the Bank. *Thus, the key for loan/deposit creation is not solely dependent on the amount of excess cash in the system but whether or not the banks want to hold any given amount supplied by the Bank of Canada.*

Second, over and above the lagged reserve requirement problem, there is also no precise linkage mechanism between the level of excess cash reserves supplied by the Bank of Canada and the growth of the banking system or of a particular monetary aggregate. This is because the *immediate* response of the banks to a certain amount of excess cash, and a change in excess cash, may vary substantially. Some banks may react by adjusting their Canadian assets (e.g., buy/sell Bills, paper, reduce call and day loans, et cetera), while others may respond by adjusting their Canadian liabilities (e.g., bid for or run down bank CDs or BDNs). Still others may buy/sell foreign assets or foreign liabilities.

Third, there is a time element as well which means the banks may adjust quickly or slowly within an averaging period, depending on how the Bank of Canada sets the trajectory for achieving its excess cash target over the averaging period. This is because, although there is a reserve requirement, the banks only have to meet the requirement on a cumulative basis—for each two-week averaging period—and not on each day of the period. *Therefore, to fully understand monetary policy, the analyst needs to know the excess cash setting each day, and the Bank of Canada does not publish this data even in its new and greatly expanded Weekly Financial Statistics.*

The degree of ease or tightness during a reserve averaging period associated with any level of excess cash at the end of the period will vary depending on the "track" followed by the Bank, that is, whether a higher percentage of reserves is provided early or late in the period. For example, the Bank may set an average excess cash figure for each day which is equal to its target for the averaging period. If the Bank were to set this at, say, 0.03 percent or \$50 million per day while the banks want to hold \$55 million, there is a daily average gap of \$5 million. If there are 11 business days in the averaging period (15 weighted average days) then this cash setting would encourage the banks to mature or liquidate \$75 million in securities for the period (\$5 million multiplied by 15 days).

Chartered banks may adjust their reserve holdings early or late in the period. If, for example, a bank falls behind early in the period, it will have to show a larger and larger daily adjustment to get onside as the end of the averaging period approaches.

The end result is that there exist a wide variety of daily average excess cash levels which can be chosen to hit the cumulative average wanted. Therefore, there are practically an infinite number of time path

<sup>16</sup> Clinton and Lynch, *Monetary Base and Money Stock in Canada*, Bank of Canada Technical Report 16, July 1979, pp. 36-40.

trajectories, although a typical trajectory is for excess cash to start out high—a flush system—then tighten and finally ease right at the end of the averaging period.

These trajectories, though set by the Bank of Canada to achieve its interest rate, exchange rate and money supply objectives, are also influenced by the chartered banks. Factors taken into account by the banks include a view of interest rates during the averaging period, a view of risk, the maximum adjustment a bank can make on a given day, an estimate of the upcoming cheque clearings, expected gains/losses in deposits and how they expect the Bank of Canada to react to the excess cash that appears in the system each day.

The end result is that it is impossible to tell *in the short run* whether a particular change in the reserve base itself will produce an increase or decrease in bank deposits and money supply. However, the inflexibility and unpredictability of the adjustment mechanism only exists in the short run. If the Bank of Canada acts to provide reserves or withdraw them *over a period of time*, the textbook type multiplier adjustment process will begin as the banks collectively adjust their assets or liabilities. However, the textbook process really says very little about how banks adjust their *liabilities* in response to a Bank of Canada cash injection or withdrawal.

In practice then, the process starts and ends typically when the Bank of Canada sees that the excess cash injected has produced the desired change in interest rates. At this point, the Bank will withdraw any excess cash which it has injected into the system and return to a neutral cash setting.

It is also true, by inference, that if the Bank injects cash in the last two weeks of a month, then the higher end-of-month level of bank reserves and excess reserves actually observed may only indicate expansionary policy in a technical sense. This is because, as noted above, the chartered banks' required level of reserves is predetermined and fixed. Any cash injected by the Bank will, *ceteris paribus*, increase excess cash in the system and *appear* expansionary in the very short run. It is only after the banks move to fully adjust their demand for excess reserves that the true impact of monetary policy can be judged. This may not show up until the next averaging period. This is why it is always important to look at both excess cash reserves and interest rates in judging policy.

In conclusion, the level of excess cash does not necessarily signal monetary policy *in the short run*.

Excess cash may rise simply because the banks want to hold it for precautionary reasons, and the Bank of Canada, accordingly, supplies it in order to hold interest rates unchanged. Also, if the banks thought interest rates were going to fall, excess cash may fall as they buy short-term assets, and the system will only *appear* tight. Finally, some banks may be tight and others loose on given days and the *distribution* of excess cash may be just as important as the level.

Over the longer term, the system does in fact adjust roughly according to the textbook model, although the Bank would maintain that money expansion occurs because interest rates are affected.

## 9. The Likely Elimination of Reserve Requirements Beginning in 1990

At this point, it is important to note that parts of this chapter will have to be rewritten in future editions to reflect the federal government's late 1986 announcement that formal reserve requirements would be phased out. Subsequent announcements have specified that the phase-out would begin in 1990. This phase-out results from deregulation of financial institutions and markets in Canada (and around the world), and the internationalization of capital markets which has blurred the distinction between banks and non-bank financial institutions. Thus, to require non-income-earning reserves from banks and not from other financial institutions doing much of the same banking type business would be inequitable. And, elimination of reserves is clearly preferable to the other two alternatives—paying interest on required reserves or subjecting all financial institutions to reserve requirements.

The key question that arises when reserve requirements are eliminated is the impact on the Bank of Canada's ability to manage bank cash in such a way as to effectively implement monetary policy. Preliminary work by the Bank indicates this change will not have a major impact. Specifically, the Bank noted that:

“there is no reason to believe that the elimination of reserve requirements will undermine our ability to exercise that influence over short-term interest rates through which we can influence the demand for money and hence, the pace of monetary expansion. Indeed, monetary policy will work in much the same way in the new framework as it does now because the

key elements giving the Bank of Canada an influence over yields in financial markets will remain essentially unchanged:

- 1 the settlement of the daily clearing of payment items by major deposit-taking institutions will continue to be undertaken of necessity on the books of the Bank of Canada;
- 2 so even in the absence of statutory reserve requirements, these direct clearers will still need balances at the Bank of Canada in order to settle; and
- 3 the Bank of Canada will continue to be able to determine the availability of such balances, and thereby influence very short-term interest rates directly. In this way, it will maintain its leverage over monetary conditions in general.”<sup>17</sup>

Putting this another way, once the phase-in is completed, a new level of “required” reserves will emerge which is established by the banks due to market forces (i.e., clearings) and the need to avoid Bank of Canada advances. Once the new level of balances needed to handle only each day’s clearings is established, the reserve level will at least be a guideline although not a fulcrum to use for monetary control.

However, although the Bank’s broad control mechanism will not be affected since all direct clearers will still have to hold balances at the Bank for clearing purposes, it is still true that there will be some secondary and indirect impacts because these balances will be reduced in the absence of reserve requirements and, being solely determined for business reasons by the banks, they will be more variable and difficult to predict. Thus, although the Bank will still be able to add or subtract liquidity to achieve its policy objectives, as it does today, there will be more uncertainty as to the impact of any given drawdown or redeposit since a known and predetermined fulcrum—the required reserve—would no longer exist. That is,

there would be no predetermined mechanism to force banks toward a certain known level of reserves. This may lead the Bank toward more active use of other tools to offset any loss of control, e.g., more use of special PRAs and reverse PRAs, open market operations, and a more penalty-oriented Bank Rate formula for loan advances (if direct clearers continually run clearing reserves low, requiring too much ongoing central bank credit).

## II. SECONDARY RESERVES

In addition to the mandatory cash reserve requirement set out in the Bank Act, under section 18(2) of the Bank of Canada Act the Bank has the power to require chartered banks to hold a secondary reserve requirement (SRR) in the range of zero to 12 percent, against the same deposit base as applies for primary reserves, i.e., total Canadian dollar deposits plus foreign currency deposits of Canadian residents at Canadian branches.<sup>18</sup> The table at the bottom of page 5 sets out relevant data on chartered bank secondary reserves.

Here again, secondary reserve requirements may be affected by the planned phase out of primary reserves in 1990.

### 10. Required Minimum

Once the deposit base against which secondary reserves have to be held is calculated, the required percentage secondary reserve, discussed in entry 11, is applied to arrive at the dollar value of required secondary reserves shown in entry 10. The banks are required to hold these reserves on a monthly basis (unlike cash reserves which have to be held twice a month by direct clearing banks).

The calculation procedure used by the banks is almost identical to that outlined above for the primary reserve requirement. Specifically, the statutory deposit base, against which the secondaries are held,

<sup>17</sup> Some Responsibilities and Concerns of the Bank of Canada. Notes for a luncheon address by John W. Crow, Governor of the Bank of Canada at the annual meeting of the Canadian Economics Association, University of Windsor, Windsor, Ontario, June 4, 1988.

<sup>18</sup> Unlike the primary reserve requirements which are spelled out in the Bank Act, the secondary reserve requirement is spelled out in the Bank of Canada Act. The secondary reserve requirement is thus applied at the discretion of the Bank of Canada and is not required under the Bank Act itself.

is calculated in exactly the same way using the four Wednesday averaging procedure. Therefore, required secondary reserves are also predetermined at the beginning of each month.

## 11. Required as a Ratio of Total Statutory Deposits

Currently, the required reserve ratio is 4 percent of statutory deposits as shown in entry 11.

The secondary reserve requirement first came into informal existence in late 1955 when the Bank of Canada strongly urged banks to voluntarily adopt a new policy of maintaining cash and secondary reserves to a combined total of 15 percent of Canadian dollar deposits (to be achieved by May 31, 1956). Through *moral suasion*, the Bank of Canada effectively imposed a secondary reserve requirement of 7 percent, given that the cash ratio at that time was 8 percent. In the 1967 revision to the Bank of Canada Act, the Bank was empowered to establish a specific secondary reserve requirement within the range of zero to 12 percent to replace the voluntary 7 percent requirement. However, the ratio could not be increased by more than one percentage point per month under the 1967 legislation (which became effective in March 1968), although no notice was required for a reduction. These requirements continue unchanged with the 1980 Bank of Canada Act revision.

10		11		11a		11b	
CHARTERED BANKS: CASH AND SECONDARY RESERVES (Millions of dollars)		BANQUES À CHARTRE: RESERVES-ENCAISSE ET RESERVES SECONDAIRES (En ml)					
Secondary reserves		Réserves secondaires					
Required Minimum requis	Required as a ratio of total statutory deposits (%) En % du total des dépôts sujets aux réserves	Actual Montants effectivement de					
		Excess cash reserves Excédents des réserves-encaisse	Day loans Prêts jour le jour				
				B811		B804	
5,706	4.00	114	15				
5,549	4.00	59	14				
5,609	4.00	74	20				
5,640	4.00	96	14				
5,759	4.00	66	14				
5,707	4.00	56	4				

The secondary reserve requirement was first formally established at 6 percent by the Bank in March 1968 and was subsequently increased in three one point steps to a peak of 9 percent in July 1970. Since that time, it has been steadily reduced in seven steps to reach a December 1981 low of 4 percent.

### a) Rationale for the Secondary Reserve Requirement

#### i) Monetary Policy Aspects

The secondary reserve requirement offers several small advantages to the Bank in its conduct of monetary policy. First, and in a general sense, it is an extra tool that can be used. This will be particularly important when the Bank sees a change in interest rates as being insufficient to attain its desired objectives, or where a change in interest rates alone would have to be so large as to be destabilizing.

Second, the reserve requirement locks up bank liquidity and, as a result, turns chartered bank liquid assets into non-liquid assets. This tool is particularly useful when the banks are very liquid at a time when the Bank of Canada wants to tighten policy. Then, it can increase the secondary reserve ratio to cut off the ability of the banking system to escape this tightening and maintain lending by selling off liquid assets. Alternatively, the ratio can be reduced when the Bank wants to encourage the banks to convert liquid assets into loanable cash.

Third, this tool will cut down the lag between shifts in monetary policy and the impact on the economy. Its existence encourages banks to respond *earlier* to a tightening of credit, initially by selling securities or raising deposit rates, and later by reducing the rate of loan growth. For example, as their liquid assets fall toward a required level, banks will begin to change their lending policy earlier in the cycle, although these changes are usually marginal since the *raison d'être* for banks is to lend money. *Thus, this tool can reflect the belief that the banking system might be slow to reflect monetary policy, particularly with respect to restricting lending activity.*

Fourth, the secondary reserve requirement enables the Bank to make the chartered banks' reaction to its policy *smoother* and *more predictable*, since banks are not able to go for long periods of time holding up loans by running down liquid assets. In any case, banks will not normally wait to the very last minute



and then sell a lot of securities or suddenly change their lending policy.

ii) The Secondary Reserve Requirement as a Technical Complement to Debt Management Operations

In addition to being a monetary policy tool, the secondary reserve requirement plays a more important role as a technical complement to debt management policy. Specifically, by creating a captive chartered bank demand for Treasury Bills (assuming banks are forced to hold more Bills than they would in the absence of the reserve requirement), there are direct implications for government debt.

The debt management aspects of the SRR first became evident with its increase from 8 to 9 percent in May 1970. This marked the first time the tool was used for reasons essentially unrelated to the management of chartered bank liquidity. The rationale for the May increase stemmed from the move to a large current account surplus in the balance of payments which put substantial upward pressure on the pegged C\$ in the first five months of 1970. This led the government to make substantial purchases of U.S. dollars on the foreign exchange market to hold the C\$ down—actions which ate heavily into federal Canadian dollar cash balances. In turn, this led the government to raise additional cash via a special \$250 million issue of Treasury Bills in May 1970. To encourage the banks to buy these Bills at lower interest rates (to reduce the pressure on the C\$) and to offset the increase in bank liquidity that would result from their Bill purchases, the Bank of Canada raised the SRR. Thus, the increase was directly related to debt management policy (the special Treasury Bill issue) and indirectly related to exchange rate policy.

During the decade of the 1970s, the SRR was steadily reduced, largely to complement domestic debt management policy. In December 1971, the Bank of Canada cut the SRR from 9 percent to 8.5 percent and then further reduced it to 8 percent in January 1972. These reductions were again directly related to debt management policy and were not intended to release bank liquidity or encourage lending. Specifically, a record CSB sale in late 1971 (subsequently new records were set) reduced the government's need to borrow through marketable issues and the Bill tender was reduced. However, the supply of Bills was reduced at a time when the chartered banks were required to hold more Bills because of fast growth in

bank deposits. To provide a better balance between the supply and demand for Bills, the Bank cut the secondary reserve requirement.

In late November 1974, the SRR was cut again from 8 percent to 7 percent and then in December it was reduced to 6 percent. As in 1971-72, these reductions were in response to domestic debt management operations—another large CSB campaign which led to a big increase in government cash balances and another reduction in the size of the Treasury Bill tender. In fact, the Bank of Canada noted in its November 29, 1974, press release that this action should not be interpreted as a move toward easier monetary policy. The Bank said that the resulting increase in bank liquidity would be “substantially offset through the Bank of Canada's cash reserve management and open market operations”. This was reiterated in the December 1974 press release.

Two months later, the Bank again cut the SRR. This reduction, though partly related to the November/December reductions and to debt management policy, appeared to be mostly related to an easing in monetary policy since the Bank of Canada did not specifically say that the impact on bank liquidity would be offset. In fact, only part of the impact was subsequently offset.

The reduction in the SRR from 5.5 percent to 5 percent in January 1977 was also directly associated with an easing of monetary policy and specifically to increasing M1 growth. However, the late 1981 reduction from 5 percent to 4 percent (the current level) was again directly related to debt management operations and the huge \$12.8 billion CSB campaign. Given this large CSB take in November 1981, government cash balances threatened to hit an enormous \$15 billion. The government, wanting to lower these balances, reacted by significantly reducing its market borrowing, and especially by reducing the Treasury Bill tender to lower its percentage of short-term marketable debt outstanding after mid-October. However, barring any other offsetting action, a significant reduction in the Bill tender (over \$2 billion in late 1981) would have led to highly undesired additional downward pressure on the Bank rate, on money market rates generally and on the Canadian dollar at a time when the Bank of Canada was leaning against a U.S. led decline in interest rates and trying to prop up a weak exchange rate. In lowering the secondary reserve requirement on November 20, 1981 (to be effective December 1, 1981), the Bank was able to maintain interest rates and

the C\$ at higher levels than otherwise would have been the case.

Fortunately, while the 1981 reduction in secondaries was mainly motivated by debt management policy, it was also consistent with monetary policy. The potential freeing up of \$1.5 billion in funds for lending was consistent with the fact that M1 growth had fallen well below the Bank of Canada's minimum target band during the period August-November 1981, mainly reflecting high interest rates, the sudden emergence of a recession and other special factors.

### iii) General Debt Market Objectives

In addition to the specific debt management objectives associated with most of the changes in the secondary reserve requirement during the 1970s, there was one other specific reason and two general reasons for reductions in the SRR after 1975. First, with the emergence of a large federal government cash requirement in the mid- and late-1970s and a government desire to reduce its relative dependence on Canada Savings Bonds, the government (and the Bank of Canada) also wanted to develop a bigger non-bank market (public demand) for Treasury Bills. In order to obtain this, the Bank saw reductions in the SRR as achieving a narrowing of the yield spread between Bills and other short-term paper, thus encouraging a broader range of Bill buying.<sup>19</sup> This objective was clearly met. In the process of reducing the captive demand for Bills while increasing their supply, Bill yields closed to within 10-25 basis points of other money market rates by 1979 compared to a spread of 150-200 basis points in 1974-75. Therefore, the interest penalty on the general public and others from holding Bills as opposed to other short-term securities virtually disappeared in the late 1970s. At the end of 1983, the banks held about 35 percent of the Bills outstanding, while the public held 57 percent. This compared to 75 percent for the banks and only 10 percent for the public in 1970-71 when the secondary reserve requirement was at its peak.

Turning to a more general view, the Bank also saw

the reduced SRR and the resulting narrower yield spreads as increasing the breadth, depth and resiliency of the short-term money market. In a broad sense, the Bank does not want to rely on a tool which is arbitrary and which overrides the market by denying banks the freedom to buy their desired assets. *The Bank is a firm believer in efficient capital markets and in using tools that give maximum scope for the market mechanism to work.* Indeed, during the latter half of the 1970s and into the 1980s, it appeared that the Bank wanted to reduce the SRR as a matter of policy and may want to phase it out altogether. This clearly suggests that the "official" and private money markets will tend to merge over time, and the distinction between call loans and day loans will narrow down to differences in the quality of the collateral instruments only.

Lastly, a more responsive money market with narrower yield spreads gives the Bank of Canada more control over the market and should improve the implementation of monetary policy. This is because when Bill rates are close to other money market rates, Bill yields become the domestic norm for determining all short-term rates (excluding the U.S. influence). This gives the Bank more control over money market rates since, when spreads are narrow, there is much more immediate pressure on market participants to take advantage of a widening/narrowing of spread between security classes. For example, if the spread between Bills and commercial paper is 20 basis points, a 10 basis point increase in the Bill rate puts immediate upward pressure on all commercial paper rates. By contrast, when the spread is very wide to other instruments, a small increase in Bill yields is not necessarily felt throughout the entire market.

## 12. Actual Secondary Reserves Held

Entry 12 sets out how the banks meet the secondary reserve requirement each month. There are three ways they can hold their secondaries, and all three are highly liquid.

### a) Excess Cash Reserves

The first and almost always the smallest component of secondary reserves is cash reserves in excess of the minimum requirement for the month (i.e., the monthly average for the data shown in entry 6a).

<sup>19</sup> This shift in basic debt management policy also appeared to have been well-timed, since the fast growing deposit base in the banking system automatically required the banks to hold more Bills even as the secondary reserve requirement was being cut.

### b) Day Loans

Second, the banks are allowed to count day loans to investment dealers as secondary reserves, up to the dealer lines of credit with the Bank of Canada. Day loans are made against Government of Canada short-term bonds and Treasury Bills as collateral (the security classes eligible for dealer PRAs with the Bank of Canada).

### c) Treasury Bills

The third and by far the most important component of secondary reserves (accounting for over 90 percent of reserves) is Government of Canada Treasury Bills. Eligible Bills must be issued in Canadian dollars. Bills held for secondary reserves are valued at par.

12a                      12b                      12c                      12d			
BY RESERVES (Millions of dollars) SE ET RESERVES SECONDAIRES (En millions de dollars)			
Actual Montants effectivement détenus	Day loans Prêts au jour le jour	Treasury bills (par value) Bons du Trésor (valeur nominale)	Total Total
	B804	B805	
Excess cash reserves Excédents des réserves-encaisse	114	15	15,268
	59	14	15,258
	74	20	16,805
	96	14	18,305
	66	14	17,638R
	56	4	16,574
	166	-	16,701
			15,398
			15,331
			16,899
			18,415
			17,719R
			16,635
			16,867

### d) Total Secondary Reserves Held

Total chartered bank holdings of secondary reserves shown in entry 12d is the total of entries 12a, 12b and 12c.

### e) Distribution of Secondary Reserve Holdings

Given that the Bank of Canada determines the excess cash figure and that the banking system will want to

hold non-interest earning excess cash reserves as low as possible, the main decision for chartered banks concerning distribution of their secondary reserves involves how to break down their secondaries between day loans and Treasury Bills. However, banks can only make this decision on the margin because, as noted in chapter 2, the day loan component is determined by dealer demand and, in any case, is normally limited to a maximum of about \$800-\$900 million by the dealer lines of credit with the Bank of Canada. This is a very small amount given that the secondary reserve requirement was about \$5.5 billion at the end of 1988. Thus, the existence of the SRR effectively creates a formal legislated minimum chartered bank demand for Treasury Bills (i.e., a captive market).

Against a background where day loans will vary in a range up to \$900 million, the breakdown of bank holdings between day loans and Treasury Bills is dependent on several factors. For example, day loans are more liquid than Bills so, if the day loan rate is close to the Bill rate, banks may prefer to put more day money out. On the other hand, if banks expect short-term rates to fall, they would prefer to hold more Bills and make fewer day loans (because of the longer term for the Bills) and vice versa.

There have been occasions when the Bank of Canada tightened the system very significantly. This caused the day loan market to become very tight and money market dealers could not obtain all the day and call loans needed to finance their inventories at reasonable rates. This forced dealers to sell inventory and/or borrow from the Bank under a PRA. Also, there have been occasions when the Bank of Canada has asked banks to accommodate dealers. This is normally done when there is cash in the system but banks may be sitting on it in anticipation of a large cash drain the next day. In these cases, the Bank of Canada may indicate that a less serious cash drain is in store, thereby encouraging banks to accommodate the dealers.

## 13. Excess Secondary Reserves

Two series on excess secondary reserves complete the data shown on page 5 of the weekly Statement.

### a) Dollar Amount

The dollar amount of excess secondaries is shown in entry 13a. Excess secondary reserves held by the

banks (entry 12d minus entry 10) are generally much larger than excess cash reserves because secondary reserve assets, except excess cash, earn interest. Therefore, swings here are less useful for analytical purposes than changes in the excess cash reserve ratio. Normally, however, and other things being equal, excess secondary reserves below \$500 million-\$1 billion indicate tightness, while a position above \$5 billion reflects excess liquidity and looseness.<sup>20</sup>

11c — 11d		13a — 13b	
<i>(dollars)</i>			
Treasury bills (par value) <i>Bons du Trésor</i> (valeur nominale)	Total <i>Total</i>	Excess secondary reserves <i>Excédents des réserves secondaires</i> Dollar amount <i>Montant</i>	As a ratio of total statutory deposits (%) <i>En % du total des dépôts sujets aux réserves</i>
		B817	B816
B805			
15,268	15,398	9,692	6.79
15,258	15,331	9,781	7.05
16,805	16,899	11,289	8.05
18,305	18,415	12,775	9.06
17,638R	17,719R	11,960R	8.31
16,574	16,635	10,928	7.66

b) *Excess Secondary Reserves as a Ratio of Total Statutory Deposits*

The last entry shows the ratio of excess secondary reserves held to total statutory deposits. As with excess cash, this ratio is more important than the dollar amount of reserves. Here again, increases in this ratio reflect increased bank liquidity and vice versa.

<sup>20</sup> Excess secondaries for the averaging periods since the beginning of 1974 have been as high as about \$16 billion and as low as \$100 million.

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# CHAPTER 5

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## THE MONETARY AGGREGATES

Column

1

2

3

4

5

6

Average of  
Wednesdays  
and  
Not seasonally adjusted  
Wednesday  
Moyenne  
mensuelle  
des  
mercredis  
ou données  
du mercredi

MONETARY AGGREGATES (Millions of dollars)  
AGREGATS MONÉTAIRES (En millions de dollars)  
Seasonally adjusted  
Données non désaisonnalisées

BCR Table E1  
RBC Tableau E1

		Currency outside banks Monnaie hors banques	Demand deposits (less private sector float) Dépôts à vue (moins effets du secteur privé en cours de compensation)	M1 (Currency and net demand deposits) M1 (Monnaie et dépôts à vue nets)	M2 (M1 plus personal savings deposits and non-personal notice deposits) M2 (M1 plus les dépôts d'épargne des particuliers et les dépôts à préavis autres que ceux des particuliers)	M3 (M2 plus other non-personal fixed- term deposits plus foreign currency deposits of residents booked in Canada) M3 (M2 plus les dépôts à terme fixes autres que ceux des particuliers et les dépôts en monnaies étrangères comptabilisés au Canada au nom des résidents)	Currency plus total Canadian dollar privately held chartered bank deposits Monnaie plus ensemble des dépôts bancaires en dollars canadiens du public
		B2001 B113300	B2028 B113309	B2033 B113315	B2031 B113313	B2030 B113312	B2029 B113311
1988	M	16,311	19,891	36,202	196,766	240,373	232,079
	J	16,665	20,734	37,399	199,934	245,193	236,846
	J	17,044	20,979	38,023	202,135	247,973	240,009
	A	17,087	20,626R	37,713R	203,806R	251,043R	242,922R
1988	J 6	17,188	21,120	38,309	203,118	248,431	240,510
	13	16,964	21,059	38,023	201,662	247,112	239,146
	20	16,905	20,997	37,902	201,752	247,607	239,617
	27	17,118	20,741	37,859	202,006	248,741	240,765
	A 3	17,364	20,689	38,052	204,024	250,660R	242,752
	10	17,057	20,459	37,516	203,019	250,348R	242,419
	17	16,900	19,942	36,842	202,490	250,281R	241,635
	24	16,818	20,210	37,028	202,654	249,762R	241,899R
	31	17,294R	21,830R	39,124R	206,840R	254,166R	245,906R
	S 7	17,346	21,013R	38,358R	206,063R	253,039R	244,726R
	14	17,006R	20,917R	37,924R	205,183R	251,243R	243,167R
	21	16,849	20,907	37,756	205,550	252,483	244,445

Changes from: Variations par rapport à la:

1987	S 23	857	-32	826	14,435	20,297	20,903
1988	S 14	-157	-11	-168	367	1,240	1,279

Column

1a

2a

3a

4a

5a

6a

7

Average of  
Wednesdays  
Moyenne  
mensuelle  
des  
mercredis

MONETARY AGGREGATES (Millions of dollars)  
AGREGATS MONÉTAIRES (En millions de dollars)  
Seasonally adjusted  
Données désaisonnalisées

continued  
suite

		Currency outside banks Monnaie hors banques	Demand deposits (less private sector float) Dépôts à vue (moins effets du secteur privé en cours de compensation)	M1 (Currency and net demand deposits) M1 (Monnaie et dépôts à vue nets)	M2 (M1 plus personal savings deposits and non-personal notice deposits) M2 (M1 plus les dépôts d'épargne des particuliers et les dépôts à préavis autres que ceux des particuliers)	M3 (M2 plus other non-personal fixed- term deposits plus foreign currency deposits of residents booked in Canada) M3 (M2 plus les dépôts à terme fixes autres que ceux des particuliers et les dépôts en monnaies étrangères comptabilisés au Canada au nom des résidents)	Currency plus total Canadian dollar privately held chartered bank deposits Monnaie plus ensemble des dépôts bancaires en dollars canadiens du public	Memo: M2+ (M2 plus deposits at trust and mortgage loan companies and deposits and shares at caisses populaires and credit unions) Pour mémoire: M2+ (M2 plus les dépôts dans les sociétés de fiducie ou de prêt hypothécaire et les dépôts et capital social tenu dans les caisses populaires et les credit unions)
		B1604	B1625	B1627	B1630	B1628	B1626	B1633
1986	A	14,483	17,000	31,483	170,893	208,499	200,591	283,355
	S	14,505	17,502	32,007	172,281	210,210	202,034	285,442
	O	14,624	17,707	32,331	173,907	212,341	204,134	288,366
	N	14,695	18,183	32,878	177,388	216,160	207,684	294,043
	D	14,813	18,267	33,081	178,507	219,156	210,354	296,686
1987	J	14,886	18,593	33,479	179,752	218,127	209,635	298,858
	F	15,021	19,279	34,300	181,962	220,056	211,615	302,190
	M	15,044	19,061	34,105	183,342	221,539	213,308	304,641
	A	15,191	20,163	35,354	185,489	225,304	216,772	307,769
	M	15,315	20,552	35,867	185,907	226,949	218,388	309,370
	J	15,450	20,654	36,104	187,228	229,051	220,471	312,379
	J	15,507	20,358	35,865	187,886	229,898	221,283	314,456
	A	15,608	20,363	35,971	188,808	230,209	221,630	316,297
	S	15,738	20,323	36,061	190,387	231,702	222,973	318,725
	O	15,821	20,736	36,557	191,088	231,739	223,135	320,316
	N	15,912	20,356	36,268	188,334	229,522	220,884	318,302
	D	15,966	19,742	35,708	189,342	232,504	223,524	320,217
1988	J	16,147	20,189	36,336	190,850	232,019	223,574	322,618
	F	16,250	20,090	36,339	192,437	233,016	224,938	325,895
	M	16,319	19,989	36,308	195,135	236,482	228,357	330,725
	A	16,422	19,773	36,195	195,152	238,227	229,816	331,327E,R
	M	16,502	20,245	36,748	196,095	240,184	231,837	332,993E,R
	J	16,597	20,441	37,038	198,797	244,435	236,254	337,794E,R
	J	16,794	20,651	37,445	200,126	246,216	238,460	341,027E,R
	A	16,805	20,662R	37,467R	202,868R	250,950R	242,766R	N

## I. THE MONETARY AGGREGATES

Page 6 of the WFS duplicates information shown in the first part of table E1 in the *Bank of Canada Review*. In addition, it shows demand deposits on an unadjusted and seasonally adjusted basis—data which is not shown in table E1. This page displays information on the major monetary aggregates M1, M2 and M3 as well as a series sometimes referred to as M2-B. (These money definitions are simply specific groupings of bank deposit liabilities combined with one non-deposit series—currency and coin in circulation outside banks.) Since February 1988, the Bank has also been reporting a new series—M2+.

There are two sections of data on this page. At the top of the page, data is presented on a non-seasonally adjusted basis by week for the current month and the latest two completed months (typically 11 to 13 weeks) and on a monthly average basis for the latest four months. The dollar change from last week and the dollar change from a year ago are also shown.

The bottom part of the page shows the same monetary aggregates but on a seasonally adjusted basis. These data are not published on a weekly basis. Instead, the Bank presents them monthly, but covering a much longer time frame (i.e., 25 months of information compared to only four months of non-seasonally adjusted data).

The information on this page has been an important focus of Bank of Canada monetary policy when interest rates and exchange rate considerations have not dominated monetary policy.

The major money supply definitions shown on the Bank Statement are described and discussed below. The non-seasonally adjusted data is discussed as entries 1-6. The seasonally adjusted entries, being the same definitions as the non-seasonally adjusted entries except for the seasonal adjustment, are covered concurrently as entries 1a-6a; i.e., the two sets of data are discussed as one and M2+ is discussed in entry 7. Some comments on the mechanics of the seasonal adjustment process are presented in part III.

All definitions of money exclude private and federal government float and Government of Canada deposits. Until late 1986, the monetary aggregates discussed in this chapter included inter-bank deposits, i.e., deposits between reporting Canadian banks. However, in late October 1986, the Bank of Canada published a technical "Note to Users" of its *Weekly Financial Statistics* setting out a revision to all the monetary aggregates to exclude inter-bank deposits. This adjustment was made because rapid growth in the

inter-bank market since 1982 meant that growth in the monetary aggregates could, on occasion, be significantly affected by chartered bank deposit activity (an institutional factor) instead of economic activity and interest rate trends. Thus, the Bank decided that a more accurate measure of the monetary aggregate was deposits held by the non-bank public, and this could be measured by excluding inter-bank deposits in both Canadian dollars and foreign currencies from the previously published measures of the monetary aggregates. In October 1986, the Bank began to present the monetary aggregates excluding inter-bank deposits. Data for all relevant series were revised back to 1968.<sup>1</sup>

All data relate to Wednesdays or Wednesday averages except for the series on coin held outside the banking system. Up to year end 1976, this was the previous month end figure. Since 1976, the month end figure is calculated using a four-week weighted average technique.

One final point is worth noting here. In chapters 2 and 3 the new Bank of Canada statistical reporting system, implemented in November 1981, was discussed. This had the effect of increasing chartered bank assets and liabilities to reflect the consolidation of chartered bank majority-owned subsidiaries with the parent banks and also the inclusion of foreign banks in the *Weekly Financial Statistics* following their incorporation as Canadian banks. There were also accounting changes which altered the reporting of accrued interest on both the asset and liability side of the balance sheet. *To the extent that these changes affected the various chartered bank deposit liability series used to calculate the monetary aggregates discussed in this chapter, the aggregates are also affected by the new reporting system.*

Initially, the Bank of Canada did not restate the chartered bank deposit liabilities prior to November 1981 to reflect the November 1981 changes. This meant that data on deposits and the aggregates after November 1981 were not comparable with the same data before that date. In March 1983 this problem was eliminated when the Bank of Canada released a special report presenting adjustments to the monetary aggregates such that each time series became statistically consistent (i.e., the statistical discontinuities associated with both the 1980 Bank Act revision and the subsequent introduction of a new bank statistical reporting system were eliminated).<sup>2</sup>

<sup>1</sup> "Technical note: Revisions to the monetary aggregates", *Bank of Canada Review*, October 1986, pp. 15-17.

<sup>2</sup> "Technical note: New and revised monetary and credit

The specific impacts of the new reporting system are discussed for each monetary aggregate in the sections below.

The trends over time in all monetary aggregates, being related to monetary policy, are not discussed in this book. However, the aggregates are discussed in a policy context in the author's forthcoming book, *Monetary and Debt Management Policy in Canada—A View from the Street*.

## II. MONETARY AGGREGATES—NOT SEASONALLY ADJUSTED AND SEASONALLY ADJUSTED

### 1., 1a Currency Outside Banks (Including Coin)

The entry "currency outside banks" includes Bank of Canada paper notes and coin actually in circulation outside the banking system.<sup>3</sup> This series shows a long-run tendency to rise relative to demand deposits, even though the existence of credit cards and daily interest accounts suggest this series should grow slowly. For example, in 1960, currency in circulation outside banks totalled about \$105 per capita, but by 1980 this had more than tripled to about \$365. Over the same time period, demand deposits per capita increased at a lesser rate, from \$237 to \$606. The relative increase in currency outstanding is mainly attributed to the sharp increase in unreported work and income and financing of illegal activity (cash, being anonymous, cannot be traced). Studies suggest that 10-15 percent of nominal GDP can be attributed to unreported or illegal activity.

Beyond the secular trend, there is also a strong seasonal pattern for currency in circulation.

### 2., 2a Demand Deposits

Demand deposits include current account and personal chequing accounts at chartered banks denominated in Canadian dollars, net of private sector float (i.e., entry 4 on page 4 of the weekly Statement).

aggregates", *Bank of Canada Review*, March 1983, pp. 3-33.

<sup>3</sup> Currency outside banks is calculated by subtracting chartered bank holdings of notes from the total amount of notes outstanding. Coin in circulation outside banks is calculated by subtracting coin held by the chartered banks and Bank of Canada from the total amount of coin reported outstanding by the Mint.

### 3., 3a M1 (Currency and Demand Deposits)

The entry "currency and demand deposits" is the narrowest commonly used definition of the money supply.<sup>4</sup> This series is referred to as M1, and it includes currency in circulation outside banks (entry 1 or 1a above) and private sector demand deposits in the banking system (less private sector float, i.e., entry 2 above). It does not include savings accounts which have chequing features, e.g., the new and highly important daily interest chequing accounts. This series is available weekly from January 1953.

With the changes in the Bank's statistical reporting system in November 1981, this series remained unaffected. This is because neither the subsidiaries that are now consolidated with the banking data nor the foreign banks which are included offer demand deposits. Further, the definitional and accounting changes do not impinge on demand deposits. As a result, the narrowly defined monetary aggregate, M1, remained unaltered with the changed reporting methodology in 1981.<sup>5</sup>

Over the period 1975-1982, the Bank of Canada used M1 as a formal intermediate target for monetary policy on the basis that this aggregate had the most reliable and stable link to nominal GDP and was most affected by Bank of Canada engineered changes in interest rates. However, extensive financial innovation during this period led to a very substantial weakening of the link between interest rates, M1 and the nominal economy and this, in turn, led the Bank to drop M1 as an intermediate target and guide to policy in 1982.

The problem is that growth in the M1 monetary aggregate is not only a function of macro variables (e.g., real economic growth, inflation and interest rates), but also depends on credit demand facing banks relative to other financial channels (e.g., if BAs replace bank loans money supply will fall),

<sup>4</sup> The monetary base is a narrower definition of the money supply, but it is not set out in the Bank Statement as a specific aggregate. The calculation procedure for this series was described in chapter 1.

<sup>5</sup> It is worth noting here that in shifting to a new reporting system in late 1981, the Bank of Canada eventually was able to uncover a chartered bank data reporting problem in net foreign assets which existed over the whole period January 1968 to October 1981. Correcting this error resulted in a systematic reduction in private sector float starting at \$1 million in February 1968 and rising to \$250 million in October 1981. In turn, this float reduction led to the same *increase* in M1 in each month for this period.



competitive pressures between groups of financial institutions (e.g., trust company high yield Treasury Bill accounts can reduce M1, M2 and M3), and saver/investor portfolio shifts among different deposit categories.

Thus, since 1982, the Bank has been examining other definitions of money that might replace M1 as an intermediate guide to policy. But, as yet, the Bank has not found any aggregate that has a strong enough and stable enough link to nominal GDP, and that the Bank could manage over the short term, to take over the role of being a formal intermediate target for policy. However, M2 and M2+, discussed below, do show some promise as future guides to policy.

In March 1983 (in its *Annual Report*, 1982) the Bank of Canada first alluded to a new monetary aggregate, M1-A.<sup>6</sup> As of April 7, 1983, publication of M1-B in the WFS was discontinued to be replaced by M1-A. (The revised M1-B series is still available on the CANSIM data base.) A monthly time series for M1-A was then subsequently published in the March 1983 *Bank of Canada Review* in an article entitled, "Technical note: New and revised monetary and credit aggregates".

M1-A is defined to be M1 plus personal daily interest chequable savings deposits (but not personal daily interest non-chequable accounts), non-personal (corporate) chequable deposits and non-personal non-chequable notice deposits. These latter two categories include, for example, automatic transfer accounts where a corporate cash concentration account (chequable or non-chequable) generates a surplus at the end of the day such that the surplus is automatically invested overnight in an interest earning account. Also, the new components of M1-A capture situations where the corporate funds remain in a chequable account, and thus in M1, but earn a negotiated interest rate (corporate daily interest chequing accounts). The three new elements in M1-A include large elements of transactions balances.

The Bank of Canada developed M1-A as a monetary aggregate for two basic reasons. First, financial innovations and new institutional arrangements after 1975 tended to reduce the transactions balances included in M1, making M1 difficult to use as an intermediate target for monetary policy. In its research, the Bank examined several monetary aggregates designed to effectively capture those liquid balances not included in regular demand deposits which individuals and firms use for

<sup>6</sup> Bank of Canada, *Annual Report*, 1983, pp. 27-29.

1	2	3	4
MONETARY AGGREGATES (Millions of dollars) AGREGATS MONETAIRES (En millions de dollars) Not seasonally adjusted Données non désaisonnalisées			
Currency outside banks Monnaie hors banques	Demand deposits (less private sector float) Dépôts à vue (moins effets du secteur privé en cours de compensation)	M1 (Currency and net demand deposits) M1 (Monnaie et dépôts à vue nets)	M2 (M1 plus personal savings deposits and non-personal notice deposits) M2 (M1 plus les dépôts d'épargne des particuliers et les dépôts à préavis autres que ceux des particuliers)
B2001 B113300	B2028 B113309	B2033 B113315	B2031 B113313
16,311	19,891	36,202	196,766
16,665	20,734	37,399	199,934
17,044	20,979	38,023	202,135
17,087	20,626R	37,713R	203,806R
17,188	21,120	38,309	203,118
16,964	21,059	38,023	201,662
16,905	20,997	37,902	201,752
17,118	20,741	37,859	202,006
17,364	20,689	38,052	204,024
17,057	20,459	37,516	203,019
16,900	19,942	36,842	202,490
16,818	20,210	37,028	202,654
17,294R	21,830R	39,124R	206,840R
17,346	21,013R	38,358R	206,063R
17,006R	20,917R	37,324R	205,183R
16,849	20,907	37,756	205,550
Variations par rapport à la:			
857	-32	826	14,435
-157	-11	-168	367

1a	2a	3a	4a
MONETARY AGGREGATES (Millions of dollars) AGREGATS MONETAIRES (En millions de dollars) Seasonally adjusted Données désaisonnalisées			
Currency outside banks Monnaie hors banques	Demand deposits (less private sector float) Dépôts à vue (moins effets du secteur privé en cours de compensation)	M1 (Currency and net demand deposits) M1 (Monnaie et dépôts à vue nets)	M2 (M1 plus personal savings deposits and non-personal notice deposits) M2 (M1 plus les dépôts d'épargne des particuliers et les dépôts à préavis autres que ceux des particuliers)
B1604	B1625	B1627	B1630
14,483	17,000	31,483	170,893
14,505	17,502	32,007	172,281
14,624	17,707	32,331	173,907
14,696	18,183	32,878	177,388
14,813	18,267	33,081	178,507
14,896	18,593	33,479	179,752
15,021	19,279	34,300	181,962
15,044	19,061	34,105	183,342
15,191	20,163	35,354	185,489
15,315	20,552	35,867	185,907
15,450	20,654	36,104	187,228
15,507	20,358	35,865	187,886
15,608	20,363	35,971	188,808
15,738	20,323	36,061	190,387
15,821	20,736	36,557	191,088
15,912	20,356	36,268	188,334
15,966	19,742	35,708	189,342
16,147	20,189	36,336	190,850
16,250	20,090	36,339	192,437
16,319	19,989	36,308	195,135
16,422	19,773	36,195	195,152
16,502	20,245	36,748	196,095
16,597	20,441	37,038	198,797
16,794	20,651	37,445	200,126
16,805	20,662R	37,467R	202,868R

transactions purposes. *M1-A appeared to be the best aggregate at the time.*

Second, the Bank also found that these new interest bearing personal and corporate deposits were the deposit classes to which most of the balances previously included in M1 shifted following the financial innovations and changed institutional arrangements.

The end result was that M1-A became a technically better aggregate than M1 as a guide for total spending, interest rates and monetary expansion. However, the Bank of Canada noted that M1-A also had key deficiencies. These were described by the Bank in its 1982 *Annual Report* as follows:

One is that it does not, and no monetary aggregate can, take account of the effect of a reduction, rather than a shift, in the money balances held for transactions purposes consequent upon financial innovation. Another is that it has not been possible to find a way of including within it all transactions balances that have shifted out of M1 to other financial instruments. Yet another is that in order to take account of the significant quantity of transactions balances that have been moved from M1 to dual-purpose accounts, it has been necessary to include as well the appreciable savings balances held in these accounts.

Because of these shortcomings there is a considerable amount of variability in M1-A which cannot be explained in terms of movements in total spending and interest rates. With financial innovations continuing to affect holdings of transactions balances, movements in M1-A will likely continue to require a good deal of interpretation, and thus it would be premature to use it for target purposes *at present* (emphasis supplied). Such use of an aggregate like M1-A depends on a return to more stability in the deposit arrangements used by holders of transactions balances.<sup>7</sup>

With respect to the seasonally adjusted M1-A data, the Bank also noted:

The last three components do not exhibit a stable pattern of seasonality; consequently, the seasonally adjusted series for M1-A is calculated as the sum of seasonally adjusted currency, seasonally adjusted net demand deposits and unadjusted daily interest chequable savings deposits and non-personal chequable and non-chequable notice deposits.<sup>8</sup>

In February 1984, however, the Bank changed its method of seasonally adjusting M1-A. Specifically, it started to seasonally adjust the aggregate itself rather than adjusting the components.

Strong growth in daily interest chequing accounts during the mid 1980s subsequently made the M1-A aggregate irrelevant for monetary policy. And, as of February 1988, The Bank of Canada dropped publication of the M1-A, although the data can still be obtained from the Bank or via Cansim.

#### 4.,4a M2 (M1 Plus Personal Savings Deposits and Non Personal Notice Deposits)

The Bank of Canada redefined M2 in 1977. Under the pre-1977 definition, M2 included M1 as well as *all* time deposits. With the 1977 redefinition, this series became "currency and all chequable, notice and personal term deposits". Therefore, M2 is M1 plus personal savings deposits (other than daily interest chequable savings accounts) and personal fixed term deposits at chartered banks (entries 1b—1e on the chartered bank statement of liabilities) and non personal notice deposits.

The major change from the old definition was to *exclude* both bearer term notes issued by the banks and non-personal "other fixed term deposits" (i.e., purchase money). BDNs and CDs were both excluded from M2 because, being either large or negotiable, they are considered to be akin to a short-term investment (like owning a Treasury Bill) rather than a money balance.<sup>9</sup>

Since these two "purchase money" series showed rapid growth during the 1970s, their exclusion from the revised M2 data meant that the revised series showed a generally slower rate of growth than the old M2 series. Also, since the new series excluded large corporate type deposits, M2 tended to show much more stability during currency speculation periods since it is the corporate treasurer and not the small retail type saver who moves deposits around either to protect himself against changes in the Canadian dollar or to speculate on currency swings. For this reason, it is felt that the move to redefine M2 was at least partly affected by the foreign exchange situation in 1977.

The new chartered bank reporting system

<sup>7</sup> 7 Ibid., p.29.

<sup>8</sup> 8 "Technical note ...", op. cit., p. 5.

<sup>9</sup> Canadian M2 bears very little resemblance to U.S. M2 because U.S. M2 includes savings type deposits *outside the commercial banking system*.

introduced in November 1981 led to a quantum increase in M2 due to three new developments. First, the personal savings deposit liabilities of the bank subsidiaries added into the calculation increase M2. Also, to the extent that foreign banks had a small amount of personal and small corporate deposits, the inclusion of the new banks also increased M2, although this impact was very small. These increases were partly offset for most of the year by a third factor, the reduction in M2, because accrued interest on non-chequable and personal fixed term deposits is no longer included in these deposit categories and, thus, is excluded from M2. However, M2 does reflect this interest when it is actually paid into the accounts. Overall, the changes noted here increased M2 by about \$6 billion in the first week of November 1981—an increase of about 5 percent. Finally, exclusion of accrued interest from all the deposit components also affects the seasonal factors for M2 because the month-to-month change in interest earning deposits is affected.

In 1987 and 1988, Bank studies and other studies indicated that M2 and a new aggregate M2+ (discussed below in point 7) did show the most promise as guides to policy.<sup>10</sup> Specifically, Bank of Canada Technical Reports 48 and 49 published in July 1988 found that:

- the best leading indicator of prices is M2;
- the best leading indicator of nominal spending and real output are, respectively, M1 and real M1.
- the best contemporaneous indicator of total spending is M2+.

The increased relevance of M2 and M2+ is mainly because the M2 and M2+ definitions, being broader than M1, internalize more shifts among deposit classes than M1. Thus, they are less prone than M1 to deposit shifts resulting from financial innovation. However, neither M2 nor M2+ have reached the stage where they could be designated as formal intermediate targets. Since 1982, two particular shifts have kept these series from reaching intermediate target status. The first shift, and one that may perhaps be adjusted for, is the uncertainty of the size of shift of funds from deposits included in M2 and M2+ to Canada Savings Bonds in November each year. This shift was small in 1986, but large in 1987, and these distorted the link

<sup>10</sup> Technical Report 48: An analysis of the information content of alternative monetary aggregates by Doug Hostland, Steven Poloz and Paul Storer; and, Technical Report 49: An analysis of the information content of alternative credit measures by Leslie Milton.

4	5	6
M2 (M1 plus personal savings deposits and non-personal notice deposits) <i>M2 (M1 plus les dépôts d'épargne des particuliers et les dépôts à préavis autre que ceux des particuliers)</i>	M3 (M2 plus other non-personal fixed-term deposits plus foreign currency deposits of residents booked in Canada) <i>M3 (M2 plus les dépôts à terme fixe autres que ceux des particuliers et les dépôts en monnaies étrangères comptabilisés au Canada au nom des résidents)</i>	Currency plus total Canadian dollar privately held chartered bank deposits <i>Monnaie plus ensemble des dépôts bancaires en dollars canadiens du public</i>
B2031 B113313	B2030 B113312	B2029 B113311
196,766	240,373	232,079
199,934	245,193	236,846
202,135	247,973	240,009
203,806R	251,043R	242,922R
203,118	248,431	240,510
201,662	247,112	239,146
201,752	247,607	239,617
202,006	248,741	240,765
204,024	250,660R	242,752
203,019	250,348R	242,419
202,490	250,281R	241,635
202,654	249,762R	241,899R
206,840R	254,166R	245,906R
206,063R	253,039R	244,726R
205,183R	251,243R	243,167R
205,550	252,463	244,445
14,435	20,297	20,903
367	1,240	1,279
5a	6a	7
M3 (M2 plus other non-personal fixed-term deposits plus foreign currency deposits of residents booked in Canada) <i>M3 (M2 plus les dépôts à terme fixe autres que ceux des particuliers et les dépôts en monnaies étrangères comptabilisés au Canada au nom des résidents)</i>	Currency plus total Canadian dollar privately held chartered bank deposits <i>Monnaie plus ensemble des dépôts bancaires en dollars canadiens du public</i>	Memo: M2+ (M2 plus deposits at trust and mortgage loan companies and deposits and shares at caisses populaires and credit unions) <i>Pour mémoire: M2+ (M2 plus les dépôts dans les sociétés de fiducie ou de prêt hypothécaire et les dépôts et capital social tenu dans les caisses populaires et les credit unions)</i>
B1628	B1626	B1633
208,499	200,591	283,355
210,210	202,034	285,442
212,341	204,134	288,366
216,160	207,684	294,043
219,156	210,354	296,686
218,127	209,635	298,858
220,056	211,615	302,190
221,539	213,308	304,641
225,304	216,772	307,769
226,949	218,388	309,370
229,051	220,471	312,379
229,898	221,283	314,456
230,209	221,630	316,297
231,702	222,973	318,725
231,739	223,135	320,316
229,522	220,884	318,302
232,504	223,524	320,217
232,019	223,574	322,618
233,016	224,938	325,895
236,482	228,357	330,725
238,227	229,816	331,327E,R
240,184	231,837	332,993E,R
244,435	236,254	337,794E,R
246,216	238,460	341,027E,R
250,950R	242,766R	N

between M2/M2+ and the broad economy. The second shift occurred in 1982–1984, when a combination of high interest rates, poor economic performance and high unemployment led individuals to reduce savings deposits, included in M2, and other liquid assets, to finance short-run living standards and pay down high cost mortgages. Here again, this led to an unstable relationship between M2/M2+ and nominal economic growth. However, since 1985, the relationships have become much more stable and predictable.

A third negative factor is that M2 and M2+ do not respond as quickly to interest rate changes as M1. This makes these variables less useful for short-run monetary policy because policy changes take longer to impact the variable being targeted.

### **5.,5a M3 (M2 Plus Other Non-personal Fixed Term Deposits Plus Foreign Currency Deposits of Residents Booked in Canada)**

In 1977, the Bank of Canada also defined, for the first time, an M3 series which is available weekly since January 1970. This series incorporates the old M2 series, which included currency, demand deposits and *all* time and notice deposits in the private sector. It includes three classes of wholesale deposits: non-personal Canadian dollar fixed term deposits (large CDs) and bearer term notes (BDNs), which are excluded from the current M2 definition, to which the Bank added a new component, foreign currency deposits of Canadian residents booked with chartered banks in Canada.<sup>11</sup> These wholesale deposits are used to fund surges in loan demand and are paid down significantly when loan demand falls. The deposits are also used to adjust the impact on the chartered bank balance sheet resulting from their corporate borrowers switching back and forth between bank loans and commercial paper/Bankers' Acceptances.

Foreign currency deposits—which include both outright deposits of foreign currencies by Canadians in Canada and also swapped deposits—were never used as a deposit component in any monetary aggregate prior to 1977, and their inclusion in M3 is worth commenting on for several reasons.

First, from a micro point of view, foreign currency deposits (either hedged or unhedged) can be considered a good substitute for Canadian dollar

deposits by Canadian lenders, depending on relative interest rate differentials, foreign exchange expectations and whether or not these deposits are offset by other flows of funds for lenders. From the chartered bank's point of view, foreign deposits can be an important ongoing source of funds to finance loans.

Secondly, these deposits (or other foreign deposits not subject to reserve requirements) are conceptually important in a macro sense since they can be used by banks to circumvent Bank of Canada monetary policy. For example, under the *Winnipeg Agreement*, which set interest rate ceilings on domestic deposit rates out to one year in term for the period June 1972–December 1974, longer term Canadian deposits and all foreign deposits whether booked in Canada or abroad were exempt from the ceilings. Thus, when market interest rates hit the *Winnipeg Agreement* rates, the banks were not necessarily forced to curtail lending since they simply bid more aggressively for longer term domestic deposits and foreign deposits—both outright and swapped. (Prior to 1981, all foreign deposits were reserve free.)

There were, however, two further specific reasons why it became important to include foreign deposits in the broadest definition of money between 1975 and 1980. First, with the huge amount of foreign borrowing by Canadian credits in 1975–77 (partly reflecting the 1975 elimination of the 15 percent withholding tax for interest payments to foreigners on corporate debt longer than five years in term), these borrowers automatically had need for a temporary, or even semi-permanent parking place for foreign funds. For example, when Quebec Hydro did its \$1 billion private placement in 1976, these funds were not all immediately converted to Canadian dollars. Rather, borrowers often leave a major part of their funds as foreign deposits (with or without forward cover) at a Canadian bank, either in Canada or abroad, and then convert some of these funds to Canadian dollars each month (and unwind the forward contracts) in line with month-to-month Canadian dollar needs. Further, even if the borrower could spend the Canadian dollar equivalent of all the foreign funds on the day it received them, borrowers do not normally convert entire large bond issues in one step. Such a conversion strategy would actually move the Canadian dollar up and cost the borrower money.

Additionally, some foreign funds are *never* converted to Canadian dollars. This is because the major Canadian credits borrowing abroad usually need foreign funds to service their already outstanding

<sup>11</sup> Foreign deposits booked outside Canada with either Canadian residents or non-residents are excluded from M3.

foreign debt and to buy foreign raw materials and equipment.

Overall, foreign deposits by Canadians, when these are redeposited in Canadian branches, are automatically more important when foreign borrowings by Canadian entities are very large.

The second major reason foreign currency deposits in Canada became more important during the period 1975-80 is that these deposits could be used for exchange rate protection or speculation. This is not particularly significant when currencies are stable, but in 1976 it was widely believed that the Canadian dollar had become overvalued. As a result, many corporate treasurers, and lenders generally, shifted out of Canadian dollars into U.S. dollar denominated deposits, either for defensive reasons or as an outright speculation on a drop in the Canadian dollar. These trends also prevailed through most of 1977-81.

*M3, as currently defined to include only Canadian resident deposits of foreign currency booked in Canada, became much less useful as a monetary aggregate beginning in 1981.* This is because, in 1981, the application of the new 3 percent reserve requirement on foreign deposits booked in Canada led the banks to sharply run down this component of M3 and replace these deposits with reserve free offshore foreign deposits which are not included in M3. The reserve requirement on deposits booked in Canada has created an institutional impediment to the growth of foreign deposits in Canada such that the reduction in M3 growth is unrelated to monetary policy.

The new chartered bank statistical reporting system introduced in November 1981 also impacted the M3 series, introducing a discontinuity in this data as well. Specifically, since M2 is included in M3, all the impacts of the new reporting system discussed with respect to M2 in entry 5 are also reflected in M3.

Finally, there are two further changes with respect to M3. First, since M3 includes large non-personal CDs and BDNs which are not included in M2, the consolidation of bank subsidiaries into the banking data and the inclusion of foreign banks with Canadian bank charters increases M3 by the amount of their non-personal fixed term deposits. Second, to the extent that these subsidiaries and the foreign banks have *foreign deposits booked in Canada* with Canadian residents, M3 is further increased by their inclusion. The foreign deposit impact on M3 is small, however, since bank subsidiaries have very little foreign currency funding and foreign banks chartered in Canada would usually raise most of their foreign

deposit money outside Canada to escape the 3 percent reserve requirement.

Overall, the definitional changes occurring in November 1981 increased M3 by about \$5 billion in the first week of November 1981—an increase of about 4.2 percent.

As noted above, in November 1981, the Bank of Canada did not publish consistent data for M3 on a historical basis. That is, it did not set out back data including the consolidation of mortgage loan subsidiaries and foreign bank affiliates. Therefore, after November 1981, M3 could not be compared to M3 prior to November on a consistent basis. In March 1983, the Bank published this information, making M3 a “clean” series back to January 1970.<sup>12</sup>

Unlike M2 and M2+, M3 does not emerge as an important guide to policy because, being so broad, it tends to also reflect changes in general credit conditions as opposed to economic performance. For example, after the October 19 stock market crash the equity market dried up, there was a lender rush to high quality government securities, and interest rates fell—all developments which forced or encouraged corporate treasurers to seek bank financing as opposed to financing in the securities markets. This led banks to move aggressively to issue the large CDs and BDNs included in M3, but which are not included in M2; this held up M3 growth relative to M2.

## **6.,6a Currency Plus Total Canadian Dollar Privately Held Chartered Bank Deposits**

The sixth entry in the table at the top and bottom of page 6, is “currency plus total Canadian dollar privately held chartered bank deposits”. Some analysts refer to this series as M2-B because it is simply M2 plus the CDs and BDNs excluded from M2 and included in M3. (This was the definition of M2 prior to the Bank’s redefinition of the monetary aggregates in 1977.) Alternatively, M2-B is M3 less foreign deposits booked at Canadian banks with Canadian residents. As with M1, this data is available weekly from January 1953. This series (which the Bank did not include in its old *Weekly Financial Statistics Report*) is expected to become more popular in the future.

<sup>12</sup> “Technical note ...”, op. cit. pp. 3-33.

## 7. Memo: M2+ (M2 Plus Deposits at Trust and Mortgage Loan Companies and Deposits and Shares at Caisses Populaires and Credit Unions)

In December 1983, the Bank of Canada defined a new monetary aggregate—M2+ which, during 1987–1988, became the monetary aggregate with the best contemporaneous relationship to GDP (i.e., the most stable).<sup>13</sup> Then, in the Weekly Financial Statistics for February 26, 1988, the Bank began to report M2+ data each month. This series is M2, to which the Bank added the comparable deposits, notes and share capital of the important near banks (trust and mortgage loan companies, credit unions and caisses populaires). Thus, 1983 marked the first time the Bank published a monetary aggregate which was constructed in the U.S. style (i.e., an aggregate that includes similar deposit classes across a wide range of deposit taking institutions). The last three or four monthly observations for M2+ are estimated because data for credit unions and caisses populaires are available with a longer lag than the other components of M2+. This series has comparable properties to M2, but has the added advantage that it internalizes shifts in deposits between banks, trust companies and caisses populaires.

Finally, the Bank of Canada's Annual Report for 1983 published, for the first time, a chart (but no commentary) showing another broad aggregate—M3+.<sup>14</sup>

The publication of M2+ and M3+ clearly signal that future changes in the definitions of money in Canada will likely follow this trend and seek to derive aggregates containing similar kinds of deposits irrespective of the exact type of deposit taking institution. For example, in the future, M1 could be expected to include not only chequable deposits at banks but also chequable deposits with trust companies, caisses populaires, et cetera. An M1+ figure is not published in the WFS at this writing.

### III. SEASONALLY ADJUSTING THE MONETARY AGGREGATES

As noted earlier, the table at the bottom of page 6 of the WFS presents seasonally adjusted monetary

aggregate data. Presented on a monthly average basis, these data are, in fact, much more useful than the raw information shown at the top of page 6, as they portray the fundamental underlying trend in the aggregates over a 25-month period. (Twenty-five months are presented to allow the calculation of a two-year growth rate.) Using these series means that one should not be misled by short-term, week-to-week and month-to-month seasonal changes in the aggregates. The banking statistics seasonal adjustment factors for 1988 are included as table I. Actual weekly data for four months, shown at the top of page 6, are divided by the monthly seasonal factors to obtain the seasonally adjusted data shown at the bottom of page 6. Thus, a seasonal factor above 1.00 will produce a seasonally adjusted figure which is less than the raw figure and vice versa.

There is a pronounced seasonal pattern for the monetary aggregates. It can be seen from table I that currency outside banks (a component of M1) tends to be highest in the July/August and December vacation periods and lowest between January and June.

Demand deposits (the other component of M1), on a seasonal basis, fall very sharply in January–March (largely reflecting the shift toward interest earning RRSP deposits before the March 1 deadline) and then move up in April through July. In August–November, deposits on a seasonal basis ease lower and then show a very sharp decline in November (mainly reflecting a shift into CSBs). These deposits then show a big jump in December.

Personal savings deposits (the key element in M2) show a gradually rising seasonal trend from a December low through to a summer peak.

By contrast, non-personal term and notice deposits (corporate deposits included in M3) show a more pronounced seasonal variation. This series is seasonally the lowest in August but then jumps to the year's peak in December. It then drops steadily through August.

The monetary aggregates also show seasonal patterns. M1 for example, tends to rise sharply in December of each year, reflecting a big increase in both currency outside banks and demand deposits. However, M1 tends to show a large seasonal decline in January, and general seasonal weakness in M1 tends to persist through May.

M2 and M3 show a much less volatile seasonal pattern than M1. Here the December seasonal only increases slightly, and the January easing is less significant.

On page 6, all monthly data shown are averages of

<sup>13</sup> "Monetary Aggregates: Some Recent Developments," Bank of Canada Review, December 1983, pp 3–17.

<sup>14</sup> Bank of Canada, *Annual Report*, 1983 p 28.

SEASONAL ADJUSTMENT FACTORS FOR 1988  
FACTEURS DE DESAISONNALISATION POUR 1988  
Average of Wednesdays - Moyenne Mensuelle des Mercredis

Canadian dollar term and notice deposits <i>Dépôts en dollars canadiens à terme ou à préavis</i>			Canadian dollar major assets <i>Principaux avoirs en dollars canadiens</i>							
Non-personal term and notice <i>Dépôts personnels à terme ou à préavis autres que ceux des particuliers</i>										
	Personal savings <i>Dépôts d'épargne des particuliers</i>	Total	Liquid assets <i>Avoirs liquides</i>	Less liquid assets <i>Avoirs de seconde liquidité</i>	Total loans <i>Ensemble des prêts</i>	General loans <i>Prêts généraux</i>	Total personal loans <i>Prêts personnels total</i>	Business loans <i>Prêts aux entreprises</i>	Residential mortgage loans <i>Prêts hypothécaires à l'habitation</i>	
1988										
Jan./janv.	100.734	99.455	99.778	97.695	99.918	99.570	99.491	100.457	99.034	100.141
Feb./fév.	100.993	99.383	99.568	97.427	100.081	99.959	99.747	99.447	99.826	99.632
Mar./mars.	101.586	99.279	100.287	95.562	100.682	101.087	100.825	99.062	101.668	99.208
Apr./avr.	101.112	99.987	100.625	101.160	100.508	101.074	101.058	99.030	101.948	98.968
May/mai	99.720	100.586	99.916	100.071	99.890	100.090	100.122	99.694	100.170	98.804
June/juin	99.562	100.659	99.956	100.319	99.844	99.963	99.992	100.155	99.820	99.235
July/juil.	99.387	100.667	99.893	98.666	99.986	100.067	100.223	100.411	100.107	100.200
Aug./août	97.846	100.553	99.445	98.561	99.480	99.216	99.384	100.225	98.936	100.550
Sept./sept.	97.943	100.575	99.753	100.556	99.692	99.559	99.727	100.467	99.393	100.849
Oct./oct.	99.296	100.450	100.191	106.353	99.626	99.693	99.878	100.555	99.551	100.948
Nov./nov.	100.131	99.521	100.461	102.819	100.119	99.848	99.825	100.091	99.978	100.777
Dec./déc.	101.651	98.869	100.114	100.807	100.189	99.869	99.715	100.399	99.558	100.764

Monetary aggregates <i>Agrégats monétaires</i>					Credit measures <i>Mesures du crédit</i>		
Currency outside banks <i>Monnaie hors banques</i>	Demand deposits less private sector float <i>Dépôts à vue (moins effets du secteur privé en cours de compensation)</i>	M2 (M1 plus personal savings deposits and non-personal notice deposits) <i>M2 (M1 plus les dépôts d'épargne des particuliers et les dépôts à préavis autres que ceux des particuliers)</i>	M3 (Currency plus total privately- held chartered bank deposits) <i>M3 (Monnaie plus ensemble des dépôts bancaires du public)</i>	Currency plus total Canadian dollar privately- held chartered bank deposits <i>Monnaie plus ensemble des dépôts bancaires en dollars canadiens du public</i>	Short-term business credit <i>Crédit à court terme aux entreprises</i>	Residential mortgage credit <i>Crédit hypothécaire à l'habitation</i>	Consumer credit <i>Crédit à la consommation</i>
1988							
Jan./janv.	98.939	99.675	99.515	99.905	99.883	98.865	100.563
Feb./fév.	97.571	95.217	98.691	99.482	99.485	99.153	99.572
Mar./mars.	97.438	97.593	98.587	99.339	99.327	100.604	99.077
Apr./avr.	97.461	97.848	99.274	99.618	99.617	100.532	99.106
May/mai	98.842	98.249	100.342	100.079	100.104	100.474	99.757
June/juin	100.412	101.431	100.572	100.310	100.250	100.488	100.181
July/juil.	101.485	101.592	101.004	100.714	100.650	100.749	100.325
Aug./août	101.677	99.826	100.462	100.037	100.064	100.086	100.100
Sept./sept.	100.629	101.763	100.494	100.197	100.222	99.797	100.312
Oct./oct.	100.244	101.669	100.488	100.347	100.343	99.990	100.488
Nov./nov.	100.860	100.492	99.760	99.706	99.765	99.938	99.992
Dec./déc.	103.847	105.111	100.828	100.273	100.299	99.359	100.523

the four or five Wednesdays in the month. In the *Bank of Canada Review*, "Notes to the tables", it is noted that seasonally adjusted M1 is the sum of seasonally adjusted currency and seasonally adjusted demand deposits. The other aggregates—M2, M3 and currency plus total Canadian dollar privately held bank deposits—are seasonally adjusted as the sum of components.

Prior to February 1985, the Bank carried out its seasonal adjustment by means of the X-11 variant of the U.S. Bureau of the Census Method II Seasonal Adjustment Program. This programme employs a ratio to moving average technique. Since February 1985, a variant of this programme, X-11-ARIMA, has been used. This programme also uses a ratio to moving average technique on an observed series which may be augmented by one year of ARIMA forecasted and backcasted data.

The seasonal adjustment is recalculated when an additional 12 months data become available. Thus, the series are subject to annual revisions. The mail strikes in April/May 1974, November/December 1975, November 1978 and July 1981 caused distortions in the demand deposit series (a large build-up in demand deposits), both during the strikes and in the following months. These distortions affected the seasonal adjustment factors for the strike-affected months when the seasonals were recalculated incorporating 1974, 1975, 1978 and 1981 data. Thus, for demand deposits only, data revisions were made utilizing the "strike option" in the X-11 programme. The strike option is designed to deal with this type of problem, and it appears to have substantially, if not entirely, corrected the seasonal factors for these disturbances. The individual series, as well as the monetary aggregates, are adjusted independently.<sup>15</sup>

In March 1979, for the first time the Bank began to present seasonally adjusted data for currency in circulation and demand deposits and thus M1 to take account of large monthly variations in the currency and demand deposit series attributed to the number and exact days on which Wednesday reporting dates fall during a month. (This was done before the standard X-11 programme was run.)<sup>16</sup> For example, the Bank's research shows that there are ten possible Wednesday date combinations in any month. Months with five Wednesdays, and particularly those months

with Wednesdays falling on the first, fifteenth and twenty-ninth days of the month, will usually show relatively large increases in M1. This reflects a bunching of pay days around the beginning, middle and end of each month, leading to an increase in currency outside banks and demand deposits at these times. Also, currency and demand deposits increase at these times to reflect government disbursements which tend to be concentrated near the beginning, middle and end of each month. By contrast, a four-Wednesday month, especially if it avoids these key days (e.g., a month with Wednesdays on the 4th, 11th, 18th and 25th) will tend to show a relatively smaller increase in M1.

Because the Wednesday phenomenon is systematic, the Bank of Canada is able to estimate factors for dates of Wednesdays to account for it, using econometric techniques. (The regression analysis is available from the Bank.) These factors, which change each year, were originally presented in the March 1979 *Bank of Canada Review* for 1979 (page 19). The total factors, representing the regular seasonals, are adjusted by the Wednesday factors.

This new adjustment, announced by the Bank in February 1979, produced a smoother M1 series on a month-to-month basis, reducing or increasing ordinary seasonally adjusted M1 in any given month by up to about \$100 million depending on the Wednesday factor. The adjustment has very little impact on M1 growth over the longer term. However, M2 and M3 have not been seasonally adjusted using the Bank's Wednesday option, although this work is under way at the Bank.

In February 1985, the Bank of Canada announced a revised seasonal adjustment procedure and discussed this in a *Bank of Canada Review* article.<sup>17</sup> This procedure, referred to as the X-11 ARIMA method, was developed at Statistics Canada and is now used in the seasonal adjustment of its economic data (including the monetary aggregate data discussed here). The underlying methodology remains basically the same as the Census Method II X-11 procedure which the Bank had previously used.

The Bank described the new methodology as follows:

The X-11 ARIMA procedure improves the initial estimates of the seasonal factors for the most recent

<sup>15</sup> *Bank of Canada Review*, May 1977, p. S146.

<sup>16</sup> "Note on seasonal adjustment of monthly currency and demand deposit statistics", *Bank of Canada Review*, March 1979, pp. 16-22.

<sup>17</sup> "Note on the modification of seasonal adjustment procedures", *Bank of Canada Review*, March 1985, pp. 3-5.



data yet leaves the seasonal factors on past observations unchanged (emphasis supplied). As part of the process of estimating seasonal factors, both methods used the same weighted moving average technique in which the earlier and subsequent observations in the time series being adjusted are given smaller weights than the current observation. Near the end of a time series, where sufficient subsequent observations are unavailable, the Census Method II routine is forced to modify its estimation procedure in a manner that places greater than normal weight on the most recent available observations. The initial estimates of the seasonal factors for these observations are therefore not as good statistically as subsequent estimates made after additional years of data become available. What is different about the X-11 ARIMA modification is that an extrapolation technique (a Box-Jenkins seasonal Autoregressive Integrated Moving Average (ARIMA) model, as developed by G.E.P. Box and G.M. Jenkins "Time Series Analysis Forecasting and Control", Holden-Day, San Francisco, 1970 *parenthesis supplied*), is used to provide additional data by artificially extending the time series. This extended time series is then submitted to the X-11 routine. With the additional data, less weight needs to be placed on the most recent available observations in estimating seasonal factors for that period and, as a result, the initial estimates for these factors are significantly improved.<sup>18</sup>

The main advantages of X-11 ARIMA over the Census Method II variant were also discussed by the Bank in the *Review* article, using net demand deposits as an example. Specifically, the Bank noted that:

both procedures were applied to the data on these deposits, using time series ending in 1981, 1982, 1983 and 1984 successively. The resulting estimates of the seasonal factors for the year 1981 were then compared. Appreciable differences in the estimates generated by the two procedures are found only for the last three years of sample data (as well as for year-ahead forecasted factors). The root mean squares of these differences indicate that the divergence between the two initial estimates of the 1981 seasonal factors virtually disappears with the addition of data to 1984. However, the root mean squared error between initial and final 1981 seasonal factor estimates for X-11 ARIMA is only half as large as the corresponding value for the Census Method II procedure. Therefore, X-11 ARIMA has produced better initial estimates of the 1981 seasonal factors for net demand deposits and

has also improved these factors proportionately more with additional years of data.<sup>19</sup>

#### IV. HOW THE MONETARY AGGREGATES ARE AFFECTED BY SPECIFIC DEVELOPMENTS IN THE FOREIGN EXCHANGE MARKETS

##### 1. How Fluctuations in Foreign Exchange Reserves and the Exchange Rate Affect the Domestic Money Supply in the Short Run

Canadian money supply figures, shown on page 6 of the *Weekly Financial Statistics*, will not usually be affected by international considerations unless Canadian foreign exchange reserves are increasing or decreasing.<sup>20</sup> However, if foreign exchange reserves

<sup>19</sup> Ibid., p. 5.

<sup>20</sup> For example, if the current and capital accounts balance and a U.S. holder of a Canadian money market security decides to withdraw his funds from Canada, he sells the Canadian paper to a Canadian resident who pays for it by reducing his deposit balance at a Canadian bank. However, the American then sells these Canadian dollars for U.S. dollars, which are assumed to come from a Canadian exporter. The Canadian exporter then receives Canadian dollars which are deposited with a Canadian bank. Through this series of transactions (and assuming no time lags), Canadian dollar deposits change hands from Canadian residents to non-residents and back again, but the total amount of Canadian dollar deposits and foreign exchange reserves are not altered and so money supply is unaffected.

Alternatively, if a Canadian borrower sells U.S.-pay bonds to Americans, he receives U.S. funds. These funds are then sold for Canadian funds which come from Canadian importers (who sell Canadian dollars to buy U.S. goods) and are then deposited in the banks. Thus, Canadian dollar deposits of the borrower rise while Canadian dollar deposits of the importer fall by the same amount (assuming no time lags). The money supply is unchanged, again, because total Canadian dollar deposits and foreign exchange reserves have not changed.

Put another way, foreign borrowing does not increase the domestic money supply as long as foreign exchange reserves do not rise.

It is also important to note that not all international transactions affect the reserve position and, therefore, the domestic money supply. For example, if a Canadian export is paid for in Canadian dollars held on deposit with banks in Canada, there is no money supply impact. Similarly, if a Canadian borrower raises U.S. dollars in the U.S. and keeps the money on deposit with an American bank in the

<sup>18</sup> Ibid., pp. 3-4.

are increasing or decreasing, there is a potential money supply impact. For example, if the government is a net accumulator of foreign exchange reserves, either because of a net current or capital account surplus, the domestic money supply, broadly defined to include government deposits, will rise *unless offset* (sterilized) by the Bank of Canada. A strong currency is associated with an increase in money supply (and vice versa).<sup>21</sup> This occurs because when the Bank of Canada buys foreign currency from the private sector via the chartered banks, it has to supply Canadian dollars to the selling banks (i.e., pay the banks an exchange equivalent amount of Canadian dollars). These Canadian dollars are provided by doing swaps with the Exchange Fund account or by reducing government balances held at the Bank of Canada or by printing the money via new issue bonds or Treasury Bill takedowns by the Bank.<sup>22</sup> *In turn, chartered bank private deposits and bank cash are increased by the Canadian dollar equivalent of the foreign exchange bought by the Bank of Canada, and these funds can be lent by the banks.* Theoretically, the deposit multiplier then comes into play and the potential is created for a short-run decline in interest rates.

*Given a strong currency and a build-up of foreign exchange reserves, the Bank of Canada must either accept a shift toward expansionary policy or undertake offsetting actions.* If, as is usually the case,

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U.S., there is no impact on Canadian M1, M1-A, M2 or M3. However, M3 would rise if the foreign funds were redeposited in Canada with Canadian banks. If the Government of Canada does a foreign bond issue and redeposits these funds in U.S. dollars in Canada, M3 is not immediately affected because government deposits are not counted in any of the official definitions of money supply.<sup>21</sup> An increase in exchange reserves is financed by advances from the Consolidated Revenue Fund and vice versa. The government will have to decide the policy it wants to follow with respect to the size of its cash balances when the Canadian dollar is strong or weak.

The *specific* impact that a strong or weak currency has on money supply is discussed in the next subsection. It depends to a large extent on how money is defined. Generally speaking, Canadian definitions of broad money (M2 and M3) are such that currency fluctuations per se do not have a large direct impact on them.

<sup>22</sup> If the government does not want to use its balances to finance the purchase of foreign exchange, it could raise taxes or cut spending to generate funds or borrow from the public and the potential money supply impact would not exist.

the Bank will want to offset the increase in bank cash caused by the build-up in foreign exchange reserves, it would normally do this in a number of ways. These include: drawing down the system directly by drawing the funds out of the banks and depositing them with the Bank of Canada; unwinding swaps with the Exchange Fund account; selling securities to the banks; or increasing secondary reserve requirements. This offsetting action would leave bank deposits, bank cash and money supply unaffected.

During the period from late 1976 through 1985, the opposite case held in Canada. A sharp selloff in the Canadian dollar created a situation where the Bank was a net seller of its U.S. dollar foreign exchange reserves to the banks (in exchange for Canadian dollars) in order to moderate downward pressure on the Canadian dollar as it fell. (Foreign exchange reserves fell because of the large deficit on current account in the balance of payments and because there were large net capital outflows in 1981 related to the government's policy to Canadianize the oil and gas industry.) As a first round impact, this lowers private Canadian dollar deposits in the banking system which, in turn, creates the *potential* for a contraction in money supply growth and puts upward pressure on interest rates. The Bank of Canada would normally offset this by redepositing the Canadian dollars in the banking system to leave bank cash reserves unchanged. However, money supply (M1) would initially fall because the government redeposit is not defined to be part of the money supply.<sup>23</sup> This, in fact, was the approach followed by the Bank when it acted to insulate the domestic banking system from most of the liquidity draining impact of the weak Canadian dollar during 1977-85.<sup>24</sup>

The above discussion assesses the overall first and second round macro impacts that a weak currency has for money supply *broadly defined*. In general, a

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<sup>23</sup> Alternatively, the Government of Canada could do a foreign bond issue to replenish the loss of reserves. Once the funds are received and placed on deposit in Canada, bank cash would rise and offset the previous decline. Because government deposits are not counted as part of the money supply as defined, it would decline. However, once the government spends this money, M1, M2 and M3 will rise (i.e., the second round impacts would offset the tendency for M1 to decline).

<sup>24</sup> The Bank of Canada will normally offset any bank cash impact arising out of movements in foreign exchange reserves, since the Bank has separate policies and tools to manage these two different areas.

decline in foreign exchange reserves and a weak Canadian dollar will normally be associated with a decline in money supply and vice versa, *unless this is offset by the Bank of Canada as would normally be the case*. Within this context, the depressing effect a weak currency has on money supply growth manifests itself in a more specific sense.

## 2. Some Direct First Round Impacts of Foreign Exchange Reserve Fluctuations on Specific Definitions of Money

It is worthwhile noting here that changes in the Canadian dollar exchange rate probably do not have a major direct short-run impact on any of the Canadian money supply figures. A weak Canadian dollar, for example, should not normally have a large impact on M1, since M1 essentially consists of deposits used to finance day-to-day transactions (the transactions demand for money, rather than the speculative or investment demand for money). But, to the extent that a weak dollar leads to people drawing down their Canadian chequing accounts, M1 will decline.

M2, which contains several term deposit categories, is the series which, prior to 1978, would normally have been highly affected by currency speculation (i.e., a weak Canadian dollar would lead Canadian depositors to shift out of Canadian interest earning deposits to foreign interest earning deposits). However, when the Bank of Canada redefined M2 in late 1977, it excluded large corporate deposits (non-personal CDs and BDNs)—the very time deposit series that would be sensitive to changes in the exchange rate. *The net effect is that the Bank defined away much of the potential volatility in M2 which would result from changes in the Canadian dollar*. Under the 1977 definition, and assuming no M1 influences, M2 would only fall when the Canadian dollar weakened to the extent that *individual savers* and *smaller* corporate depositors with chequable and non-chequable notice deposits shift from Canadian dollar interest bearing deposits to foreign deposits. Because chequable and non-chequable corporate notice deposits are fairly stable and small in total, while individual savings deposits are collectively large but subject to millions of individual decisions involving relatively small amounts of money, these deposit categories do not seem to be highly sensitive to fluctuations in the exchange value of the Canadian dollar.

The series “currency plus total Canadian dollar privately held chartered bank deposits” shown in entries 7 and 7a (which prior to 1977 was the “official” M2 definition and today is unofficially referred to as M2-B) will pick up these fluctuations because M2-B includes corporate purchase money—BDNs and large CDs.

Finally, M3 will not be particularly sensitive to changes in the exchange rate because M3 includes *both* the large deposits not included in the new definition of M2 (BDNs and CDs) and foreign deposits booked in Canada both outright and swapped.<sup>25</sup> If the Canadian dollar weakens, for example, and corporations shift \$200 million out of large Canadian time deposits into foreign currency time deposits booked in Canada, M2 will be unaffected because neither deposit class is included in M2. With respect to M3, the \$200 million decrease in the corporate Canadian time deposit component of M3 is offset, at least initially, by the \$200 million increase in the foreign deposit component of M3. The net direct impact on M3 is zero. However, if the foreign currency deposit were booked with a non-resident abroad (say, by a bank looking to avoid the reserve requirement on foreign deposits booked in Canada), M3 would fall by the amount of the CD or BDN sale. (Note: this analysis does not take into account what would happen to the Ms if the banks then reacted to their sudden increase in foreign liabilities in various ways. The second round effects will not be neutral.)

Also, shifts by individual savers have little impact on M3 for the same reason. Since M3 includes M2, the drop in Canadian dollar deposits in M2—which are also included in M3—is offset by the increase in the foreign deposit component of M3.

In summary, actions of *Canadian residents in Canada* to a sharp decline or increase in the Canadian dollar do not have much direct impact on the money supply *as now defined* (although there will be indirect effects because interest rates will change and this, in turn, will alter money supply). M3 would be essentially unaffected, while M1 may be depressed slightly if the Canadian dollar weakens. M2 would tend to be depressed the most by a weak currency, but

<sup>25</sup> If a swap is done, the bank takes the client's Canadian dollars and sells him a U.S. dollar CD at the bank. Simultaneously, the bank repurchases the U.S. dollars from the customer for forward delivery. This transaction will tend to depress M1, M2 and the Canadian dollar in the spot market and strengthen the Canadian dollar forward.

this impact is much smaller under the 1977 redefinition of M2 compared to the old M2 (which included large corporate deposits). As a result, entries 7 and 7a, which represent the old M2, are the best series to use to examine the money supply impact of a strong or weak currency.

It is important to note that the Canadian money supply definitions mostly include the actions of Canadian residents booked with Canadian banks in Canada. Should a weak currency lead a large Canadian corporation to shift funds out of Canadian dollar time deposits into, for example, foreign currency deposits with an American or German bank or into a foreign deposit with a Canadian bank outside of Canada, M2 would be unaffected but M3 would theoretically drop by the full amount of the shift (as a first round effect). This is because there is no foreign currency deposit booked with a Canadian bank in Canada to offset the decline in the Canadian dollar deposit. Here again, the final impact is difficult to judge because the foreign bank or Canadian bank's foreign reaction to the deposit inflow and its second round impact on Canadian Ms is unclear. Also, to the extent that *foreigners* are active in the Canadian dollar with Canadian banks domestically, the money supply figures would be affected. Deposit activity with foreign banks outside Canada, though having a large impact on the Canadian dollar and indirectly on Canadian foreign exchange reserves, may or may not have a large short-run impact on Canadian money supply as defined by the Bank of Canada.

Overall, it can be seen that under normal circumstances a volatile currency is unlikely to have a dramatic *direct* impact on Canadian money supply, *given the 1977 definitions for money* and given that the Bank of Canada would normally offset part or all of the impact. This is especially true regarding the actions of Canadian residents. (However, there are events which can develop outside Canada that may or may not have a large impact on Canadian money supply.) The one exception is the so-called M2-B, which would pick up the impact of Canadian residents active in reducing their large Canadian dollar interest earning deposits in response to a weak exchange rate and vice versa.

### 3. The Indirect Impact of Changes in Foreign Exchange Reserves and the Exchange Rate on GDP, Interest Rates and Money Supply

In addition to foreign exchange reserve fluctuations having a *direct potential* short-run impact on the domestic money supply, there are also two important *indirect* and longer term effects. These indirect effects can both *reinforce* and *offset* the first round impact in the short run and the long run. This can make it difficult to arrive at a "bottom line" conclusion as to exactly how a change in the exchange rate, resulting from a change in exchange reserves, affects the money supply.

First, a foreign exchange reserve loss would lead directly to weakness in the Canadian dollar and a potential money supply decline. But, at the same time, a weak currency would lead to higher inflation, thus leading to higher nominal GDP growth in the short run (unless offset by a drop in real output). This, in turn, would increase M1 demand and money supply according to the income elasticity in the demand for money function. Thus the net impact is ambiguous. (In the long run, the impact would be smaller if real output fell, although if real exports increase in response to the drop in the exchange rate, money demand and money supply would still rise.)

Second, a weak currency and/or higher inflation in Canada would automatically lead to higher domestic interest rates. Further, as we saw in 1978-81, a weakening currency will usually also lead the government to actively push to raise interest rates even further to discourage capital outflows and encourage Canadians to borrow foreign currencies. Here again, working through the demand for money equation, which has a negative coefficient for interest rates, higher interest rates will depress M1 and may raise M2/M3. Moreover, if the policy induced rise in interest rates is achieved by the Bank of Canada selling securities in the open market (rather than via Bank rate increases), the resulting direct reduction in private deposits will reduce M1 directly, *unless offset by the Bank*.

Over time, the Bank of Canada can, and usually does, offset this by redepositing the money gained from the bond or Bill sales in the banking system. This takes time to impact, since the redeposit of government funds is not immediately counted in any of the formal definitions of money.

This is exactly the situation which developed in December 1978 and January 1979. During this period, very heavy sales of mid- and long-term bonds by the

Bank reduced private deposits substantially. This decline was sufficient to put short-run M1 growth in January 1979 below the Bank's target band. However, as the higher government redeposit filtered back into private deposits, M1 began to rise again at a faster rate.<sup>26</sup>

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<sup>26</sup> The government has several other options to offset the tendency for M1 to fall. They include: undertaking swaps with the Exchange Fund account (which can be unwound if less system cash is needed later on); increasing the Treasury Bill tender and having the Bank buy more Bills (which can be matured if less system cash becomes desirable later on); bringing more new public issue bond offerings to allow the Bank of Canada to buy more bonds; making the gross bond issues bigger with the Bank taking the step-up in size; having the government do a direct placement of bonds with the Bank of Canada.



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# CHAPTER 6

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SELECTED SEASONALLY  
ADJUSTED SERIES:  
CHARTERED BANK ASSETS  
AND LIABILITIES;  
AND  
EXCHANGE RATES

1 Total loans do not include day-to-day loans, call loans, residential mortgage loans and loans for purchase of Canada Savings Bonds.  
L'ensemble des prêts ne comprend pas les catégories spéciales suivantes: prêts au jour le jour, prêts à vue sur titres, prêts hypothécaires à l'habitation destinés à financer l'achat d'obligations d'épargne du Canada.

Canadian dollar expressed in U.S. dollars.  
Dollar canadien exprimé en dollars E.-U.



The table at the top of page 7 in the WFS presents a grab bag of banking data. It sets out 11 "Selected Seasonally Adjusted Series for Chartered Bank Assets and Liabilities". This table duplicates information shown each month in the *Bank of Canada Review*, table C9.

The bottom half of the page sets out selected exchange rate data which really fit in better with the financial market statistics shown on pages 8 and 9. The information shown in this table duplicates data shown in table 11 in the *Bank of Canada Review* with one exception. The WFS does not show the Canadian dollar to SDR exchange rate—an exchange rate which is shown in the monthly *Review*.

## **I. SELECTED SEASONALLY ADJUSTED SERIES: CHARTERED BANK (CANADIAN DOLLAR) ASSETS AND LIABILITIES**

The selected seasonally adjusted chartered bank assets and liabilities table covers the same data that is shown on pages 2-4 of the WFS. For this reason, the series is not discussed again here in detail. However, this table offers two specific advantages over pages 2-4. First, data presented here is shown on a monthly average basis covering a 25-month period, compared to the 13 weeks and four complete months of data shown on pages 2-4. The end result is that the reader has a much longer time series to work with in assessing key bank assets and liabilities. For example, a one- or two-year growth rate can be calculated. Also, the longer time series allows the Bank of Canada to reflect data revisions going back two years instead of just four months.

Second, the monthly data shown here is seasonally adjusted to eliminate known monthly patterns.

### **1. Total Canadian Dollar Major Assets**

Total Canadian dollar major assets were explained in chapter 2, entry 27. Entry 1 shows this data on a seasonally adjusted basis by month covering a 25-month period.

### **2. Liquid Assets**

Canadian dollar liquid assets were explained in chapter 2, entry 9. This series includes Bank of Canada notes, deposits at the Bank of Canada, day

loans, Government of Canada Treasury Bills, Government of Canada bonds and total call and other short loans. Entry 2 shows this data on a seasonally adjusted basis by month covering a 25-month period.

### **3. Less Liquid Assets**

Canadian dollar less liquid assets were explained in chapter 2, entry 26. These assets mainly include loans, mortgages and non-Government of Canada securities. Entry 3 shows this data on a seasonally adjusted basis by month covering a 25-month period.

### **4. Total Loans**

Total Canadian dollar loans (which, in this series, excludes day-to-day loans, call loans, mortgage loans and loans for the purchase of Canada Savings Bonds) were explained in chapter 2. Entry 4 shows this data on a seasonally adjusted basis by month covering a 25-month period.

### **5. General Loans**

Canadian dollar general loans were explained in chapter 2, entry 20. This series includes business and personal loans, loans to farmers, loans to health, education, welfare and religious organizations, loans to grain dealers, and to sales finance and consumer loan companies. The series excludes loans to provinces and municipalities and to individuals for the purchase of CSBs. Entry 5 shows this data on a seasonally adjusted basis by month covering a 25-month period.

### **6. Total Personal Loans**

Canadian dollar personal loans shown at month end were explained in chapter 2, entry 20(b). Entry 6 shows this data on a seasonally adjusted basis by month covering a 25-month period.

### **7. Business Loans**

Canadian dollar business loans were explained in chapter 2, entry 20a. Here, entry 7 shows this data on a seasonally adjusted basis by month covering a 25-month period.

## 8. Residential Mortgages

Residential mortgages were covered in chapter 2 under entry 21.

## 9. Canadian Dollar Demand Deposits

The last three entries in the table at the top of page 7 show three different Canadian dollar deposit series taken from the liability side of the banking system's balance sheet.

The first deposit series shown is Canadian dollar demand deposits which are net of estimated private sector float. This series was explained in chapter 3, entry 4. As with the asset data, entry 9 shows this series on a seasonally adjusted basis by month covering a 25-month period.

## 10. Canadian Dollar Personal Savings Deposits

Total Canadian dollar personal savings deposits were explained in chapter 3 and set out in entry 1(f). Here, entry 10 shows this data on a seasonally adjusted basis by month covering a 25-month period.

## 11. Canadian Dollar Non-Personal Term and Notice Deposits

Total Canadian dollar non-personal term and notice deposits were explained in chapter 3 and set out in entry 2d.

## II. EXCHANGE RATES

The table at the bottom of page 7 sets out relevant exchange rate information. Rates are shown for the last four month ends, as of Wednesday for the last 13 weeks, and the close for each day of the latest week.

## 12. U.S. Dollar Spot Rates in Canada

Four U.S. dollar exchange rates are shown in the table at the bottom of page 7. These are the rates for the U.S. dollar prevailing in the inter-bank market in Canada. The U.S. dollar rate is quoted at a premium (P) or discount (D) to the Canadian dollar. For example, if one U.S. dollar in Canada buys C\$1.18 the U.S. dollar is said to be at an 18 percent premium to the Canadian dollar. When there is no premium or discount, the C\$/U.S.\$ relationship is said to be at

par. The rate shown has been expressed in decimals since March 5, 1973.

12a

12b

12c

12d

13

14

EXCHANGE RATES  
COURS DU CHANGE

U.S. dollar

Dollar E.-U.

Canadian dollars per unit

En dollars canadiens par unité

Spot rates

Cours du comptant

High

Low

Closing

Average

Haut

Bas

Clôture

noon

Moyenne

à midi

Reciprocal  
of the  
closing  
rate (1)

Inverse du  
cours de  
clôture (1)

U.S. dollar

Dollar E.-U.

Canadian cents  
per unit

En cents cana-  
diens par unité

3-month forward  
spread

Report ou déport  
à 3 mois

Closing

Average

Clôture

noon

Moyenne

à midi

B3415

B3416

B3414

B3400

1.3375

1.3037

1.3055

1.3192

0.7660

0.15

0.24

1.3418

1.3007

1.3377

1.3189

0.7476

0.46

0.31

1.3492

1.3330

1.3380

1.3412

0.7474

0.35

0.34

1.3450

1.3290

1.3320

1.3386

0.7508

0.42

0.42

1.3474

1.3347

1.3390

1.3395

0.7468

0.35

0.43

1.3415

1.3330

1.3415

1.3366

0.7454

0.32

0.30

1.3490

1.3368

1.3485

1.3413

0.7416

0.36

0.31

1.3492

1.3428

1.3439

1.3464

0.7441

0.38

0.35

1.3450

1.3370

1.3414

1.3412

0.7455

0.42

0.38

1.3445

1.3387

1.3408

1.3420

0.7458

0.40

0.41

1.3426

1.3384

1.3412

1.3409

0.7456

0.45

0.43

1.3420

1.3325

1.3325

1.3366

0.7505

0.42

0.43

1.3350

1.3290

1.3320

1.3319

0.7508

0.42

0.41

1.3312

1.3227

1.3244

1.3266

0.7551

0.53

0.50

1.3253

1.3173

1.3233

1.3211

0.7557

0.59

0.57

As is well known, the exchange value of the U.S. dollar in Canada is determined by the daily and ongoing supply and demand for U.S. dollars in the Canadian inter-bank market. In turn, this supply and demand is determined by items of a current account nature and by capital flows.

Over long periods of time, the Canadian current account balance and the so-called "basic" balance (current account plus long-term capital flows) are the keys for exchange rate determination, reflecting Canada's price/cost/productivity performance compared to its trading partners. However, in the short run, short-term capital flows, the outlook for the currency, leads and lags, speculative forces, and Bank of Canada market activity on behalf of the Exchange Fund account all play a key role in moving the exchange rate up or down.<sup>1</sup> Trends in the spot

<sup>1</sup> Leads and lags in the market are critical in the short run. For example, if the Canadian dollar is expected to appreciate, non-residents would try to buy the Canadian dollar in advance or accelerate their payments for Canadian goods; Canadians would tend to delay buying foreign currencies till the last minute or postpone paying for U.S. goods and services. Therefore, it can be seen that the "leads and lags" phenomena will tend to push a strong currency higher and push a weak currency lower, making the currency more volatile.

exchange rate can have important implications for the Bank's monetary policy.

a) *High*

The high rate represents the highest quoted rate for the U.S. dollar in Canada for the specific period—month ending, week ending, or day ending.

b) *Low*

The low rate represents the lowest quoted rate for the U.S. dollar in Canada for the specified month, week or day.

c) *Closing*

The closing rate is the rate prevailing at the close of trading in the Canadian inter-bank market for the relevant month, week or day.

d) *Average Noon Rate*

The average noon rate has been calculated in two different ways. Before January 1, 1980, the U.S. dollar noon average rate was based on rates prevailing in the inter-bank market at noon Ottawa time. Since the beginning of 1980, the average noon rate is based on representative rates in the inter-bank market in a short period just before and just after noon.

### 13. Reciprocal of the Closing Rate

The reciprocal of the closing rate is the inverse of the spot rates shown in entry 12c (i.e., the Canadian dollar expressed in terms of the U.S. dollar).

When the U.S. dollar is shown at a premium in entry 12c on the Bank Statement, the reciprocal (the Canadian dollar in U.S. funds) will be at a discount. The U.S. premium in Canada will not be the same as the Canadian dollar discount in the U.S. For example, if the U.S. dollar in Canada is shown in entry 12c as \$1.18, then the reciprocal will be

$$\frac{1.00}{1.18} = \$0.8475, \text{ i.e., a 15.25 percent discount. The}$$

formula to convert a premium into a discount is

$$\frac{P}{P+1} = D, \text{ while the formula to convert a discount to a}$$

$$\text{premium is } \frac{D}{1-D} = P.$$

### 14. 90-Day Forward Spread (on the U.S. Dollar in Canada)

Page 7 of the Bank Statement shows close and noon averages for the three-month forward spread over spot for the U.S. dollar in the Canadian inter-bank market. As will be shown shortly, these premiums or discounts will be approximately equal to the interest rate differential between Canada and the Eurodollar market for the indicated term of the debt securities. The rate is always quoted as a premium or discount, in points, from the spot price, i.e., the forward spread is quoted as the spot price plus the forward premium or minus the forward discount. Spreads shown in entry 14 are premiums unless preceded by a minus sign, then they are discounts. Thus, a figure of -0.89 means the U.S. dollar for three-month forward delivery in Canada trades at an 89 point discount to the spot rate.

13		14		15			
Reciprocal of the closing rate (1) <i>Inverse du cours de clôture (1)</i>		U.S. dollar <i>Dollar E.-U.</i> Canadian cents per unit <i>En cents canadiens par unité</i> 3-month forward spread <i>Report ou déport à 3 mois</i> Closing <i>Cloture</i>		Other currencies <i>Autres monnaies</i> Average of noon spot rates <i>Moyenne des cours du comptant à midi</i> Canadian dollars per unit <i>En dollars canadiens par unité</i>			
				British pound <i>Livre sterling</i>	French franc <i>franc français</i>	German mark <i>Mark allemand</i>	Swiss franc <i>franc suisse</i>
				B3412	B3404	B3405	B3411
0.7660	0.15	0.24	2.1010	0.2160	0.7199	0.8574	
0.7476	0.46	0.31	2.1523	0.2187	0.7283	0.8824	
0.7474	0.35	0.34	2.2349	0.2245	0.7502	0.9124	
0.7508	0.42	0.42	2.1808	0.2204	0.7361	0.8874	
0.7488	0.35	0.43	2.2461	0.2253	0.7530	0.9178	
0.7454	0.32	0.30	2.2335	0.2235	0.7475	0.9097	
0.7416	0.36	0.31	2.2545	0.2255	0.7538	0.9181	
0.7441	0.38	0.35	2.2269	0.2247	0.7509	0.9127	
0.7453	0.42	0.38	2.1907	0.2211	0.7390	0.8915	
0.7458	0.40	0.41	2.2051	0.2234	0.7436	0.8971	
0.7456	0.45	0.43	2.2029	0.2211	0.7383	0.8896	
0.7505	0.42	0.43	2.1550	0.2189	0.7305	0.8759	
0.7508	0.42	0.41	2.1438	0.2185	0.7283	0.8779	
0.7551	0.53	0.50	2.1443	0.2166	0.7216	0.8667	
0.7557	0.59	0.57	2.1583	0.2154	0.7175	0.8607	

In spite of the tremendous importance of the forward market, the forward spread is generally not well understood by monetary analysts. Some think that the forward rate is simply the market's expected future spot rate. That is, if the spot Canadian dollar is at par with the U.S. dollar, while the three-month forward spread on the U.S. dollar in Canada is at a 100 point premium, the resulting \$1.01 for the U.S. dollar for three-month forward delivery implies that the foreign exchange market is forecasting a \$1.01 spot U.S. dollar in three months. In fact, the main factor in determining the forward price (the forward pick-up or loss against spot) is *the interest rate differential* on similar low risk assets between pairs of countries.

Because the mechanism for determining forward exchange rates is less well understood compared to the mechanism for determining the spot rate, it is worthwhile digressing slightly at this point to discuss the market mechanism for determining forward prices.

a) *The Importance of Interest Rates in Determining the Forward Premium or Discount on the U.S. Dollar in Canada*

Generally speaking, banks act as a "conduit" in the foreign exchange business, seeking to match their assets and liabilities when customers generate long or short positions in the bank's forward book. A specific example, using Canadian and U.S. dollars, will show how the three-month forward premium or discount to spot is established as being approximately equal to the annual interest rate differential between Canada and the U.S. Eurodollar market (neglecting expectational effects).

Typically, if a Canadian exporter sells a product to the U.S. for U.S. dollar payment, say, in three months, the exporter would then ask his bank to guarantee a certain Canadian dollar price for these U.S. dollars today to eliminate the foreign exchange risk and lock in the future Canadian dollar proceeds. (This assists corporations in planning their cash flow and reduces their risk.) Thus, the bank is asked to pay a specified Canadian price now for U.S. dollars that are actually received in three months. The bank, if it decides to undertake the transaction, will have agreed to make a forward purchase of U.S. dollars in exchange for Canadian and will be "long" the U.S. currency in three months at a certain price set today.

At this point, the bank will normally cover its position in one of two ways. First, it could do an

offsetting forward transaction (i.e., short the U.S. dollar three-month forward with another bank). Alternatively, a more common procedure is for the bank to undertake a two step covering operation. The first step is discussed here as it pertains to establishing the forward price. (There is a second step which is discussed in footnote 2.) Specifically, the first step is for the bank to sell the equivalent amount of U.S. dollars for Canadian dollars at the spot rate so that it has protected itself against an exchange rate movement (i.e., the bank balances a forward U.S. dollar purchase with a spot U.S. dollar sale).<sup>2</sup>

It will be noted that in this transaction the sale of U.S. dollars at spot requires the bank to give up the earning power of these U.S. dollars for three months, while it is theoretically able to invest the Canadian dollars for three months in an interest earning asset. *Thus, the bank's cost of financing the forward position is the interest rate differential between Canada and the U.S. or Eurodollar market.* If, for example, 90-day interest rates are 10 percent in Canada and 9 percent in the Eurodollar market, the bank would quote the customer a forward U.S. dollar exchange rate at a premium to spot. For example, if the spot U.S. dollar in Canada trades at \$1.25 and the interest rate differential at three months is 1 percent in favour of Canada, then the forward premium on the U.S. dollar in Canada would be 1 percent divided by four

<sup>2</sup> There are several reasons why the typical bank, having covered its risk of capital loss (the foreign exchange exposure), will still want to return to its original flat position in both its spot and forward books taken separately. The most important reason is that by covering a forward position in the spot market, the bank still faces the risk that the forward spread against spot will change (i.e., there is an interest rate risk). Thus, the bank's *second priority* is usually to cover the time differences between the maturities of different forward contracts.

This covering is done via a chartered bank swap in the inter-bank market. As in the example above, if a bank is "long" U.S. dollars for forward delivery and "short" the U.S. dollar in the spot market, it will negotiate a swap involving the simultaneous sale of U.S. dollars forward (to balance the forward book) and purchase of the spot U.S. position (to balance the spot book). These transactions are usually done simultaneously with the same client (another bank) at a price which reflects the going spread between the spot and forward rates. As noted above, this spread is primarily determined by interest rate differentials.

In summary, the inter-bank swap is used to cover a long or short position in the forward market *after* the capital loss potential on the forward (FX risk) has been covered by an offsetting spot transaction.

quarters—about 25 points. So, if the spot U.S. dollar were \$1.25, the U.S. dollar for three-month forward delivery in Canada would trade at a premium of 25 points and would theoretically be worth C\$1.2525. Although this analysis is overly simplified and neglects many other factors (including various ways the banks can cover exposed forward positions), it can be seen *that the interest rate differential determines the spread between the spot and forward values for the U.S. dollar in Canada.*

It will also be noted that if Canadian short-term interest rates are above comparable U.S. Eurodollar rates (as is usually the case), the U.S. dollar in Canada will trade at a premium in the forward market, reflecting the fact that it is cheaper for traders to borrow U.S. dollars. Alternatively, if U.S. Eurodollar rates exceed Canadian rates, the U.S. dollar will trade at a forward discount to spot in Canada.

If Canadian interest rates exceed U.S. Eurodollar rates and then *rise* further relative to U.S. rates, the U.S. dollar forwards will trade at a larger premium to spot in Canada. This would check a potential fully hedged capital inflow by reducing the all-in return to the foreign lender in Canadian paper and raising the all-in cost to the Canadian borrower in New York. On the other hand, if Canadian rates should *fall* relative to U.S. Eurodollar rates, the forward premium on the U.S. dollar in Canada would narrow.

This analysis makes the point that the forward spread and the exchange rate for future delivery do not really have a life of their own. In the absence of extreme speculative effects, the forward premium or discount to spot on a currency is best thought of as a “shock absorber” which tends to move in response to short-term interest rate differentials between pairs of countries around the world. If there were no adverse speculative forces in the market and if all interest rates were equal around the world, then the U.S. dollar for future delivery in Canada would be at or close to the spot price (in equilibrium). On the Bank Statement, the U.S. dollar for three-month forward delivery in Canada would be equal to the spot price. In this case, entry 14 data would be zero.

#### b) *Converting Explicit Interest Rate Differentials into the Forward Spread and Vice Versa*

Given that the various interest rate differentials for different terms between two currencies are established in the market, the forward prices (relative to spot) will be established simultaneously. A specific example of

what occurs is set out here, given a hypothetical set of spot and forward rates (table II).<sup>3</sup>

TABLE II

#### FORWARD U.S. DOLLAR RATES IN CANADA

Spot and Forward Rates	Fwd Differential Against Spot(in points)	
	+ = pickup; - = loss Bid/Offer	
Bid    Offer		
Cash(Spot):	\$1.1391-1.1393	-
1 mo. fwd.:	1.1394-1.1398	+ 3-5    (P)
2 mo. fwd.:	1.1398-1.1402	+ 7-9    (P)
3 mo. fwd.:	1.1403-1.1407	+ 12-14    (P)
6 mo. fwd.:	1.1406-1.1412	+ 15-19    (P)
1 yr. fwd.:	1.1431-1.1443	+ 40-50    (P)

These forwards can also be used to work backwards to obtain the interest rate differentials which underlie the forward spreads. Here, the forward premiums (P) against spot are converted to yields (implicit interest rates) by annualizing the forward differential against spot. For example, with a forward rate of 13 points (0.13 percent) for three-months delivery (mid-market), the figure that would show up in entry 14 of the Bank Statement would give a yield spread equivalent of .13 times four quarters = 0.52 percent. A six-month forward of 17 points is multiplied by two to arrive at 0.34 percent.<sup>4</sup>

#### 15. Average of Noon Spot Rates for (Selected) Other Currencies Against the Canadian Dollar

The next five columns of the table at the bottom of page 7 set out the exchange value for five important non-U.S. foreign currencies against the Canadian dollar. The average noon spot rate is shown for the British pound, French franc, German mark, Swiss

<sup>3</sup> The normal quoted forward market is up to one year in term, although the most active trade occurs in the one- to six-month term where the majority of foreign trade transactions are hedged. Hedges can be done for one- to five-year terms, although the longer the term the wider the bid-ask spread to reflect reduced liquidity. On occasion, hedges can be done for more than five years.

<sup>4</sup> The analysis here implicitly assumes all months have 30 days and a year has 360 days.

franc, and Japanese yen. However, unlike the U.S. dollar quotes which are based on actual quoted rates for specific currency transactions in the Canadian inter-bank market, the published values for these five currencies are *derived* quotes. They are based on nominal quotes for the five currencies *in terms of U.S. dollars* which are then converted into Canadian dollars by applying the U.S.-Canadian dollar noon quote (Ottawa time). This procedure is followed because these five currencies do not trade extensively in the Canadian inter-bank market.

15

16

BCR Table I  
RBC Tableau I

Other currencies

*Autres monnaies*

Average of noon spot rates

*Moyenne des cours du comptant à midi*

Canadian dollars per unit

*En dollars canadiens par unité*

British pound	French franc	German mark	Swiss franc	Japanese yen
<i>Livre</i>	<i>français</i>	<i>allemand</i>	<i>suisse</i>	<i>japonais</i>
<i>sterling</i>				

Canadian  
dollar index  
against G-10  
currencies  
*Indice des  
cours du  
dollar  
canadien  
vis-à-vis  
des devises  
du G-10*  
1971 = 100

B3412	B3404	B3405	B3411	B3407	B3418
2.1010	0.2160	0.7189	0.8574	0.008715	72.94
2.1523	0.2187	0.7283	0.8824	0.009238	72.55
2.2349	0.2245	0.7502	0.9124	0.009545	71.14
2.1808	0.2204	0.7361	0.8874	0.009264	71.57
2.2461	0.2253	0.7530	0.9178	0.009597	71.15
2.2335	0.2238	0.7475	0.9097	0.009571	71.36
2.2545	0.2255	0.7538	0.9181	0.009599	71.06
2.2269	0.2247	0.7509	0.9127	0.009499	70.95
2.1907	0.2211	0.7380	0.8915	0.009343	71.39
2.2051	0.2224	0.7438	0.8971	0.009367	71.28
2.2029	0.2211	0.7383	0.8896	0.009311	71.40
2.1550	0.2189	0.7305	0.8799	0.009200	71.76
2.1438	0.2185	0.7288	0.8778	0.009092	72.05
2.1443	0.2166	0.7216	0.8667	0.008900	72.44
2.1383	0.2154	0.7175	0.8607	0.008793	72.78

#### 16. Canadian Dollar Index Against G-10 Currencies (1971 = 100)<sup>5</sup>

On August 9, 1984, the Bank of Canada started to publish a weekly trade weighted average exchange rate index for the Canadian dollar in the WFS. The index was calibrated to have an average value of 100 in 1971. Data is available weekly from August 1983 and quarterly from the beginning of 1971.

Historical weights for each currency were derived from Canadian merchandise trade flows with G-10 countries over the five years 1977 through 1981. Trade with these countries accounted for approximately 84 percent of Canada's total

merchandise trade during this period. The weights do *not* include non-merchandise trade items (i.e., services), since service account data are not available in sufficient detail nor do they take account of capital flows.

The *level* of the index itself, shown in column 16, has no significance because the base period value can be chosen arbitrarily. Therefore, it is not meaningful to compare the level of the index with the actual value of the Canadian dollar in U.S. funds or with any other actual exchange rate. Instead, the *level of the index in a period has significance only relative to its level in other periods*.<sup>6</sup>

The index is computed as a geometric weighted average of currencies. The percentage change in this index is essentially equal to the trade weighted average of the percentage changes in individual exchange rates. An increase in the index indicates an increase in the foreign exchange value of the Canadian dollar relative to G-10 countries, and a decrease represents a depreciation.

Not surprisingly, the U.S. dollar has the dominant weight. It accounts for over 80 percent of the index weight, reflecting the fact that over 80 percent of Canada's merchandise trade with G-10 countries is with the United States.<sup>7</sup> Because of the importance of the United States, the weighted index of the Canadian dollar against other G-10 currencies has in fact moved very similarly to the Canadian-U.S. dollar exchange rate, notwithstanding the large swings against the Canadian and U.S. dollars of other major currencies.

<sup>6</sup> Ibid., p. 19.

<sup>7</sup> The 1984 weights assigned to the G-10 currencies were:

United States .818	Italy .012
Japan .060	Netherlands .011
United Kingdom .042	Belgium .009
Germany .024	Sweden .005
France .014	Switzerland .005

<sup>5</sup> See "Technical note: A weighted-average exchange rate index for the Canadian dollar", *Bank of Canada Review*, September 1984, pp. 19-24.

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# CHAPTER 7

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## FINANCIAL MARKET STATISTICS AND PRICES AND YIELDS FOR GOVERNMENT OF CANADA MARKETABLE BONDS

Column	1	2a	2b	3a	3b	3c	4a	4b	4c				
Wednesday Le mercredi	FINANCIAL MARKET STATISTICS STATISTIQUES DU MARCHÉ FINANCIER								BCR Tables F1 and F2 RBC Tableaux F1 et F2				
	Bank of Canada Banque du Canada			Chartered bank loan rates Taux des prêts bancaires			Chartered bank deposit rates Taux des dépôts bancaires						
	Bank Rate (effective date in brackets) Taux officiel d'escompte (date d'entrée en vigueur entre parenthèses)	Millions of dollars En millions de dollars	Purchase and resale agreements Prises en pension	Day loans closing rate Prêts au jour le jour (taux de clôture)	Prime business Taux de base aux entreprises	Conventional mortgage Taux des prêts hypothécaires ordinaires	Deposit receipts Certificats de dépôt	Non chequable savings deposits Dépôts d'épargne non transférables par chèques	5-year personal fixed-term deposits Dépôts à 5 ans des particuliers				
		Avances to members of the Canadian Payments Association (weekly average) Avances aux membres de l'Association canadienne des paiements (moyenne hebdomadaire)	Weekly average during week Moyenne hebdomadaire	Maximum week Maximum de la semaine		1 year 5 ans	30-day A 30 90-day A 90 Jours Jours						
1987	A 1	7.05 (M26)	744.4	398.6	663.7	7.00	8.75	9.00	10.00	6.59	7.09	4.25	6.75
	8	7.15 (A2)	668.1	85.1	199.6	7.13	8.75	9.00	10.00	5.99	6.95	4.25	6.75
	15	7.90 (A15)	728.8	1.8	9.0	6.88	8.75	9.00	10.50	6.07	7.34	4.25	6.75
	22	7.90 (A15)	713.4	90.0	152.0	7.25	8.75	9.25	10.75	6.31	6.03	4.25	6.75
	29	8.26 (A23)	678.7	82.2	324.8	7.25	9.25	9.50	11.00	7.19	8.37	4.75	7.00
	M 6	8.33 (A30)	688.0	-	-	7.00	9.25	9.50	11.00	6.56	7.60	4.75	7.00
	13	8.17 (M7)	633.9	2.2	11.0	7.25	9.25	9.50	11.00	6.47	7.90	4.75	7.00
	20	8.07 (M14)	680.0	37.4	149.6	7.38	9.25	9.50	11.00	6.67	8.22	4.75	7.00
	27	8.54 (M21)	640.8	63.3	162.0	8.00	9.50	9.75	11.25	6.50	6.59	4.75	7.00
	J 3	8.44 (M28)	700.0	229.5	462.0	8.38	9.50	9.75	11.25	7.67	8.45	4.75	7.00
	10	8.50 (J4)	634.3	-	-	8.25	9.50	9.75	11.25	7.04	8.42	4.75	7.00
	17	8.58 (J11)	659.3	70.5	199.4	8.38	9.50	9.75	11.25	7.83	8.39	4.75	7.00
	24	8.59 (J18)	634.6	105.5	365.4	8.38	9.50	9.75	11.25	6.75	8.37	4.75	7.00
	J 1	8.54 (J25)	488.6	496.3	941.5	8.50	9.50	9.75	11.25	6.30	8.10	4.75	7.00
	8	8.60 (J2)	607.5	216.6	688.0	8.50	9.50	9.75	11.25	6.93	7.94	4.75	7.00
	15	8.64 (J9)	559.3	149.7	311.2	8.63	9.50	9.75	11.25	7.39	7.00	4.75	7.00

Column

5

6

7

8

9a

9b

9c

10a

10b

10c

Wednesday

Le

mercredi

FINANCIAL MARKET STATISTICS

STATISTIQUES DU MARCHÉ FINANCIER

Continued

suite

Overnight money market financing rate(1)

Taux des avances à un jour(1)

Government of Canada deposits: Most recent 7-day tender average(2)

Dépôts du gouvernement du Canada: rendement moyen de la plus récente adjudication en 7 jours(2)

Prime corporate paper rates

Taux du papier de premier choix des sociétés

30-day 90-day

A 30 A 90

jours jours

Bankers' acceptances

30-day rate

Taux des acceptations bancaires à 30 jours

Other bond yield averages

(McLeod, Young, Weir)

Rendement moyen d'autres types d'obligations (McLeod, Young, Weir)

Provincials, weighted long-term

Toutes les sociétés

Weighted long-term

Moyenne pondérée (long terme)

United States

Etats-Unis

Commercial paper (adjusted)

Papier commercial (taux corrigés)

30-day 90-day

A 30 A 90

jours jours

Prime rate charged by banks

Taux de base des prêts bancaires

Euro-U.S. dollar deposits in London 3-months (offer)

Dépôts à 3 mois en euro-dollars américains à Londres (offerts) (taux corrigés)

1987

A 1

7.22

6.74

7.15

7.15

7.10

9.66

9.83

9.19

6.42

6.43

7.75

6.78

8

7.04

6.52

7.00

7.10

6.94

9.78

9.94

9.28

6.31

6.38

7.75

6.65

15

6.88

6.44

7.25

7.85

7.23

10.10

10.31

9.62

6.63

6.72

7.75

7.10

22

7.15

6.75

7.65

8.10

7.63

10.17

10.44

9.69

6.47

6.66

7.75

6.98

29

7.35

7.23

7.65

8.15

7.57

10.48

10.62

10.14

6.64

6.88

7.75

7.16

M 6

7.28

7.23

7.50

8.20

7.52

10.50

10.55

10.08

6.84

6.99

8.00

7.35

13

7.22

7.05

7.50

8.00

7.42

10.53

10.49

9.99

6.85

7.01

8.00

7.29

20

7.41

7.09

7.95

8.50

7.95

10.84

10.81

10.42

7.05

7.33

8.25

7.74

27

7.63

7.39

8.10

8.30

7.96

10.49

10.54

10.07

6.98

7.18

8.25

7.41

J 3

8.42

8.38

8.30

8.45

8.22

10.41

10.46

10.05

6.94

7.12

8.25

7.41

10

8.32

-

8.25

8.45

8.20

10.43

10.48

10.04

6.95

7.12

8.25

7.41

17

8.41

8.30

8.35

8.45

8.27

10.29

10.39

9.96

6.95

7.06

8.25

7.29

24

8.50

8.26

8.35

8.45

8.29

10.37

10.48

10.01

6.97

7.08

8.25

7.29

J 1

8.58

-

8.45

8.50

8.38

10.37

10.48

9.95

6.88

7.02

8.25

7.23

8

8.64

8.46

8.40

8.45

8.38

10.45

10.48

9.90

6.77

6.90

8.25

7.10

15

8.57

-

8.50

8.60

8.41

10.68

10.69

10.15

6.58

6.74

8.25

7.04

1 Bank of Canada estimate, for the week ending with the Wednesday indicated, of the seven-day average rate at which investment dealers were able to arrange most of their overnight financing of money market inventory, excluding chartered bank day-to-day loans and purchase and resale agreements with the Bank of Canada.

Ces taux sont une moyenne estimative pour la semaine se terminant à la date indiquée, calculée par la Banque du Canada, des taux auxquels les courtiers en valeurs mobilières ont pu obtenir la plupart des avances à un jour nécessaires au financement de leur stocks de titres à court terme. En sont exclus les prêts au jour le jour octroyés par les banques à charte et les prises en pension de la Banque du Canada.

2 During the week ending with the Wednesday indicated.  
Pour la semaine se terminant à la date indiquée.



Column

11

12

13a

13b

13c

Wednesday  
Le  
mercredi

FINANCIAL MARKET STATISTICS  
STATISTIQUES DU MARCHÉ FINANCIER  
Government of Canada marketable bonds  
Obligations négociables du  
gouvernement canadien

Average yields  
Rendements moyens

1-3 years 1-3 ans	3-5 years 3-5 ans	5-10 years 5-10 ans	Over 10 years Plus de 10 ans
----------------------------	----------------------------	------------------------------	---------------------------------------

Thursday  
Le  
jeudi

Bank rate\*  
Taux officiel  
d'escompte\*

Treasury bills  
Bons du Trésor

weekly tender on Thursday  
adjudication hebdomadaire (le jeudi)

Average yield  
Rendement moyen

3-month 6-month 1-year  
3 mois 6 mois 1 an

Amount auctioned  
Montant adjugé

Millions of dollars  
En millions de dollars

3-month 6-month 1-year  
3 mois 6 mois 1 an

continued  
suite

Amount  
maturating  
Montant  
arrivant  
à échéance

814007													
1987 A 15	8.79	8.91	9.12	9.52	16	7.90(A15)	7.65	8.31	8.75	2,500	1,400	500	3,750
22	9.00	9.04	9.24	9.59	23	8.26	8.01	8.79	9.00	2,050	1,150	500	3,450
29	9.23	9.35	9.43	9.82	30	8.33	8.08	8.69	8.94	2,000	1,100	500	3,900
M 6	9.26	9.42	9.47	9.86	M 7	8.17	7.92	8.48	8.87	1,700	900	500	3,400
13	9.24	9.38	9.53	9.88	14	8.07	7.82	8.32	8.88	1,800	900	500	4,050
20	9.79	9.85	9.91	10.21	21	8.54	8.29	8.81	9.44	1,700	900	500	3,700
27	9.33	9.41	9.55	9.92	28	8.44	8.19	8.53	9.06	1,800	1,000	500	4,300
J 3	9.43	9.44	9.49	9.82	4	8.50	8.25	8.72	9.17	2,300	1,250	500	3,650
10	9.35	9.47	9.47	9.83	11	8.58	8.33	8.84	9.28	2,400	1,300	500	4,000
17	9.10	9.23	9.26	9.69C	18	8.59	8.34	8.68	9.06	2,200	1,200	500	3,450
24	9.11	9.27	9.38	9.78	25	8.54	8.29	8.63	8.94	2,200	1,200	500	4,100
J 1	9.16	9.33	9.40	9.81	J 2	8.60	8.35	8.72	9.04	2,200	1,100	500	3,600
8	9.12	9.39	9.45	9.80	9	8.64	8.39	8.76	9.11	2,600	1,500	500	4,100
15	9.36	9.61	9.66	9.98	16	8.67	8.42	8.86	9.21	2,300	1,200	500	4,050
22	9.40	9.68	9.75	10.15	23	8.76	8.51	9.05	9.47	2,400	1,400	500	3,800

\* Effective date is shown in brackets whenever the Bank Rate changes on a day other than Thursday.

Lorsque le taux d'escompte est modifié un jour autre qu'un jeudi, la date d'entrée en vigueur est indiquée entre parenthèses.

Column

14

Wednesday  
Le  
mercredi

GOVERNMENT OF CANADA MARKETABLE BONDS: PRICES AND YIELDS  
OBLIGATIONS NEGOCIABLES DU GOUVERNEMENT CANADIEN: COURS ET TAUX DE RENDEMENT

8CR Table G8

RBC Tableau G8

meropret		8 1/2%		8 1/2%		8 1/2%		8 1/2%		8 1/2%		8 1/2%		8 1/2%	
		6 June 1988		1 July 1989		1 July 1990		15 December 1991		1 March 1992		1 March 1994		1 June 1996	
		8 1/2%		8 1/2%		8 1/2%		8 3/4%		8 1/2%		8 1/4%		8 3/4%	
		8 juin 1988		1 juillet 1989		1 juillet 1990		15 décembre 1991		1 mars 1992		1 mars 1994		1 juin 1996	
		Price	Yield	Price	Yield	Price	Yield	Price	Yield	Price	Yield	Price	Yield	Price	Yield
		Cours	Rende- ment	Cours	Rende- ment	Cours	Rende- ment	Cours	Rende- ment	Cours	Rende- ment	Cours	Rende- ment	Cours	Rende- ment
<hr/>															
1987 A	15	99.90	8.58	99.70	8.64	97.94	8.75	99.94	8.76	99.06	8.74	96.81	8.88	98.44	9.00
	22	99.60	8.87	99.20	8.90	97.50	8.91	99.56	8.86	98.56	8.87	96.06	9.03	97.69	9.13
	29	99.30	9.17	99.00	9.01	96.81	9.18	98.06	9.27	97.19	9.23	95.00	9.25	96.94	9.25
M	6	99.45	9.03	98.55	9.25	97.00	9.11	98.06	9.27	97.31	9.20	94.75	9.30	96.63	9.31
	13	99.48	9.02	98.60	9.23	97.06	9.10	98.06	9.28	97.19	9.23	94.75	9.31	96.06	9.41
	20	98.90	9.63	97.60	9.78	95.63	9.66	96.44	9.73	95.44	9.71	92.94	9.69	93.75	9.81
	27	99.45	9.07	98.60	9.24	97.00	9.13	98.13	9.26	97.13	9.26	94.69	9.32	95.94	9.43
J	3	99.30	9.25	98.45	9.33	96.81	9.21	97.94	9.32	97.06	9.27	94.81	9.30	96.44	9.34
	10	99.50	9.04	98.75	9.18	96.88	9.20	98.00	9.30	97.06	9.28	94.88	9.29	96.44	9.34
	17	99.50	9.05	99.05	9.02	97.56	8.94	98.88	9.06	97.81	9.08	95.94	9.07	97.63	9.14
	24	99.50	9.05	99.15	8.97	97.56	8.94	98.56	9.15	97.69	9.11	95.31	9.20	96.94	9.26
J	1	99.70	8.83	98.95	9.09	97.19	9.10	98.56	9.15	97.44	9.18	95.19	9.23	96.81	9.28
	8	99.55	9.01	99.10	9.01	97.20	9.09	98.31	9.22	97.31	9.22	95.13	9.25	96.63	9.31
	15	99.40	9.20	98.65	9.27	96.70	9.30	97.56	9.43	96.50	9.45	93.88	9.52	95.31	9.54
	22	99.50	9.09	98.55	9.33	96.40	9.43	97.19	9.54	96.38	9.49	93.44	9.61	94.56	9.67

Wednesday  
Le  
mercredi

GOVERNMENT OF CANADA MARKETABLE BONDS: PRICES AND YIELDS  
OBLIGATIONS NEGOCIABLES DU GOUVERNEMENT CANADIEN: COURS ET TAUX DE RENDEMENT

8CR Table G8

RBC Tableau G8

		8 1/4%		1 1/2%		11 3/4%		10 1/4%		9 1/2%		9%		8 1/2%	
		1 March 1997		1 October 2001		1 February 2003		1 February 2004		1 June 2010		1 March 2011		1 June 2011	
		9 1/4%		9 1/2%		11 3/4%		10 1/4%		9 1/2%		9%		8 1/2%	
		1 mars 1997		1 octobre 2001		1 février 2003		1 février 2004		1 juin 2010		1 mars 2011		1 juin 2011	
		Price	Yield	Price	Yield	Price	Yield	Price	Yield	Price	Yield	Price	Yield	Price	Yield
		Cours	Rende- ment	Cours	Rende- ment	Cours	Rende- ment	Cours	Rende- ment	Cours	Rende- ment	Cours	Rende- ment	Cours	Rende- ment
<hr/>															
1987 A	15	95.56	8.93	102.88	9.14	117.50	9.57	108.88	9.20			97.94	9.21	93.69	9.15
	22	94.81	9.05	102.06	9.24	116.69	9.66	108.06	9.29			97.06	9.31	92.81	9.25
	29	93.88	9.21	100.44	9.44	114.88	9.87	106.31	9.49			95.31	9.50	91.06	9.45
M	6	93.63	9.25	99.94	9.51	114.44	9.91	105.81	9.54			95.19	9.51	90.63	9.50
	13	93.06	9.34	99.81	9.52	114.31	9.93	105.56	9.57			94.81	9.55	90.44	9.52
	20	90.75	9.73	97.06	9.88	111.44	10.26	102.94	9.88			95.19	10.04	92.06	9.87
J	3	92.94	9.37	99.69	9.54	113.81	9.98	105.63	9.57			97.63	9.76	94.81	9.55
	10	93.44	9.29	100.44	9.44	114.69	9.88	106.31	9.49			98.56	9.66	95.56	9.47
	17	94.69	9.08	101.81	9.27	115.88	9.75	107.81	9.31			98.50	9.66	95.44	9.48
J	24	93.88	9.22	101.06	9.36	115.13	9.83	107.13	9.39			100.19	9.48	96.69	9.35
												99.69	9.53	96.06	9.42
														90.88	9.47
J	1	93.81	9.23	100.94	9.38	114.81	9.87	106.94	9.41			99.44	9.56	95.81	9.44
	8	93.50	9.28	101.88	9.34	115.25	9.82	107.19	9.38			99.56	9.55	95.94	9.43
	15	92.31	9.48	99.06	9.62	113.13	10.06	105.06	9.63			97.06	9.82	93.94	9.65
	22	91.50	9.62	98.06	9.75	111.94	10.20	104.00	9.76			96.06	9.94	93.06	9.75

Pages 8 and 9 of the WFS present a greatly expanded set of interest rates and other financial data, only small parts of which were presented on page 6 of the old weekly report. The new financial market statistics presented are based on the data contained in tables F1 and F2 of the monthly *Bank of Canada Review*. The price and yield quotes for selected federal government bonds follow the format in table G7 of the *Review*. Aside from information about the Thursday Treasury Bill tender, the data is provided as of Wednesday each week covering the current month plus two or three complete preceding months.

These data are what the analyst is ultimately interested in.

## I. FINANCIAL MARKET STATISTICS

### 1. Bank Rate

Data for the Bank rate are shown as of Wednesday. For the periods when the Bank rate has been tied to the Treasury Bill rate it is as of the previous week's Bill tender—usually a Thursday. (The effective dates are shown in brackets.) The Bank rate is the minimum rate at which the Bank makes short-term advances to the chartered banks, savings banks governed by the Quebec Savings Bank Act and, since December 1, 1980, to all eligible members of the Canadian Payments Association. The Bank of Canada has used two different techniques to administer the Bank rate.

For most of the time since the Bank began operation, it has directly set a fixed Bank rate and would change this rate from time to time depending on economic and financial developments. There have, however, been two periods in history when the Bank set the Bank rate using a formula tied to Treasury Bills. Specifically, during the period November 1, 1956, to June 24, 1962, and again from March 13, 1980, to date, the Bank rate has been set 1/4 percent above the previous week's average tender rate for 91-day Treasury Bills.

The pros and cons for the floating and fixed Bank rates are discussed below:

#### a) The Floating Bank Rate

##### i) Advantages

During the period 1956-62, the Bank followed a floating Bank rate at 25 basis points above the latest

average yield at tender on 91-day Treasury Bills. Then, effective March 13, 1980, the rate was again floated using the same formula. The Bank also announced that PRAs with money market dealers would again be done at the Bank rate (Bills plus 25 basis points as before) but with no minimum or maximum as existed under the fixed Bank rate system.

FINANCIAL MARKET STATISTICS STATISTIQUES DU MARCHÉ FINANCIER					
Bank of Canada Banque du Canada			Quartered bank rate Taux des prêts à court terme		
Bank Rate (effective date in brackets) Taux officiel d'escompte (date d'entrée en vigueur entre parenthèses)	Millions of dollars En millions de dollars	Purchase and resale agreements Primes en pension	Maximum during week Maximum de la semaine	Day loans closing rate Taux de clôture des prêts à court terme	Prime business days Taux de base des jours ouvrables
7.05 (M26)	744.4	398.6	663.7	7.00	8.25
7.15 (A2)	868.1	35.1	199.6	7.13	8.25
7.90 (A15)	728.8	1.8	9.0	6.88	8.25
7.90 (A15)	713.4	30.0	152.0	7.25	8.25
8.26 (A23)	678.7	82.2	324.8	7.25	9.25
8.33 (A30)	688.0	-	-	7.00	9.25
8.17 (M7)	633.9	2.2	11.0	7.25	9.25
8.07 (M14)	680.0	37.4	149.6	7.38	9.25
8.54 (M21)	640.8	83.3	162.0	8.00	9.25
8.44 (M28)	700.0	229.5	462.0	8.38	9.25
8.50 (J4)	634.3	-	-	8.25	9.25
8.58 (J11)	659.3	70.5	199.4	8.38	9.25
8.59 (J18)	634.6	105.5	365.4	8.38	9.25
8.54 (J25)	488.6	496.3	941.5	8.50	9.25
8.60 (J2)	607.5	216.6	688.0	8.50	9.25
8.64 (J9)	559.3	149.7	311.2	8.63	9.25

The floating Bank rate advantages are essentially the fixed rate disadvantages and vice versa. The main advantages of a floating Bank rate are as follows.

First, a floating rate gives maximum scope for the market to set interest rates in response to the normal ongoing forces of supply and demand rather than in response to arbitrary government action. A floating rate implies less government intervention with the free market mechanism (although this need not always hold because heavy intervention by the Bank of Canada at the Treasury Bill tender can significantly affect the tender results and therefore the Bank rate). Under these circumstances, Bank rate changes tend to be smaller, but much more frequent (weekly), than under a fixed Bank rate system and to better reflect the fundamental underlying economic and financial conditions in the market. A floating rate is particularly appropriate if the economy is highly open and

vulnerable to foreign shocks or if the required level and structure of interest rates is either not readily apparent (i.e., uncertain) or is shifting rapidly (i.e., volatile), and where flexibility to obtain speedy adjustments is required to maintain Canadian rates in some sort of rough equilibrium with foreign rates. As the Governor of the Bank of Canada said:

It is in fact difficult to see how Canada can have a Bank Rate that remains fixed for any significant period as long as interest rates in the United States are volatile.<sup>1</sup>

Second, because a floating Bank rate has the advantage of better reflecting economic and financial conditions, it should result in fewer market rigidities and distortions. For example, in late February/early March 1980 the Canadian short-term money market did not function beyond a few days in term. This occurred because Canadian short-term interest rates were being held artificially low, by the then fixed Bank rate, amid universal expectation that the rate would have to rise. Therefore, money market dealers fearing large losses on any longer term securities held as principal were only prepared to hold securities that matured within a few days. It is not in the interest of either borrowers or lenders to have an inefficiently functioning money market as existed under the fixed Bank rate at that time.

Third, smaller but more frequent changes in a floating rate, being both less visible and reflecting less "active" policy, can allow the government and the Bank of Canada to escape having to put a *formal* seal of approval on rising interest rates. This can somewhat depoliticize the Bank rate. This offers important political advantages because it makes it easier for the Bank of Canada and politicians to argue that they are simply responding to the laws of supply and demand rather than actively trying to push interest rates up. That is, the public has no one *specifically* to blame for increases in interest rates under a floating Bank rate system.

## ii) Disadvantages

There are, however, three potential disadvantages of the floating Bank rate. First, the market will find it more difficult to read and interpret monetary policy.

The Bank of Canada may simply allow the rate to float passively, giving the market little active and formal direction. Under these circumstances it becomes very important for the Bank to make more public announcements and issue *formal statements* about the direction of the Bank rate, interest rates and monetary policy as a substitute for the statements issued to accompany changes in the fixed rate. There was, in fact, a formal release by the Bank of Canada each week for several weeks following its move to a floating rate in 1980. However, these statements are now infrequent.

Second, the *potential* exists for the Bank of Canada to disclaim responsibility for managing monetary policy (i.e., to argue, "we are simply following the market"). This does not appear likely in Canada, as will be discussed below. But, the potential always exists for the Bank to allege that it is the market which sets interest rates (and therefore monetary policy) under a floating Bank rate.

In fact, there does not appear to be any evidence that monetary policy under a floating rate would be any more passive (or active) than under a fixed rate. The Bank rate can only be used independently in theory. In practice, the Bank of Canada has never been able to set its rate independently of the market. Historically, all evidence shows that the Bank rate has tracked short-term market rates very closely. Thus, the fact that the Bank rate was fixed did not necessarily mean that the Bank had strong, independent control over Canadian short-term interest rates.

Further, changes in the fixed Bank rate have often been passive in the past (usually responding to the U.S. market), so there should be little concern that policy would be more passive under a floating Bank rate.

*A floating rate should only be a formal reflection of what would actually be taking place in the market anyway.*

The Bank of Canada's actions on several occasions since the shift to a floating Bank rate in 1980 (to very aggressively sell Treasury Bills in the market, to increase or decrease the size of the Bill tenders, and on occasion to intervene aggressively at the tender itself) serve to indicate that the Bank is prepared to actively influence a floating Bank rate. This occurred with the Bank influencing both the secondary market for Bills and the new issue rate at the Treasury Bill tender. (The Bank would have better resisted the fall in rates in May 1980 if it had been following a fixed Bank rate,

<sup>1</sup> 1 *Annual Report*, Bank of Canada, 1980, p.9.

since it could have held the rate up higher.)<sup>2</sup>

A third disadvantage of the floating Bank rate is that a major market participant, other than the Bank of Canada, may be able to (unduly) influence the Bank rate in the very short run through its actions in the Treasury Bill market. This probably occurred on Thursday, March 22, 1984. On that day a major Canadian bank, which had raised its prime rate a week earlier but which had not been followed by the other major banks, sold a large volume of Treasury Bills and "When Issued" Bills into the market at 11 a.m., just one hour before the deadline for bids to be submitted for the Bill tender. This caused confusion in the market and Bill yields quickly jumped 10 basis points. The chartered bank action may have surprised the Bank of Canada, because the Bank did not immediately offset the action. As a result, there was less aggressive bidding at the tender by all participants, a wide 20 basis point high-low spread on the three-month Bills and a 20 basis point increase in the tender average. Given these developments, all the other banks found it convenient to move their primes up to match the leader.

The end result, some said, was that one bank, by introducing the straw that broke the camel's back, caused a hesitant and somewhat confused system to raise prime on its own terms. However, others said that the Bank of Canada, if it had really meant to remove the selling pressure from the market, could have either bought the Bills at the going yield to keep the market stable in advance of the tender or bid more aggressively at the tender to hold the tender average down. Others noted that the prime rate would have gone up anyway because of narrowing spreads between the Bank rate and prime.

In summary, all evidence suggests that the switch to a floating Bank rate is unlikely to produce a level and structure of interest rates that will be substantially different from what would otherwise occur under a fixed Bank rate, *although the timing and trajectory of interest rate increases/decreases may be different by a few days/weeks*. This is consistent with the view that the Bank of Canada or any other market participant simply cannot override the market for long. In the end, interest rates are mainly a reflection of inflation and inflationary expectations. Put differently, any given level of the Bank rate is ultimately a reflection of the market and government policy, not a cause of it.

<sup>2</sup> These actions can be partially followed by looking at pages 1 and 10 of the Bank's WFS.

### iii) The Shift to a Floating Bank Rate in March 1980

Under normal market conditions and when the monetary authorities have a reasonable grasp of the market and know where they want interest rates to go, a fixed Bank rate is preferred to a floating rate because of the extra control and direction the Bank of Canada can give the market with changes in a fixed rate. However, as noted above, when market conditions are both abnormal and beyond the ability of Canadian monetary authorities to control, a floating Bank rate is preferable.

The abnormal market scenario did in fact prevail in late 1979/early 1980 when the Canadian dollar initially showed unusual strength in response to huge monthly trade surpluses and large foreign buying of Canadian energy related equities (due to speculation about major oil finds off Newfoundland). But, as Governor Bouey noted in an April 1980 speech:

How long this inflow would continue and how strong it would be was of course completely unpredictable. What was sure was that it would vary with rumours and progress reports on drilling by the oil companies concerned.<sup>3</sup>

He went on to add:

To those uncertainties were added others. It had been indicated in advance that fiscal and credit measures aimed at redressing the situation in the United States would be introduced before long, but one did not know the precise timing of these measures, their nature, or what impact they might have on financial markets. The foreign exchange market in particular was being affected by these uncertainties. Indeed, it seemed impossible to pick a Bank Rate that could be counted on to be appropriate in relation to foreign exchange and money market conditions for more than a very short period.<sup>4</sup>

The energy and interest rate *uncertainty*, which tended to pull the Canadian dollar strongly in opposite directions, along with the Bank's desire for *flexibility*, provided the rationale for the shift to a floating Bank rate. In the Governor's words:

In this extraordinary fluid situation the Bank of Canada came to the view that it needed to be able to

<sup>3</sup> "Remarks by Gerald K. Bouey, Governor of the Bank of Canada", *Bank of Canada Review*, April 1980, p.6.

<sup>4</sup> Ibid., pp. 6-7.

react to developments more quickly, and with more flexibility, than was possible with a fixed Bank Rate system. To set a Bank Rate that we could at least have hoped would remain unchanged for some weeks would have meant fixing it very much higher.<sup>5</sup>

On Monday, March 10, 1980, the Bank of Canada announced that the Bank rate would be allowed to float, at 1/4 percent above the latest average rate established at the weekly auction for 91-day Treasury Bills issued by the Government of Canada.

The Governor also noted:

The advantages of having a floating Bank Rate in periods like the one we have been passing through recently were demonstrated rather clearly in the first week of the new system's operation. On the basis of the results of the treasury bill auction on 13 March, the Bank Rate moved up slightly from its earlier fixed level. But barely more than an hour after the bids were submitted, a major U.S. bank announced a further 1/2 percentage point increase in its prime rate to 18 1/4 percent and during the next day this new higher level became general. In the face of the associated rise in U.S. money market rates the exchange value of the Canadian dollar began to weaken, particularly at the start of business on Monday 17 March. With the flexibility of a floating Bank Rate it was possible for the Bank to permit a prompt rise in Canadian money market rates, including the treasury bill rate, to stem the downward pressure on the Canadian dollar. Under the previous fixed Bank Rate regime this change could not have been effected so promptly nor so flexibly since it would have implied a decision to move to a new, higher Bank Rate that could be expected to remain in effect for at least a few weeks.<sup>6</sup>

The Bank also sought to deal with the contention that it was abdicating its responsibility for monetary policy by shifting to a floating Bank rate. Governor Bouey dealt with this by stating:

Although the move to the floating system has been regarded by some people as an effort on the part of the central bank to minimize its share of responsibility for the level and movement of short-term interest rates, the fact of the matter is that the Bank of Canada acknowledges every bit as much responsibility for short-term interest rates under this new system as under the former one. This was stressed in the press statement accompanying the announcement of the

new system. What we do not answer for is the state of the world. A prime rate of 20 percent in the United States was not brought about by the Bank of Canada and it is not our responsibility. We do, however, accept full responsibility for the way in which we are trying to cope with the problems that confront this country in the world as it is these days.<sup>7</sup>

The shift to a floating rate was not a shift to a hands-off policy. In fact, the Bank indicated it would continue to exert strong influence on interest rates via both its bank cash reserve management policy and through open market operations.

In summary, the basic underlying argument for the shift to a floating Bank rate in March 1980 was the fact that financial markets had become so volatile and unpredictable that Canadian money market rates had to be allowed to respond faster to foreign developments (mainly the Fed's switch to managing bank reserves and money supply while allowing much more volatility in interest rates). The argument for a floating Bank rate in 1980 was essentially the same used to defend floating exchange rates in the early 1970s. In a highly uncertain and volatile world, markets work best when fixed price rigidities are removed. Put simply, *a floating Bank rate is in tune with volatile interest rates and unpredictable times.*

In addition, with domestic money supply considerations looking fairly good (M1 was on target) the Bank, in fact, had the freedom and flexibility to give the market more scope in determining interest rates. This could have been a problem if a shift to a floating Bank rate had pushed interest rates up sharply at a time when the domestic economy was very weak and M1 growth was dropping below target (i.e., if there had been a conflict between domestic and international policy objectives).

#### *b) The Fixed Bank Rate*

##### *i) Advantages*

Under the fixed rate regime, which existed for long periods in the past, credit was granted directly to banks at the Bank rate (a penalty rate) and to dealers (rediscounting eligible securities) at the Treasury Bill rate plus 25 basis points (subject to a minimum and maximum under the fixed Bank rate concept).

<sup>5</sup> Ibid., p. 7.

<sup>6</sup> Ibid.

<sup>7</sup> Ibid., pp. 7-8.

Changing a fixed Bank rate is a tool which the Bank of Canada has used from time to time in tandem with both its cash reserve management and open market policies. This tool offers two advantages in achieving desired changes in interest rates, assuming that the Bank rate is moved to lead the market rather than lag it. First, if changes in a fixed Bank rate lead the market, they provide a formal signal that the Bank wants to induce a *change in interest rates*. Assuming the Bank knows what interest rates it wants, it can move a fixed Bank rate to achieve its target. This also means an active Bank policy to control money supply via interest rates.

Second, because the rate moves in distinct steps, changes have an *announcement effect* as to the Bank of Canada's policy intent. This can be used to reinforce or alter expectations in the market.<sup>8</sup> This can be important when cash reserve management is not able to get the desired impact on interest rates quickly or forcefully enough.

## ii) Disadvantages

There are three main disadvantages with a fixed Bank rate. First, like open market operations, changes to a fixed Bank rate override market forces of supply and demand in a subjective and arbitrary way, although this disadvantage is substantially reduced if the Bank rate is moved to follow the market. Such overriding is inappropriate if the Bank is not sure what level and structure of interest rates is desirable at given points in time.

Second, changes in a fixed Bank Rate are lumpy rather than smooth and flexible and do not reflect a gradual adjustment to economic events.

Third, because altering a fixed rate is very visible, it creates a lot of speculation and media coverage before and after changes. This can create major political problems, especially when interest rates are rising.

<sup>8</sup> In the U.S., the Discount Rate potentially offers the same two advantages—an announcement effect and an interest rate effect. However, because of the large inter-bank market for federal funds, the Discount Rate would only offer both effects if it is below the federal funds rate. If the Discount Rate is above the federal funds rate, it tends only to have an announcement impact since a change in the Discount Rate does not have a substantial impact on market rates if the banks can borrow federal funds cheaper than they can borrow at the Discount Window. However, only in this case is the Discount Rate a penalty rate.

## iii) Active and Passive Bank Rate Policy Under a Fixed Bank Rate

Changes in a fixed Bank Rate can be considered either active or passive. A Bank Rate fixed at a higher level can provide a signal that monetary policy is tightening and that higher interest rates are wanted, in which case Bank of Canada policy would be described as active. Alternatively, the increase might just confirm and increase in foreign interest rates or Canadian open market rates which has already occurred. In this case, the policy would be described as passive. Policy would also be indirectly active if Bank intervention in the market created the conditions leading to a Bank Rate change.

There are two ways to tell if changes in a fixed Bank rate are leading or lagging the market, quite apart from observing what the Bank is doing with its other techniques. The first is by "market feel". The Bank's policy is passive if changes to a fixed Bank Rate are discounted in the market; Bank Rate changes are active if they cause a sharp move in market interest rates.

The second way is to focus on the spread between the Bank Rate and Treasury Bills. Under normal market conditions, and with neutral market expectations, the fixed Bank Rate tended to average 40–60 basis points above the 91-day Treasury Bill rate over the decade of the 1970s. Under these conditions, if this spread went to 75 basis points, for example, then the market-place was saying either that the Bank Rate was relatively high or that Bill yields were too low. Since the market sets the rates for Bills, if yields did not move back up the Bank Rate would usually fall. The opposite also held. If the spread decreased to 25 basis points or less, the Bank Rate inevitably would be under immediate upward pressure.

When Bank of Canada policy is passive, under a fixed Bank Rate regime, the Bank will not allow these spreads to change dramatically as market rates move up or down against the fixed Bank Rate, i.e., the Bank Rate will be pushed or pulled by market rates.<sup>9</sup> When the spread becomes abnormally large or small, the

<sup>9</sup> In the U.S., the Discount Rate policy is active if changes in the Discount Rate precede changes in the federal funds rate. (It is the spread between the two rates which determines Discount Window borrowing.) However, if the Discount Rate only moves after the federal funds rate has moved, then it is passive, since it only confirms a change that has already been reflected in the market.

Bank responds to the market by changing the Bank Rate, which has the effect of reestablishing the normal spread.

On the other hand, when the Bank wants to lead the market and use the fixed rate as an active policy tool, unusually large or small spreads will be allowed to develop.

## 2. The Bank of Canada as Lender of Last Resort

In addition to using the Bank Rate as a monetary policy technique, the Bank of Canada also acts as lender of last resort (at the Bank Rate) to members of the Canadian Payments Association and to money market dealers. That is, there is a purely technical side to the Bank Rate.

### a) Advances to Members of the Canadian Payments Association (Weekly Average)

Advances to CPA members can be of two types. First, normal type advances to CPA members are for short-run liquidity reasons, i.e., to provide liquidity to banks for one or two days over the end of reserve averaging periods. In this case, advances are made by the Bank of Canada at the Bank Rate for the first borrowing and at a higher rate for subsequent borrowings in the same two-week averaging period. A second type of advance, extended credit for bank bailouts, was highly prominent in 1985 and 1986.

Both liquidity advances outstanding and bailout advances outstanding at the end of each statement week (Wednesday) were discussed in chapter 1, entry 4. Here, the *weekly average* is shown in entry 2a. It is calculated by averaging the advances for each business day during the week.

### b) Purchase and Resale Agreements

PRAs are arrangements under which the Bank provides short-term credit to money market dealers under its lender of last resort facility. When these dealers are unable to find sufficient financing at reasonable cost in the private sector, they can, as a last resort, arrange to sell securities to the Bank with an agreement to repurchase them at a set price. Effective March 13, 1980, the usual rate at which the Bank will enter into PRAs is the Bank Rate. From May 12, 1974, to March 12, 1980, the PRA rate was  $\frac{1}{4}$  percent

per annum above the average rate on 91-day Treasury Bills at the latest weekly tender, subject to a minimum of Bank Rate minus  $\frac{3}{4}$  percent and a maximum of Bank Rate plus  $\frac{1}{2}$  percent. Prior to May 12, 1974, the maximum PRA rate was the Bank Rate. On occasion the Bank of Canada initiates the purchase of Government of Canada securities from banks or dealers under resale agreements other than the normal PRA. In these cases, the interest rate would be determined by the Bank of Canada to reflect the particular circumstances. All outstanding PRAs are combined for statistical presentation.

2a		2b		3a		3b		3c	
STATISTICS									
MARCHÉ FINANCIER									
a				Chartered bank loan rates Taux des prêts bancaires					
Millions of dollars En millions de dollars				Day loans	Prime business	Conve mortgage			
Advances to members of the Canadian Payments Association (weekly average)				closing rate	Taux de base aux entreprises	Taux des prêts ordinaires			
Avances aux membres de l'Association canadienne des paiements (moyenne hebdomadaire)				Prises en pension	Prêts	theoriques			
				Weekly average	Maximum during week	au jour le jour			
				Moyenne hebdomadaire	Maximum de la semaine	(taux de clôture)			
744.4	398.6	663.7		7.00	8.75	9.00			
668.1	85.1	199.6		7.13	8.75	9.00			
728.8	1.8	9.0		6.88	8.75	9.00			
713.4	90.0	152.0		7.25	8.75	9.25			
678.7	82.2	324.8		7.25	9.25	9.50			
688.0	-	-		7.00	9.25	9.50			
633.9	2.2	11.0		7.25	9.25	9.50			
680.0	37.4	149.6		7.38	9.25	9.50			
640.8	63.3	162.0		8.00	9.50	9.75			
700.0	229.5	462.0		8.38	9.50	9.75			
634.3	-	-		8.25	9.50	9.75			
659.3	70.5	199.4		8.38	9.50	9.75			
634.6	105.5	365.4		8.38	9.50	9.75			
488.6	496.3	941.5		8.50	9.50	9.75			
607.5	216.6	688.0		8.50	9.50	9.75			
559.3	149.7	311.2		8.63	9.50	9.75			

PRAs outstanding on Wednesday of each statement week were discussed in chapter 1, entry 2. Here, two more PRA data series are shown in entry 2b. The first shows the weekly average of PRAs outstanding. The second shows the maximum PRAs outstanding for each specific statement week. The larger the PRA figures, the tighter the system tends to be.

## 3. Chartered Bank Loan Rates

The next four data series cover key chartered bank loan rates.



### a) Day Loans (Closing Rate)

As noted in chapter 2, day-to-day loans are made by the chartered banks to money market dealers within the limits of each dealer's PRA facility (line of credit) with the Bank of Canada. Prior to December 1980, collateral for these loans included short-term Government of Canada direct and guaranteed bonds, Treasury Bills and Bankers' Acceptances. Since December 1980, BAs are no longer eligible collateral. The day rate moves by eighths of one percent. The rate shown here is the Wednesday closing rate.

The day loan rate is one of the three key overnight rates the Bank of Canada watches. When the Bank of Canada adjusts the excess cash setting, it first looks at the day loan rate (as well as the call loan rate and the inter-bank deposit rate) to see whether a tighter or looser cash setting is impacting on the money market via a change in the overnight rate on high grade securities. This impact then works through the entire yield curve to influence money supply growth through the demand for money function.

### b) Prime Business (Loan Rate)

Traditionally, the chartered bank prime business loan rate has been the rate usually charged to the most credit-worthy borrowers and typically applies to large business loans. The rate shown here is as of Wednesday each week. When individual banks charge different rates, the most typical one (the going rate) is shown. In most cases, loans to lesser quality credits are made on a spread over prime (e.g., prime plus one, prime plus two, etc.)

In the late 1970s and early 1980s, the prime rate came to be viewed more and more as a reference rate, not as the best rate available. Especially when loan demand is weak and/or bank competition for loans is intense, the biggest and most credit-worthy borrowers can often raise money at less than prime. These loans are usually made on a cost of funds basis. Here, a bank lends fixed rate funds for a fixed time period at a set markup over the rate the bank has to pay to raise the funds in the money market.

There are two other instances where loans are made at rates below prime. First, chartered banks from time to time have had, in effect, a lower base rate for small business loans under authorizations of \$200,000 or less (given federal government backstop support). Second, banks may make loans to individuals buying CSBs at the CSB rate—a rate which is below prime.

2b	3a	3b	3c	4a	
	Chartered bank loan rates <i>Taux des prêts bancaires</i>			Charter <i>Taux de</i> Deposit <i>(certificat)</i> 30-day <i>dépôt</i> A 30 <i>jours</i>	
S.	Day loans closing rate	Prime business <i>Taux de base aux entreprises</i>	Conventional mortgage <i>Taux des prêts hypo- thécaires ordinaires</i>		
Purchase and resale agreements <i>Prises en pension</i>					
Weekly average <i>Moyenne hebdoma- daire</i>	Maximum during week <i>Maximum de la semaine</i>	<i>au jour le jour (taux de clôture)</i>	1 year 5 year <i>1 an 5 ans</i>		
398.6	663.7	7.00	8.75	9.00 10.00	6.59
85.1	199.6	7.13	8.75	9.00 10.00	5.99
1.8	9.0	6.88	8.75	9.00 10.50	6.07
90.0	152.0	7.25	8.75	9.25 10.75	6.31
82.2	324.8	7.25	9.25	9.50 11.00	7.19
-	-	7.00	9.25	9.50 11.00	6.56
2.2	11.0	7.25	9.25	9.50 11.00	6.47
37.4	149.6	7.38	9.25	9.50 11.00	6.67
63.3	162.0	8.00	9.50	9.75 11.25	6.50
229.5	462.0	8.38	9.50	9.75 11.25	7.67
-	-	8.25	9.50	9.75 11.25	7.04
70.5	199.4	8.38	9.50	9.75 11.25	7.83
105.5	365.4	8.38	9.50	9.75 11.25	6.75
496.3	941.5	8.50	9.50	9.75 11.25	6.30
216.6	688.0	8.50	9.50	9.75 11.25	6.93
149.7	311.2	8.63	9.50	9.75 11.25	7.39

### c) Conventional Mortgage Rates

The third series embraces two key loan rates; those charged for one-year and for five-year conventional mortgages. These rates are "the going rates" at which residential mortgages are offered by the chartered banks.

## 4. Chartered Bank Deposit Rates

The table at the top of page 8 is completed with four rate series for key chartered bank deposits.

### a) Deposit Receipts

Entry 4a shows the rates for 30-day and 90-day chartered bank deposit receipts. Since December 1974, these rates are weighted averages of actual rates on large transactions at the major banks for Wednesday of each week. The latest week is estimated. Between June 1972 and December 1974, the rates were those prevailing under the *Winnipeg Agreement*.



### b) Non-Chequable Savings Deposits

The non-chequable savings deposit rate is the Wednesday rate paid by major banks on "true" savings accounts.

3c		4a		4b	4c
in rates taux		BCR Tables F1 and F2 RBC Tableaux F1 et F2			
Conventional mortgage Taux des prêts hypothécaires ordinaires		Chartered bank deposit rates Taux des dépôts bancaires		Deposit receipts Certificats de dépôt	
1 year 5 year 1 an 5 ans		30-day A 30 jours	90-day A 90 jours	Non chequable savings deposits Dépôts d'épargne non transférables par chèques	5-year personal fixed-term Dépôts à 5 ans des particuliers
1	9.00 10.00	6.59	7.09	4.25	6.75
2	9.00 10.00	5.99	6.95	4.25	6.75
3	9.00 10.50	6.07	7.34	4.25	6.75
4	9.25 10.75	6.31	6.03	4.25	6.75
5	9.50 11.00	7.19	8.37	4.75	7.00
6	9.50 11.00	6.56	7.60	4.75	7.00
7	9.50 11.00	6.47	7.90	4.75	7.00
8	9.50 11.00	6.67	8.22	4.75	7.00
9	9.75 11.25	6.50	6.59	4.75	7.00
10	9.75 11.25	7.67	8.45	4.75	7.00
11	9.75 11.25	7.04	8.42	4.75	7.00
12	9.75 11.25	7.83	8.39	4.75	7.00
13	9.75 11.25	6.75	8.37	4.75	7.00
14	9.75 11.25	6.30	8.10	4.75	7.00
15	9.75 11.25	6.93	7.94	4.75	7.00
16	9.75 11.25	7.39	7.00	4.75	7.00

### c) Five-Year Personal Fixed Term Deposits

The last series shown in the table at the top of page 8 is the rate on five-year personal fixed term deposits. The rate shown is the most representative rate quoted by the *major* banks.

## 5. Overnight Money Market Financing Rate

The WFS includes a second overnight financing rate to complement the day loan rate shown in entry 3a. The overnight money market financing rate is a weekly estimate. It covers seven days, Thursday through Wednesday, and represents the weighted average rate at which investment dealers were able to arrange most of their overnight financing of private money market inventory. The series, which was discussed in chapter 2 as "special call loans" (entry 8a), excludes chartered bank day-to-day loans and purchase and resale agreements with the Bank of Canada.

This series is one of the most important additions to the new WFS for several reasons. First, it covers the financing of all securities not eligible for day loans, thus providing the Bank with additional useful data on how its short-run cash reserve management policy is impacting on interest rates. In another important addition to the WFS, the Bank has included a chart on page 16 which sets the money market financing rate against the 91-day Treasury Bill rate. This spread correlates well with the Bank's excess cash setting, giving the market a better feel for short-run monetary policy. In particular, when the call average is substantially above Bill yields on a weekly basis the Bank's stance is tight, and this is usually reflected by a tight excess cash setting.

Inclusion of an overall average overnight financing rate for the week also offers the street a technical advantage. For the first time, dealers have an objective standard against which to judge the quality of their own individual money market banking operations. Obviously, any money market banker who can consistently bank a dealer's inventory 25-50 basis points cheaper than the reported dealer average will be in heavy demand. By contrast, those who consistently finance above the average might not have long careers.

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9a

FINANCIAL MARKET STATISTICS  
STATISTIQUES DU MARCHÉ FINANCIER

Overnight money market financing rate(1) Taux des avances à un jour(1)	Government of Canada deposits: Most recent 7-day tender average(2) Dépôts du gouvernement du Canada: rendement moyen de la plus récente adjudication en 7 jours(2)	Prime corporate paper rates Taux du papier de premier choix des sociétés	Bankers' acceptances 30-day rate Taux des acceptations bancaires à 30 jours	Other (McLeo Rendement d'obl. Provinciales long- to Provinciales moyen ponderé long)
		30-day 90-day A 30 jours A 90 jours		
7.22	6.74	7.15 7.15	7.10	9.6
7.04	6.52	7.00 7.10	6.94	9.7
6.88	6.44	7.25 7.85	7.23	10.1
7.15	6.75	7.65 8.10	7.63	10.1
7.35	7.23	7.65 8.15	7.57	10.4
7.28	7.23	7.50 8.20	7.52	10.5
7.22	7.05	7.50 8.00	7.42	10.5
7.41	7.09	7.95 8.50	7.95	10.8
7.63	7.39	8.10 8.30	7.96	10.4
8.42	8.38	8.30 8.45	8.22	10.4
8.32	-	8.25 8.45	8.20	10.4
8.41	8.30	8.35 8.45	8.27	10.2
8.50	8.26	8.35 8.45	8.29	10.3
8.58	-	8.45 8.50	8.38	10.3
8.64	8.46	8.40 8.45	8.38	10.4
8.57	-	8.50 8.60	8.41	10.6

## 6. Government of Canada Deposits: Most Recent Seven-Day Tender Average

In chapter 3, Government of Canada demand and notice deposits were discussed. On April 1, 1986, the notice deposit component was introduced along with other updated settlement procedures between the government and all CPA direct clearers. Chapter 3 summarized the auction procedure for these deposits.

Entry 6 in this chapter presents the tender average interest rate to maturity for the federal deposits auctioned each week (comparable to the Treasury Bill average auction rate). To date, most auctions have been for a seven-day term, although the auctions in 1986 were as short as three days and as long as 28 days.

## 7. Prime Corporate Paper Rates

Entry 7 sets out prime corporate paper rates covering both 30-day and 90-day terms. Rates shown here are the Bank's best estimates of operative market trading levels on Wednesday of each week for major borrowers' paper (this includes commercial and finance company borrowers).

## 8. Bankers' Acceptances 30-Day Rate

Entry 8 sets out the typical mid-market quoted rate for 30-day Bankers' Acceptances on Wednesday of each week. This security class was discussed extensively in chapter 3.

## 9. Other Bond Yield Averages (McLeod Young Weir—now Scotia McLeod)

Entry 9 includes three data series for mid- and long-term bond yield averages calculated by McLeod Young Weir Limited (now Scotia McLeod Inc.). These data are based on representative bond quotes taken around 4:00 p.m. each Wednesday. (Wednesday was selected to tie the data to the other Wednesday interest rate series published by the Bank). The three series reported in the WFS are subcomponents of a much broader set of bond index data calculated each week and published by Scotia McLeod.

Two of the three specific series reported in entry 9 are taken from the weighted long-term bond index.

This index includes bonds with a 10-year nominal term or longer and has an average term of about 17 years. The third series is taken from the weighted mid-term index (which includes bonds with a five- to 10-year term and has approximately a seven-year average term). The weighting technique was specially developed by the Fixed Income Research Department of Scotia McLeod to take into account the total volume of mid- and long-term bonds actually outstanding in the hands of the public.

The data shown in entry 9 are available from August 1976 for the two long-term indices and from December 1979 for the mid-term index.

Scotia McLeod also publishes the 40 long bond yield index and its yield index subcomponents—the ten provincials, ten municipals, ten industrials, ten utilities, and 20 corporates (which is a simple average of ten industrial and ten utilities). These indices are available monthly from December 1947.

Scotia McLeod has prepared both general descriptions and detailed technical descriptions setting out the construction methodology for the weighted indices and the issuer and bond selection criteria. These are available on a restricted basis.

9a	9b	9c	10a	10b	10c
Other bond yield averages (McLeod, Young, Weir)			United States <i>Etats-Unis</i>		
<i>Rendement moyen d'autres types d'obligations (McLeod, Young, Weir)</i>			Commercial paper (adjusted)		Prime rate charged by banks
Provincials, All corporates weighted	<i>Toutes les sociétés</i>		<i>Papier commercial (taux corrigés)</i>		<i>Taux de base des prêts bancaires</i>
long-term	Weighted	Weighted	30-day	90-day	
Provinces, moyenne	long-term	mid-term	4.30	4.90	
pondérée (long terme)	<i>Moyenne pondérée (long terme)</i>	<i>Moyenne pondérée (moyen terme)</i>	jours	jours	
9.66	9.83	9.19	6.42	6.43	7.75
9.78	9.94	9.28	6.31	6.38	7.75
10.10	10.31	9.62	6.63	6.72	7.75
10.17	10.44	9.69	6.47	6.66	7.75
10.48	10.62	10.14	6.64	6.88	7.75
10.50	10.55	10.08	6.84	6.99	8.00
10.53	10.49	9.99	6.85	7.01	8.00
10.84	10.81	10.42	7.05	7.33	8.25
10.49	10.54	10.07	6.98	7.18	8.25
10.41	10.46	10.05	6.94	7.12	8.25
10.43	10.48	10.04	6.95	7.12	8.25
10.29	10.39	9.96	6.95	7.06	8.25
10.37	10.48	10.01	6.97	7.08	8.25
10.37	10.48	9.95	6.88	7.02	8.25
10.45	10.48	9.90	6.77	6.90	8.25
10.68	10.69	10.15	6.58	6.74	8.25

### a) Provincials—Weighted Long Term

The weighted long-term provincial index includes Canadian pay securities issued by all ten provinces.

As of October 1, 1988 there were 87 individual provincial bonds in the index with a term to maturity of more than ten years. The provincial component of the firm's weighted long-term index carried a weight in the overall index of 26.9 percent in October 1988.

#### b) All Corporates—Weighted Long-Term

The weighted long-term all corporates index is also calculated using the standard weighting technique to take into account the amount of long-term debt issued by higher grade corporate borrowers in Canada. In late 1988, the "all corporates" category shown in entry 9b carried a weight of 12.7 percent in Scotia McLeod's overall weighted long-term index. In late 1988 the long-term corporate index included 6 AAA-rated bonds with an overall component weight of 2.1 percent, 28 AA-rated bonds with a weight of 5.0 percent, 20 A-rated bonds with a weight of 3.7 percent and 8-BBB rated bonds with a weight of 1.9 percent.

#### c) All Corporates—Weighted Mid-Term Index

The weighted all corporates mid-term bond index includes Canadian-pay bonds which have maturities from five to ten years. The average term is about seven years. In October 1988, the index shown in entry 9c carried a 16.8 percent weight in the overall weighted mid-term index and is subdivided into the same rating categories as the long index. Included were 7 AAA-rated bonds with a group weight of 0.9 percent, 44 AA-rated bonds with a weight of 5.7 percent, 63 A-rated bonds with a weight of 6.9 percent and 22 BBB-rated bonds with a weight of 3.3 percent.

### 10. United States Rates

The table at the bottom of page 8 concludes with four interest rate series for the United States.

#### a) Commercial Paper (Adjusted)

The first two series in entry 10a are 30-day and 90-day rates for U.S. commercial paper. Rates shown here have been adjusted by the Bank of Canada from the 360-day "commercial discount" basis used in the U.S. (where the interest is subtracted from the par value to arrive at the purchase price) to the 365-day "true yield" basis used in Canada.

9b	9c	10a	10b	10c
yield averages (Young, Weir) moyens d'autres types (McLeod, Young, Weir)		United States Etats-Unis		Continued suite
1. All corporates Toutes les sociétés		Commercial paper (adjusted) Papier commercial (taux corrigés)	Prime rate charged by banks Taux de base des prêts bancaires	Euro-U.S. dollar deposits in London 3-months (offer) (adjusted) Dépôts à 3 mois en euro- dollars américains à Londres (offerts) (taux corrigés)
Weighted long-term Moyenne pondérée (long terme)	Weighted mid-term Moyenne pondérée (moyen terme)	30-day A 30 jours	90-day A 90 jours	
9.83	9.19	6.42	6.43	7.75
9.94	9.28	6.31	6.38	7.75
10.31	9.62	6.63	6.72	7.75
10.44	9.69	6.47	6.66	7.75
10.62	10.14	6.64	6.88	7.75
10.55	10.08	6.84	6.99	8.00
10.43	9.99	6.85	7.01	8.00
10.81	10.42	7.05	7.33	8.25
10.54	10.07	6.98	7.18	8.25
10.48	10.05	6.94	7.12	8.25
10.48	10.04	6.95	7.12	8.25
10.39	9.96	6.95	7.06	8.25
10.48	10.01	6.97	7.08	8.25
10.48	9.95	6.88	7.02	8.25
10.48	9.90	6.77	6.90	8.25
10.69	10.15	6.58	6.74	8.25
				7.75
				6.65
				7.10
				6.98
				7.16
				7.35
				7.29
				7.74
				7.41
				7.41
				7.41
				7.29
				7.29
				7.23
				7.10
				7.04

The following example sets out the specific calculation procedure for converting a "commercial discount" U.S. yield to a "true" Canadian yield. First, in the U.S. the price for a commercial discount note is expressed as:

$$\text{Price (P)} = \text{par} - \frac{\text{interest rate} \times \text{term}}{360}$$

so that a 9 percent U.S. note for 270 days would trade at a price of 93.25 calculated as follows:

$$\text{Price (P)} = 100 - \frac{(9\% \times 270)}{360} = 93.25$$

However, as noted above, yields in Canada and Europe are quoted on a "true yield" (simple interest) basis where interest is not deducted from the par value. The U.S. commercial discounted prices have to be converted to "true yields" (Y) as follows:

$$\text{True Yield (Y)} = \frac{\text{Rate} \times 100}{\text{Commercial Purchase Price as \% of Par}}$$

so that the 9 percent note above has a true yield of 9.65 percent calculated as follows for a 360-day year:

$$(Y) = \frac{9\% \times 100}{93.25} = 9.65\%$$

This could also be calculated as follows:

$$(Y) = \frac{\text{Discount}}{\text{Price}} \times \frac{360}{\text{Term}}$$

$$(Y) = \frac{6.75}{93.25} \times \frac{360}{270} = 9.65\%$$

From this formula, it can be seen that “true yields” will always exceed commercial discount yields and that the gap will usually be greater the longer the term of the security (since commercial discount prices in the denominator will normally be lower the longer the term of the security, assuming a positively sloped yield curve).

Finally, since U.S. money market rates are quoted on a 360-day basis while Canadian rates are quoted on a 365-day year, the U.S. rates have to be multiplied by  $\frac{365}{360}$  to convert them to a 365-day basis.

$$(Y) = 9.65\% \times \frac{365}{360} = 9.78\%$$

In this example, the 9 percent commercially discounted U.S. note has a “true yield” in Canada of 9.78 percent.

#### *b) Prime Rate Charged by Banks*

The U.S. prime rate is the rate typically charged by major American banks on Wednesday of each week. As in Canada, it may not be the lowest rate available.

#### *c) Euro-U.S. Dollar Deposits in London Three Months (Offer)*

The last entry on page 8 is the three-month London, England, inter-bank offered rate (LIBOR) for U.S. dollar deposits. This rate series is an average of the rates quoted by several major banks on the offered side of the market at the close of business each Wednesday (London time), adjusted to a 365-day true yield basis.

## **11. Government of Canada Marketable Bonds—Average Yields**

Page 9 of the WFS sets out specific data on Government of Canada securities.

The table at the top of the page is divided into two parts. The first section, entry 11, shows average yield data for four different term categories of Government of Canada marketable bonds (i.e. exclude CSBs). These allow the analyst to plot the government yield curve. The first series shows the average yield on one-three year Canadas (the yield on money market bonds). The next two series show yield averages for three-five year Canadas (short mid-term bonds) and five-ten year Canadas (long mid-term bonds). The last series shows the yield on over ten-year Canadas—the Bank’s definition of long-term Canada bonds.

All yields are based on a simple unweighted average of all Wednesday closing mid-market Canada bond yields. Before 1975, these yield series included extendibles but excluded perpetuals and CSBs. Since 1975, extendibles have also been excluded; prior data was also revised to exclude extendibles. Only Canadian-pay direct debt issued in Canada is included.

## **12. Bank Rate**

Data in the second half of the table at the top of page 9 includes the Bank Rate, the rates for Treasury Bills at the Thursday tender and related data on tender amounts. Data discussed in entries 12 and 13 are the only data to be shown as of Thursday. The first series shown in entry 12 is the Bank Rate as of the Thursday tender (versus the same data shown in entry 1 on page 8, which is a Wednesday figure covering the prior week’s tender average).

## **13. Treasury Bill Data for the Weekly Thursday Tender**

The remainder of the table at the top of page 9 shows relevant information covering the weekly Treasury Bill tender.

### *a) Average Yields*

Entry 13a sets out data each week showing the average yield on Treasury Bills at tender. Three-month and

Column

11				12		13a			13b			13c	
Wednesday Le mercredi	FINANCIAL MARKET STATISTICS STATISTIQUES DU MARCHÉ FINANCIER				Thursday Le jeudi	Bank rate* Taux officiel d'escompte*	Treasury bills Bons du Trésor			Weekly tender on Thursday Adjudication hebdomadaire (le jeudi)			continued suite
	Government of Canada marketable bonds Obligations négociables du gouvernement canadien						Average yield Rendement moyen			Amount auctioned Montant adjugé			Amount maturing Montant arrivant à échéance
	Average yields Rendements moyens						3-month 6-month 1-year 3 mois 6 mois 1 an			Millions of dollars En millions de dollars			
	1-3 years 1-3 ans	3-5 years 3-5 ans	5-10 years 5-10 ans	Over 10 years Plus de 10 ans									
814007													
1987 A 15	8.79	8.91	9.12	9.52	16	7.90(A15)	7.65	8.31	8.75	2,500	1,400	500	3,750
22	9.00	9.04	9.24	9.59	23	8.26	8.01	8.79	9.00	2,050	1,150	500	3,450
29	9.23	9.35	9.43	9.82	30	8.33	8.08	8.69	8.94	2,000	1,100	500	3,900
M 6	9.26	9.42	9.47	9.86	M 7	8.17	7.92	8.48	8.87	1,700	900	500	3,400
13	9.24	9.38	9.53	9.88	14	8.07	7.82	8.32	8.88	1,800	900	500	4,050
20	9.79	9.85	9.91	10.21	21	8.54	8.29	8.81	9.44	1,700	900	500	3,700
27	9.33	9.41	9.55	9.92	28	8.44	8.19	8.53	9.06	1,800	1,000	500	4,300
J 3	9.43	9.44	9.49	9.82	4	8.50	8.25	8.72	9.17	2,300	1,250	500	3,650
10	9.35	9.47	9.47	9.83	11	8.58	8.33	8.84	9.28	2,400	1,300	500	4,000
17	9.10	9.23	9.26	9.69C	18	8.59	8.34	8.68	9.06	2,200	1,200	500	3,450
24	9.11	9.27	9.38	9.78	25	8.54	8.29	8.63	8.94	2,200	1,200	500	4,100
J 1	9.16	9.33	9.40	9.81	J 2	8.60	8.35	8.72	9.04	2,200	1,100	500	3,600
8	9.12	9.39	9.45	9.80	9	8.64	8.39	8.76	9.11	2,600	1,500	500	4,100
15	9.36	9.61	9.66	9.98	16	8.67	8.42	8.86	9.21	2,300	1,200	500	4,050
22	9.40	9.68	9.75	10.15	23	8.76	8.51	9.05	9.47	2,400	1,400	500	3,800

\* Effective date is shown in brackets whenever the Bank Rate changes on a day other than Thursday.  
Lorsque le taux d'escompte est modifié un jour autre qu'un jeudi, la date d'entrée en vigueur est indiquée entre parenthèses.

six-month Treasury Bills are sold by tender at weekly auctions, normally held on Thursdays. Prior to August 4, 1977, there were occasions when special issues of Treasury Bills were auctioned with maturities longer than six months but less than one year. From August 1977 to July 1983, one-year Treasury Bills were auctioned every four weeks. From July 1983 to late 1986 they were auctioned every two weeks. To date, since December 1986, they are being auctioned every week.

Bids may be submitted by the Bank of Canada, the chartered banks and money market dealers who are primary distributors of Government of Canada securities. All Treasury Bills are sold at a discount to mature at par, and the yields are calculated as the amount of the discount from par on the basis of a 365-year year.

These rates, released at 2:00 p.m. Thursday and published in the Bank Statement on Fridays are a weighted average yield for the successful bidders. The yields themselves are a function of several factors, including the general trend in inflation, money market rates in Canada and abroad, the exchange value of the Canadian dollar, the supply of Bills being offered by the government, the demand for Bills and, finally, Bank of Canada monetary policy including activity at

the tender to influence the yield.<sup>9</sup>

Although the high and low bids are not shown, a wide spread between the high and low indicates a high degree of uncertainty in the market at the tender; any spread wider than ten basis points is considered to be abnormal.

The various Treasury Bill yield series have to be interpreted carefully given the captive market which exists for Bills (the existence of the secondary reserve requirement) and the potential for large Bank of Canada buying at the weekly auction. This series has never been a completely free market rate series, although it reflects a much freer market now than it did prior to 1977.

#### b) Amount Auctioned (at Tender)

The next three columns show the total principal amount auctioned for the three Bill maturities at each

<sup>9</sup> Bank activity at the tender can influence the rate by 1/2 percent to as much as 1 percent. For example, at the November 6, 1980, tender the Bank of Canada bought about \$325 million in Bills. Its support at the tender held the 91-day Bill yield to 12.55 percent at a time when Bills in the market were starting to trade at 13 percent.

tender. Typically, the three-month tender amount is two to three times the size of the six-month tender amount.

### c) Amount Maturing

The last entry in the table at the top of page 9 shows the total amount of Treasury Bills maturing each week. Thus, the net amount of Bills issued each week and the amount of net new cash raised by the government each week via Treasury Bills (or the net paydown) is determined by subtracting entry 13c from the total amount auctioned each week.

different Government of Canada, Canadian dollar bond issues. Market yields are the percent per annum to maturity if the bonds trade at a discount and to the earliest call date (if applicable) if they trade at a premium. All data cover the weeks in the current month and the weeks for the previous two or three months.

Bonds selected for the WFS carry reasonably current coupons and tend to be the bonds most actively traded for various segments of the yield curve. The price and yield data typically begin with a one-year bond and then move to prices and yields on specific bonds with progressively longer terms. Perpetuals and CSBs are excluded. These quotes allow the analyst to plot the Canada yield curve *using individual bonds*.

## 14. Government of Canada Marketable Bonds: Prices and Yields

The table at the bottom of page 9 sets out Wednesday closing mid-market prices and yields for a variety of

Column

14

Wednesday  
Le  
mercredi

GOVERNMENT OF CANADA MARKETABLE BONDS: PRICES AND YIELDS  
OBLIGATIONS NEGOCIABLES DU GOUVERNEMENT CANADIEN: COURS ET TAUX DE RENDEMENT

BCR Table G8  
RBC Tableau G8

	8 1/4%	9 1/2%	10 1/4%	11 3/4%	12 1/2%	13 1/4%	14 1/2%	15 1/4%	16 1/2%	17 1/4%	18 1/2%	19 1/4%	20 1/2%
	1 March 1997	1 October 2001	1 February 2003	1 February 2004	1 June 2010	1 March 2011	1 June 2011	1 June 2011	1 June 2011	1 June 2011	1 June 2011	1 June 2011	1 June 2011
	9 1/2%	10 1/4%	11 3/4%	12 1/2%	13 1/4%	14 1/2%	15 1/4%	16 1/2%	17 1/4%	18 1/2%	19 1/4%	20 1/2%	21 1/4%
	1 March 1997	1 October 2001	1 February 2003	1 February 2004	1 June 2010	1 March 2011	1 June 2011	1 June 2011	1 June 2011	1 June 2011	1 June 2011	1 June 2011	1 June 2011
	Price	Yield	Price	Yield	Price	Yield	Price	Yield	Price	Yield	Price	Yield	Price
	Cours	Rende- ment	Cours	Rende- ment	Cours	Rende- ment	Cours	Rende- ment	Cours	Rende- ment	Cours	Rende- ment	Cours
1987 A 15	95.56	8.93	102.88	9.14	117.50	9.57	103.88	9.20			97.94	9.21	93.69
22	94.81	9.05	102.06	9.24	116.69	9.66	108.06	9.29			97.06	9.31	92.81
29	93.88	9.21	100.44	9.44	114.88	9.87	106.31	9.49			95.31	9.50	91.06
M 6	93.63	9.25	99.94	9.51	114.44	9.91	105.81	9.54			95.19	9.51	90.63
13	93.06	9.34	99.81	9.52	114.31	9.93	105.56	9.57	97.63	9.76	94.81	9.55	90.44
20	90.75	9.73	97.06	9.88	111.44	10.26	102.94	9.88	95.19	10.04	92.06	9.87	87.81
27	92.94	9.37	99.69	9.54	113.81	9.98	105.63	9.57	97.63	9.76	94.81	9.55	90.63
J 3	93.44	9.29	100.44	9.44	114.69	9.88	106.31	9.49	98.56	9.66	95.56	9.47	91.25
10	93.44	9.29	100.31	9.46	114.50	9.90	106.19	9.50	98.50	9.66	95.44	9.48	91.13
17	94.69	9.08	101.81	9.27	115.88	9.75	107.81	9.31	100.19	9.48	96.69	9.35	92.00
24	93.88	9.22	101.06	9.36	115.13	9.83	107.13	9.39	99.69	9.53	96.06	9.42	90.88
J 1	93.81	9.23	100.94	9.38	114.81	9.87	106.94	9.41	99.44	9.56	95.81	9.44	90.44
8	93.50	9.28	101.88	9.34	115.25	9.82	107.19	9.38	99.56	9.55	95.94	9.43	90.38
15	92.31	9.48	99.06	9.62	113.13	10.06	105.06	9.63	97.06	9.82	93.94	9.65	88.34
22	91.50	9.62	98.06	9.75	111.94	10.20	104.00	9.76	96.06	9.94	93.06	9.75	87.56

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# CHAPTER 8

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SECURITIES ISSUED AND  
OUTSTANDING; TRUST AND  
MORTGAGE COMPANY  
BALANCE SHEETS;  
CREDIT OUTSTANDING; AND,  
INTEREST RATE CHARTS

Column	1	2a	2b	2c													
End of period En fin de période	GOVERNMENT OF CANADA SECURITIES OUTSTANDING (Millions of dollars) ENCOURS DES TITRES DU GOUVERNEMENT CANADIEN (En millions de dollars)										BCR Table G4 RRC Tableau G4						
	Canadian Dollars Libellés en dollars canadiens																
	Treasury bills (par value) Bons du Trésor (valeur nominale)	Other direct and guaranteed securities Autres titres émis ou garantis	Canada Savings Bonds Obligations d'épargne du Canada	Total Total	Held by Débiteurs	Bank of Canada Banque du Canada	Treasury bills Bons du Trésor	Bonds Obligations	Total Total	Chartered banks Banques à charte	Treasury bills Bons du Trésor	Bonds Obligations	Total Total	Government accounts Comptes du gouvernement	Treasury bills Bons du Trésor	Bonds Obligations	Total Total
	B2425		B2406		B2470					B2473				B2466			
1987	M	76,950	105,453	43,854	226,257	6,882	10,555	17,437	17,983	2,928	20,911	181	2,457	2,639			
	A	79,950	106,487	43,502	229,938	8,392	10,571	18,962	18,803	2,971	21,774	260	2,614	2,873			
	M	76,900	107,344R	43,004	227,248R	8,627	10,616	19,243	17,820	3,189	21,009	189	2,651	2,839			
	J	78,250	108,242R	42,366R	228,859R	9,493	10,589	20,082	N	N	N	252	2,997	3,249			
1987	M 6	79,650	106,873	43,438	229,961	8,550	10,606	19,157	18,701	2,667	21,368	264	2,631	2,895			
	13	79,350	106,851	43,142	229,343	8,038	10,606	18,644	18,445	2,559	21,005	247	2,632	2,879			
	20	78,500	106,847	43,076	228,423	8,227	10,606	18,833	18,068	2,596	20,664	227	2,631	2,858			
	27	77,900	107,344	43,028	228,272	8,340	10,616	18,956	17,980	2,593	20,573	189	2,631	2,821			
	J 3	76,900	107,899R	42,999	227,798R	8,382	10,560	18,942	17,403	2,571	19,975	229	2,904	3,132			
	10	77,300	107,928R	42,574	227,802R	8,643	10,560	19,203	17,523	2,633	20,156	221	2,904	3,124			
	17	78,000	106,924R	42,453	227,377R	8,786	10,560	19,346	18,019	2,647R	20,666R	235	2,904	3,139			
	24	78,450	107,369R	42,394	228,212R	8,934	10,570	19,504	17,680	2,645	20,325	229	2,904	3,132			
	J 1	78,250	108,242R	42,366R	228,859R	9,493	10,589	20,082	16,360	2,582R	18,942R	252	2,997	3,249			
	8	78,450	108,832R	42,119R	229,401R	8,882	10,407	19,288	16,685R	2,501R	19,186R	259	3,098	3,357			
	15	78,950	108,820R	41,952R	229,722R	9,031	10,407	19,438	16,847R	2,340R	19,187R	264	3,098	3,362			
	22	78,900	108,816	41,872	229,588	8,845	10,407	19,252	15,584	2,509	18,093	268	3,130	3,397			
Changes from:	Variations par rapport à la:																
1986	J 23	12,900	11,767	-644	24,023	4,391	95	4,486	2,213	216	2,430	65	918	983			
1987	J 15	-50	-4	-80	-135	-186	-	-186	-1,263	169	-1,095	4	31	35			

Column	2d	3a	3b	3c	3d	3e				
End of period En fin de période	GOVERNMENT OF CANADA SECURITIES OUTSTANDING (Millions of dollars) <i>ENCOURS DES TITRES DU GOUVERNEMENT CANADIEN (En millions de dollars)</i>				Average of Wednesdays and Wednesday Moyenne des mercredis ou données du mercredi		GOVERNMENT OF CANADA CANADIAN DOLLAR DEPOSITS <i>DEPOTS EN DOLLARS CANADIENS DU GOUVERNEMENT CANADIEN</i>			
	Canadian dollars <i>Dollars canadiens</i>						Millions of dollars <i>En millions de dollars</i>			
	Held by <i>détenteurs</i>						Held at <i>détenteurs</i>			
	General Public <i>Autres détenteurs</i>						Bank of Canada <i>Banque du Canada</i>			
	Treasury bills <i>Bons du Trésor</i>	Marketable bonds <i>Obligations négociables</i>	Canada Savings Bonds <i>Obligations d'épargne du Canada</i>	Total <i>Total</i>			Chartered banks <i>Banques à charte</i>	Other financial institutions <i>Autres institutions financières</i>	Total <i>Total</i>	Of which: Term <i>Dont: à terme fixe</i>
	B2477		B2406				B54		B456	
1987 M	51,904	89,513	43,854	185,270	1987 M	13	3,252	2,473	5,738	4,125
A	52,496	90,331	43,502	186,329	A	245	3,510	2,129	5,894	3,640
M	50,265	90,888R	43,004	184,156R	M	316	2,802	3,272	6,389	4,863
J	N	N	42,366R	N	J	374	1,605	749	2,728	625
1987 M 6	52,135	90,969	43,438	186,542	1987 M 6	1,055	2,473	2,942	6,470	4,450
13	52,619	91,054	43,142	186,815	13	11	2,054	3,690	5,755	4,850
20	51,978	91,013	43,076	186,068	20	181	2,435	3,837	6,453	4,650
27	51,391	91,504	43,028	185,923	27	15	4,244	2,620	6,879	5,500
J 3	50,886	91,864R	42,999	185,749R	J 3	108	1,696	1,405	3,209	1,200
10	50,913	91,831R	42,574	185,318R	10	346	1,762	519	2,627	-
17	50,959	90,814R	42,453	184,227R	17	794	1,228	630	2,653	400
24	51,607	91,250R	42,394	185,251R	24	248	1,735	441	2,424	900
J 1	52,145	92,075R	42,366R	186,586R	J 1	225	345	85	655	-
8	52,624R	92,826R	42,119R	187,569R	8	12	1,113	642	1,767	500
15	52,808R	92,975R	41,952R	187,735R	15	15	1,264R	370	1,649R	-
22	54,204	92,771	41,872	188,846	22	12	1,251	1,194	2,457	1,550
Changes from:	Variations par rapport à la:									
1986 J 23	6,231	10,537	-644	16,124	1986 J 22	-583	-585	56	-1,112	-450
1987 J 15	1,396	-204	-80	1,111	1987 J 15	-3	-13	824	808	1,550



## I. GOVERNMENT OF CANADA SECURITIES OUTSTANDING AND GOVERNMENT OF CANADA CANADIAN DOLLAR DEPOSITS

Page 10 shows data on the three main classes of Government of Canada securities outstanding and the federal cash balance. There are two tables on this page. The table at the top of the page and half of the table at the bottom of the page set out data contained in table G4 of the *Bank of Canada Review*. The second half of the table shows the distribution of federal deposits held with the Bank of Canada, with chartered banks and with other financial institutions.

Data on securities outstanding are shown at month end for the latest four months and as of Wednesday for each week of the current month and for the two prior months. The data on Government of Canada deposits are also shown for the last four months, but on a monthly average basis, as well as weekly for the current month and weekly for the prior two months. In all cases, the tables show the dollar value of the change from the latest week and the change from the same week a year ago.

### 1. Securities Outstanding

Entry 1 sets out the total amount of direct and guaranteed federal debt outstanding for the three types of securities issued by the government. This includes Treasury Bills, other direct and guaranteed securities (marketable bonds) and CSBs as well as a total of the three. The Treasury Bill series excludes U.S. pay Canada Bills first issued in September 1986, because Ottawa does not want the market to speculate about its use of U.S. pay bills for dealings in the foreign exchange market. Also, effective November 5, 1986, Canada Savings Bonds sold on the Payroll Savings Plan are gradually included in outstandings as payroll deductions are remitted over the contract period; previously the total amount of payroll sales was included in outstandings in November.

The characteristics of these three types of securities and how the government views them in its overall debt management programme are set out and discussed in the book *The Mechanics of Monetary and Debt Management Policy in Canada—A View from the Street* by P. Martin (forthcoming). Federal government bank loans or drawings on its U.S. dollar stand-by lines of credit with Canadian and foreign

banks are *not* included. Federal Crown corporation debt is not included either.

Treasury Bills are carried on the books at their maturity value (par), and CSBs are carried at par by definition. In most cases, the Canadian dollar marketable securities are also shown at par, although in a few cases they are carried at book value.

Finally, although there are no foreign pay Canada Savings Bonds outstanding, there are foreign-pay marketable and non-marketable securities outstanding. Such securities (which exclude foreign bank loans), have to be valued in Canadian dollars. Government of Canada issues payable in foreign currencies have been converted into Canadian dollars as follows. From September 30, 1950, to May 3, 1962, U.S.-pay securities were value at par (U.S.\$1 = C\$1), while Sterling pay securities were converted at £1 = C\$2.80.

Following the Canadian dollar devaluation in May 1962, U.S.-pay securities were converted at U.S. \$1.081 = C\$1 up to December 31, 1971. Also, from May 3, 1962, to November 18, 1967, Sterling issues were valued at the fixed rate of £1 = C\$3.027. Following the 1967 UK devaluation and extending to December 31, 1971, Sterling securities were converted at £1 = C\$2.595.

In the 1960s, Canada also issued German mark and Italian lire securities. Prior to October 26, 1969, one Deutschmark was valued at 27 ¢ Canadian. Thereafter, to December 31, 1971, one Deutschmark was valued at 29.5 ¢ Canadian. From May 5, 1968, to June 24, 1970, lire denominated securities were valued at C\$ 0.00173.

During the 1970s, many countries officially adopted flexible exchange rates. This required more frequent valuation of foreign securities issued by the Government of Canada. Thus, since December 31, 1971, issues payable in foreign currencies have been valued in Canadian dollars at the closing spot rate as of the *last business day of the calendar quarter*. These revaluations have sometimes been quite large (e.g., as much as \$300 million or more in a quarter), reflecting volatile exchange rates over the last decade and especially the sharp drop in the Canadian dollar since 1976.

### 2. Holder Breakdown of Government Securities

The remaining part of the table at the top of page 10 summarizes the holder distribution of the federal debt.

The distribution will change when there are new securities issued or when any securities mature.

*a) Bank of Canada*

The Bank of Canada holds Treasury Bills and marketable bonds. The Bank buys these securities both at the time of issue and in the secondary market. Central bank purchases of these securities create currency for circulation. Also, it will hold some of these securities (mostly Bills) under money market dealer PRAs.

*b) Chartered Banks*

Chartered banks also hold Government of Canada Bills and marketable bonds which they buy as new issues or in the secondary market. They buy these securities for their yield, safety and liquidity and, in the case of Bills, to satisfy the Bank's secondary reserve requirement.

*c) Government Accounts*

Government accounts hold Treasury Bills and both marketable and non-marketable Government of Canada bonds. These government accounts include: public service pension funds for federal civil servants (including the armed forces and RCMP); pension funds of federal Crown corporations (e.g., The Atomic Energy Commission, Central Mortgage and Housing and the Farm Credit Corporation); pension funds of federal government agencies; the Purchase Fund; the Securities Investment Account; Unemployment Insurance Fund (which can hold special issues of non-marketable securities); and finally, Canada Pension Plan issues taken up by the federal government, bonds held on behalf of Yukon and the Northwest Territories and bonds for any province that has not drawn the funds accruing to it.

Holdings of Canada Savings Bonds being purchased on the payroll savings plan by government employees are excluded; these are included with general public holdings.

The Bank of Canada may also do special internal transactions with these government accounts as part of its ongoing debt management and monetary policy. Thus, whenever the Bank buys or sells securities, the analyst should always check the holder breakdown to

see if these purchases were for the Bank's own account or for government accounts. For example, in December of each year when the system needs cash, the Bank will tend to be a net buyer of securities (e.g., Bills) for government accounts.

*d) General Public Holdings*

The fourth holder breakdown category reflects the general public. For the first two entries—Treasury Bills and marketable bonds—the general public figure is calculated as a residual (i.e., by subtracting Bank of Canada, chartered bank and government account holdings from the total amount outstanding). General public holdings include a long list of non-bank institutional buyers, investment dealers and the retail public. This figure also includes foreign buying by foreign central banks and foreign individuals or private institutions.

It is worthwhile noting that the general public holdings of Bills and bonds shown here can also be affected by Bank of Canada transactions. For example, if the Bank sells bonds or Bills to the general public, public holdings rise by the amount of the Bank's sale. Also, if the Canadian dollar should weaken, the Bank could draw on its swap line of credit with the U.S. Federal Reserve Bank of New York by selling the Fed Canadian dollar securities and buying U.S. dollar securities for sale to support the Canadian dollar. This type of transaction is rare (last done in 1968), but if carried out it would show up as an increase in the general public holdings of Canadas, if the Fed held its Canadian dollars in Government of Canada securities, and a decline in the Bank's holdings of Canadas.<sup>1</sup>

The third component of general public holdings is Canada Savings Bonds. The CSB figure is available directly because these bonds can only be sold to the general public.

Trends in the general public holdings of bonds, Bills (excluding securities under PRA at the Bank) and CSBs can be quite important. For example, the

<sup>1</sup> Not all inter-central bank swaps need show up in this section. For example, if the swap were done by having the Fed deposit U.S. dollars at the Bank of Canada while the Bank deposits Canadian dollars with the Fed, then the transaction would only show up if the Fed purchased Canadian government securities. A purchase of any other security would not show up in this section, although it would be reflected as an increase in net foreign assets.

weekly runoff in CSBs proved to be significant on several occasions in forcing the government to borrow more (via market bonds and Treasury Bills) than it had originally expected. In contrast, bigger than expected CSB issues have, on occasion, led the government to run down its Treasury Bill holdings and do less financing than it otherwise would have in the public bond market.

### 3. Government of Canada Canadian Dollar Deposits

A small table showing data on Government of Canada Canadian dollar deposits completes page 10. This table shows the total government deposit balance and how this balance is split between deposits held at the Bank of Canada, deposits held with chartered banks and those held at other financial institutions.

		3a	3b	3c	3d	3e
Average of Wednesdays and Wednesday		GOVERNMENT OF CANADA CANADIAN DOLLAR DEPOSITS DEPOTS EN DOLLARS CANADIENS DU GOUVERNEMENT CANADIEN				
Moyenne mensuelle des mercredis ou données du mercredi		Millions of dollars En millions de dollars				
		Held at Détenueurs				
		Bank of Canada Banque du Canada	Chartered banks Banques à charte	Other financial institutions Autres institutions financières	Total Total	Of which term Dont: à terme fixe
		B54	B456			
1987	M	13	3,252	2,473	5,738	4,125
	A	245	3,510	2,129	5,894	3,640
	M	316	2,802	3,272	6,389	4,863
	J	374	1,605	749	2,728	625
1987	M 6	1,055	2,473	2,942	6,470	4,450
	13	11	2,054	3,690	5,755	4,850
	20	181	2,435	3,837	6,453	4,650
	27	15	4,244	2,620	6,879	5,500
	J 3	108	1,696	1,405	3,209	1,200
	10	346	1,762	519	2,627	-
	17	794	1,228	630	2,653	400
	24	248	1,735	441	2,424	900
	J 1	225	345	85	655	-
	8	12	1,113	642	1,767	500
	15	15	1,264R	370	1,649R	-
	22	12	1,251	1,194	2,457	1,550

#### a) Government Deposits Held at the Bank of Canada

The first entry shows government deposits at the Bank of Canada. These deposits are usually held at a low level—about \$10-30 million—because the government does not earn interest on them. However,

on occasion this entry can show a large increase when the government wants to sterilize cash outside the banking system.

#### b) Government of Canada Deposits Held at Chartered Banks

Virtually all the federal cash balance is held on deposit with chartered banks and, since the second half of 1983, with certain other direct clearing financial institutions.

As discussed in chapter 3, deposits with banks and other direct clearing CPA members take two forms. First, Ottawa can deposit demand funds according to a formula which takes into account each direct clearer's share of chequable deposits. The banks calculate the interest on these balances daily and pay it monthly at prime less 2 1/2 percent. Second, Ottawa auctions part of its balances for approximately one week at a time. Banks and other financial institutions bid for these deposits.

The total of demand deposits and term deposits held by chartered banks are shown in entry 3b.

#### c) Government of Canada Deposits with Other Financial Institutions

In late 1983, two financial institutions became the first non-bank direct clearing members of the Canadian Payments Association, and by early 1987 there were five members. As clearing members, these financial organizations opened deposit accounts at the Bank of Canada to facilitate their clearing transactions, and these deposits are shown on the Bank's balance sheet. Associated with this, the Bank of Canada began to redeposit funds with these non-bank direct clearing financial institutions in late 1983. These redeposits were on the same basis as the banks, i.e., each non-bank direct clearer obtains a formula redeposit based on the size of its chequable deposit base. Non-banks pay Ottawa interest on the same basis as banks.

With the introduction of the term deposit auction, non-bank direct clearers can also bid for federal term deposits on the same basis as banks. Thus, the total of demand deposits and term deposits held by non-bank financial institutions is shown in entry 3c.

Finally, under the 1980 Bank Act (paragraph 48(2)b), the Bank of Canada is allowed to buy and sell foreign currencies and maintain deposit accounts with Canadian and foreign banks outside Canada to

facilitate foreign exchange operations. Such deposits, if made, would show up in this entry.

#### d) *Total Government Deposits*

Total government deposits shown in entry 3d is the sum of government deposits at the Bank of Canada, at chartered banks and at other financial institutions. These deposits have typically fluctuated in a range of \$2-7 billion. However, in recent years, the balance has been as low as about \$300 million and as high as \$12.1 billion.

To put these figures into perspective, the workable *minimum* level of cash the government needs to handle its day-to-day operations is usually considered to be one week's disbursements—about \$2 billion at the end of 1988. The one-week disbursements rule of thumb assumes a stable exchange rate. Higher cash balances are needed if the exchange rate is subject to sharp upward fluctuations. A weak exchange rate means the government can run lower cash balances since it is usually a net converter of foreign currencies to Canadian dollars.

There is no rule for a *maximum* level of cash balances, though the government is probably inclined to keep more cash on deposit when the yield curve has a strongly negative slope. The government and the Bank of Canada do not usually like large balances because they can create spending pressures. Typically, if cash balances are high, the government will allow Bills and bonds to mature without rolling them over or raising new cash, or it will buy securities to reduce its deposits in the banking system.

#### e) *Of Which: Term*

The last entry shows the total amount of government balances held as term deposits with banks and other financial institutions. This was a new entry in April 1986 when the fixed weekly term deposit auction was held. Since April 1986, the government has auctioned some deposits each week.

## II. NET NEW SECURITIES ISSUES PLACED IN CANADA AND ABROAD AND CORPORATE SHORT-TERM PAPER OUTSTANDING

The table at the top of page 11 in the WFS covers the first 12 columns of table F5 in the *Bank of Canada*

*Review*. This table sets out the dollar value of *net* new security issues (gross new issues less retirements) sold in Canada and abroad (including foreign currency issues) by federal, provincial and municipal governments, by corporations and by others (excluding issues of U.S.-pay Canada Bills). The data for all levels of government include guaranteed issues. Also, the table shows two classes of short-term paper issued. These data are shown on a par value basis for each month, covering a 25- to 27-month period, in contrast to the presentation format in the *Review* which shows information on an annual basis for 20 years and on a quarterly basis for up to five years.

The figures for securities in columns 1-6 cover all Canadian and foreign public issues (excluding U.S.-pay Canada Bills) and most private placements (where known). The data include foreign currency issues placed in Canada and Canadian dollar issues placed abroad, but exclude domestic and foreign bank loans.

In converting foreign-pay issues into Canadian dollars, different techniques have been used for valuing federal and non-federal securities. The rates for valuing federal securities up to December 31, 1971, are the same as those discussed earlier in part I, section 1, of this chapter. However, since 1971, foreign-pay Canada issues in this table have been converted into Canadian dollars at the noon spot rate on the day of delivery.

Turning to non-federal foreign pay securities (provincial, municipal and corporate), all issues payable in foreign currencies have been converted into Canadian dollars at the average noon market rate for each month. In the case of optional-pay issues, the option most favourable to the lender has been used.

The table at the bottom of page 11 sets out data covering corporate short-term paper outstanding. Moreover, the table shows a finer breakdown of corporate short-term paper compared to the table at the top of the page and presents the data for total paper *outstanding* in Canadian and foreign currencies at the end of each month as opposed to the net month-to-month change in Canadian and foreign-pay paper taken together. The main advantage of the table at the bottom of the page is to show the split between Canadian and foreign-pay paper.

This table duplicates information shown in the first 11 columns of table F3 in the *Review*. As above, data are shown on a par value basis for each month covering a 25-month period. In the *Review*, data are shown monthly for three years and annually at year end for at least ten years.

Column	1	2	3	4a	4b	5	6	7a	7b	7c
End of period En fin de période	NET NEW SECURITIES ISSUES PLACED IN CANADA AND ABROAD (Millions of Canadian dollars) <sup>(1)</sup> <i>ÉMISSIONS NETTES DE TITRES PLACÉS AU CANADA ET À L'ÉTRANGER (En millions de dollars canadiens)<sup>(1)</sup></i>									BCR Table F5 RBC Tableau F5
	Government of Canada <i>Gouvernement canadien</i>	Provinces <i>Provinces</i>	Municipalities <i>Municipalités</i>	Corporations <i>Sociétés</i>	Other <i>Autres</i>	Total	Short-term paper <i>Papier à court terme</i>		Total	
	Bonds <i>Obligations</i>	Treasury bills <i>Bons du Trésor</i>	Total	Bonds <i>Obligations</i>	Preferred and common stocks <i>Actions privilégiées ou ordinaires</i>	Institutions and foreign debtors <i>Autres institutions et emprunteurs étrangers</i>	Finance and other commercial paper <i>Papier des sociétés de financement et d'autres sociétés</i>	Canadian dollar bankers' acceptances <i>Acceptations bancaires en dollars canadiens</i>		Total
1985 A	701	1,600	2,301	593	31	393	1,092	61	4,472	931
M	1,931	1,400	3,331	1,669	109	214	1,379	-6	6,697	-1,010
J	960	1,050	2,010	2,305	10	1,022	854	5	6,206	75
J	2,045	1,050	3,095	1,167	76	1,690	1,085	-9	7,105	471
A	126	2,850	2,976	51	-20	454	462	89	4,012	668
S	870	1,850	2,720	762	16	162	1,177	-5	4,832	-405
O	702	2,450	3,152	-115	99	770	762	19	4,687	-647
N	11,875	-1,700	10,175	1,416	42	412	889	-10	12,923	-49
D	-70	-3,450	-3,520	456	43	477	1,767	142	-635	-176
1986 J	-911	-2,450	-3,361	527	77	237	415	-	-2,106	1,017
F	843	2,550	3,393	-63	-25	204	1,091	-	4,601	764
M	-1,006	2,450	1,444	428	61	1,313	496	-108	3,634	708
A	1,515	1,300	2,815	1,504	319	781	1,138	-6	6,551	-746
M	632	2,350	2,982	786	88	1,461	778	-12	6,082	-1,142
J	523	850	1,373	1,638	131	149	1,854	-12	5,134	740
J	2,025	-200	1,825	1,222	74	1,514	2,296	-4	6,928	-366
A	194	500	694	363	130	2,068	610	-13	3,852	-22
S	759	350	1,109	1,743	-9	703	1,009	-3	4,552	-177
O	1,177	3,450	4,627	1,188	-53	2,091	1,308	22	9,182	581
N	4,057	-2,450	1,607	896	85	935	1,552	23	5,098	258
D	623	1,600	2,223	4,331	38	1,579	1,429	33	9,633	484
1987 J	1,205	1,750	2,955	644	-29	383	524	-12	4,465	103
F	577	3,100	3,677	1,491	159	315	1,104	15	6,762	139
M	493	2,400	2,893	594	-17	1,225	1,125	9	5,829	-69
A	681	3,000	3,681	588	135	1,167	1,306	-	6,878	1,610
M	358	3,050	3,408	1,229	11	1,253	1,406	-16	7,291	-345R
J	59	1,350	1,409	305	195	460	1,381	-42	3,709	960R

Column	8	9	10	11							
End of period En fin de période	CORPORATE SHORT-TERM PAPER OUTSTANDING ENCOURS DES EFFETS A COURT TERME DES SOCIÉTÉS						BCR Table F3 RBC Tableau F3				
	Millions of Canadian dollars En millions de dollars canadiens										
	Sales finance and consumer loan company paper Papier des sociétés de financement ou de prêt à la consommation		Other commercial paper Autre papier commercial			Canadian dollar bankers' acceptances Acceptations bancaires en dollars canadiens	Total corporate short-term paper Papier à court terme émis par les sociétés				
	Canadian dollars Dollars canadiens	Other currencies Autres monnaies	Canadian dollars Dollars canadiens	Other currencies Autres monnaies	Total Total	Of which paper issued by non-financial corporations Dont papier des sociétés non financières	Canadian dollars Dollars canadiens	Other currencies Autres monnaies	Total Total		
	B17417	B17419	B17420	B15002	B15004	B15005	B15020	B15011	B15010	B15013	B15014
1985 A	3,313	63	3,376	9,759	2,011	11,770	4,539	14,993	28,065	2,074	30,139
M	3,263	68	3,330	8,834	1,973	10,806	4,148	15,188	27,285	2,040	29,325
J	3,382	96	3,478	8,774	1,959	10,733	4,027	14,911	27,067	2,056	29,123
J	3,364	173	3,538	9,010	2,134	11,144	4,355	16,557	28,931	2,308	31,239
A	3,530	87	3,617	9,700	2,033	11,734	4,696	17,942	31,171	2,120	33,292
S	3,643	98	3,741	9,271	1,933	11,204	5,023	19,006	31,920	2,031	33,951
O	3,694	100	3,794	8,318	2,187	10,504	4,696	18,859	30,871	2,286	33,157
N	3,881	150	4,031	8,111	2,107	10,218	4,511	19,306	31,297	2,258	33,555
D	3,836	213	4,049	8,272	1,752	10,024	3,834	17,007	29,114	1,966	31,080
1986 J	4,099	206	4,305	8,939	1,845	10,785	4,192	16,811	29,850	2,052	31,901
F	4,297	167	4,464	9,368	2,022	11,390	3,821	13,043	26,709	2,189	28,897
M	4,531	234	4,765	9,844	1,953	11,797	4,086	13,619	27,994	2,187	30,181
A	4,639	210	4,849	9,575	1,393	10,968	4,651	19,452	33,665	1,603	35,268
M	4,803	212	5,015	8,231	1,428	9,659	4,054	22,545	35,579	1,640	37,219
J	5,125	199	5,324	8,859	1,231	10,091	4,398	23,089	37,073	1,431	38,504
J	5,151	205	5,356	8,221	1,472	9,693	3,802	23,850	37,222	1,677	38,899
A	5,026	185	5,210	8,426	1,391	9,816	3,787	23,968	37,420	1,575	38,995
S	4,993	160	5,153	7,913	1,784	9,697	3,844	23,785	36,690	1,944	38,634
O	5,252	202	5,454	7,941	2,036	9,977	3,911	24,927	38,119	2,238	40,357
N	5,526	148	5,674	7,940	2,074	10,014	3,934	25,636	39,102	2,222	41,324
D	5,972	130	6,102	8,099	1,972	10,071	3,636	24,896	38,967	2,102	41,069
1987 J	5,784	141	5,925	8,124	2,227	10,351	3,786	25,915	39,823	2,368	42,191
F	5,765	309	6,074	8,482	1,859	10,341	3,970	26,917	41,163	2,168	43,331
M	5,954	230	6,183	8,048	2,115	10,162	4,082	27,478	41,479	2,344	43,823
A	6,174	73	6,248	9,426	2,282	11,708	4,596	27,838	43,438	2,355	45,793
M	6,463	86	6,549	8,634	2,427R	11,061R	4,295R	28,517	43,614	2,513R	46,127R
J	6,931R	165	7,096R	8,868R	2,606R	11,474R	4,674R	28,601	44,400R	2,771R	47,171R

## 1. Government of Canada Securities

The first three columns of data show the net new issues of bonds (both marketable and non-marketable, including CSBs) and Treasury Bills issued by the federal government (and its guarantees) and the total issued (net) per month.<sup>2</sup> U.S. pay Canada Bills are excluded. Effective November 5, 1986, Canada Savings Bonds sold on the Payroll Savings Plan are gradually included in outstandings as payroll deductions are remitted over the contract period; previously the total amount of payroll sales was included in outstandings in November.

## 2. Provincial Securities

Net new provincial issues include the bonds of their guaranteed agencies. This series includes issues placed directly by the provinces with the Canada Pension Plan or, in the case of Quebec, provincial issues placed with the Quebec Pension Plan. It also includes various issues placed with other provincial accounts (e.g., Province of Ontario issues placed directly with OMERS and Province of Quebec issues placed directly with the Hydro Quebec Pension Fund). In calculating provincial retirements, the total amount of all bond issues is assumed to be retired at the final maturity date. That is, retirements of provincial bonds do not include payments into sinking funds, even though some issues do have small sinking funds. Thus, the net amount of provincial net new issues shown in this entry for any given month is overstated by the amount of provincial sinking fund activity in that month. This does not cause significant distortions since provincial sinking funds are small and typically only operate in the last few years prior to maturity.

## 3. Municipal Net New Issues

Municipal bonds do not include issues guaranteed by the provinces, since these are already included in provincial bonds, nor does this category include issues sold directly to provinces and their agencies. Like provincial bond retirements, municipal bond retirements do not include payments into sinking funds. The monthly data for municipal retirements are estimated by pro-rating annual estimates and including

<sup>2</sup> Bank loans and term loans with Canadian or foreign banks are excluded.

partial data for large municipalities (such as Montreal, Toronto, Vancouver and Winnipeg) when available.

## 4. Corporate Net New Issues

### a) Bonds

The net new issue series for corporate bonds includes all issues of Canadian corporations with the exception of finance company paper and commercial paper with an original term to maturity of one year or less, and issues sold to a parent company whether this parent is incorporated in Canada or abroad.

### b) Preferred and Common Stocks

Net new common and preferred share issues are shown at offering prices, less retirements, which are calculated as the actual amount paid by the corporation to retire the shares. Pursuant to section 91 of the Canadian and British Insurance Companies Act, common stock retirements do not include purchases of their own shares by life insurance companies. Common share retirements in 1961 and 1964 reflect the distribution by British Columbia Power Corporation to shareholders of funds received from the Province of British Columbia in payment for the common and preferred shares of British Columbia Electric Company Limited. In 1963, the data reflected Quebec Hydro's purchase of the privately-owned hydro-electric companies in Quebec. In 1972, the data reflected purchase by the Nova Scotia Power Commission (a government agency) of Nova Scotia Light and Power Company Limited (a private company).

## 5. Other Institutions and Foreign Debtors

Transactions of other institutions and foreign debtors include issues of Canadian religious and other institutions as well as issues placed in Canada by foreign debtors.

## 6. Total

Entry 6 sets out the total net amount of longer term debt and equity raised by the various classes of borrowers covered in entries 1-5.

## 7. Short-Term Paper

The last three columns of the table at the top of page 11 set out relevant data on the net issuance of short-term paper in Canada and abroad by month. The paper issued has an original term of *one year or less*. The data do not include: Bills and notes placed directly with parent or affiliated companies, corporate notes placed directly with chartered banks and short-term loans from Canadian and foreign banks.

### a) Finance and Other Commercial Paper

The first series, issues of short-term finance and commercial paper, includes notes issued by wholly-owned finance company subsidiaries of all manufacturers and merchandisers. Data on sales finance and other commercial paper are based on a survey by the Bank of Canada covering companies known to have issued short-term paper. The Bank estimates that a high proportion of all paper issued is covered by its survey.

### b) Canadian Dollar Bankers' Acceptances

Bankers' Acceptances, which are basically commercial paper with a bank guarantee, are presented in entry 7b. They show the net amount of Canadian dollar BAs issued as of the last Wednesday of each month. Foreign-pay BAs are not included in these data.

### c) Total

Entry 7c is the summation of the net new issues shown in entries 7a and 7b.

## 8. Sales Finance and Consumer Loan Company Paper

The table at the bottom of the page sets out corporate short-term paper outstanding as of month end for 25-27 months. Data on sales finance companies are based on a Bank of Canada survey covering companies known to have issued short-term paper. This survey accounts for a large percentage of the total paper issued.

As noted above, data on sales finance and consumer loan company paper includes notes issued by wholly-owned finance company subsidiaries of all manufacturers and merchandisers (e.g., the finance company subsidiaries of automobile companies). However, the data do not include paper placed directly by the companies with parent or affiliated companies or with chartered banks.

The published statistics indicate that finance and consumer loan companies issue mostly Canadian-pay paper.

## 9. Other Commercial Paper

Data on other commercial paper outstanding are based on the Bank survey noted above. This series includes paper issued by foreign bank affiliates in Canada, but excludes this same paper if the foreign bank affiliates become Canadian chartered banks.<sup>3</sup> Here again, the data do not include paper placed directly with parent or affiliated companies or with chartered banks.

This entry also includes another breakdown—the amount of paper outstanding which has been issued by non-financial corporations.

## 10. Canadian Dollar Bankers' Acceptances

BAs outstanding (as of the last Wednesday of the month) have increased dramatically in recent years. In late September 1988, outstandings of C\$ Bankers' Acceptances totalled about \$38 billion, compared to \$5.4 billion at the end of 1980 and \$2.9 billion at the end of 1979.

## 11. Total Corporate Short-Term Paper Outstanding

Entry 11, representing the total of entries 8, 9 and 10, shows the total amount of Canadian dollar and foreign currency short-term paper outstanding at each month end covering a 25- to 27-month period.

<sup>3</sup> Commercial paper outstanding declined substantially late in 1981 when a large number of foreign bank affiliates received Canadian chartered bank status. When this occurred, the Canadian dollar and foreign-pay short-term commercial paper previously included in entry 9 was reclassified as bank paper and removed from this series.

**III. TRUST AND MORTGAGE LOAN COMPANIES EXCLUDING BANK MORTGAGE LOAN SUBSIDIARIES: MONTHLY STATEMENT OF ESTIMATED ASSETS AND LIABILITIES AND MORTGAGE LOAN COMPANIES ASSOCIATED WITH CHARTERED BANKS: ESTIMATED ASSETS AND LIABILITIES**

Page 12 of the WFS sets out the month end statement of estimated assets and liabilities for trust and mortgage loan companies, *excluding bank mortgage loan subsidiaries*. The same statement for mortgage loan companies associated with chartered banks is set out at the top of page 13. These two statements of assets and liabilities duplicate the data presented each month in the *Bank of Canada Review*, tables D1 and D2.

In each case, 13 months of data are shown for the various entries in the WFS, compared to three years of monthly data and up to ten year ends in the *Review*.

The monthly asset and liability data for trust and mortgage loan companies are derived from total trust and mortgage loan company data collected *quarterly* by Statistics Canada and from a *monthly* survey by the Bank of Canada covering firms with over 80 percent of total assets in these industries. For months between quarter ends, data for the trust and mortgage loan companies, excluding bank subsidiaries, are estimated from the monthly survey to arrive at industry-wide figures. As a result, total assets and liabilities for the intra-quarter months may not be equal as they are the sums of the component series. Where there are foreign currency assets or liabilities, these are included in the relevant component series. Data for the chartered bank mortgage loan subsidiaries, appearing on page 13 of the WFS, originate directly from the monthly survey by the Bank of Canada.

Since the asset and liability classes for trust and mortgage loan companies are quite similar to the asset and liability classes for mortgage loan companies associated with banks, they are discussed concurrently as entries 1-24 for trust and mortgage loan companies, excluding bank affiliated mortgage companies and 1a-23a for mortgage loan companies associated with banks.

The asset categories are set out in entries 1-14 and 1a-14a.

**1.,1a Cash and Demand Deposits**

Cash and demand deposits include cash on hand and demand deposits placed in chartered banks and other financial institutions in Canada and outside Canada, i.e., both Canadian dollar and foreign currency deposits.

**2.,2a Term and Notice Deposits**

Term and notice deposits with chartered banks and other institutions are shown separately in entry 2.,2a. The entry includes both Canadian dollar and foreign deposits. The "other" component includes swapped deposits at chartered banks and deposits with institutions other than chartered banks.

**3.,3a Short-Term Paper**

For the trust and mortgage loan companies excluding banks, entry 3 includes short-term paper and Bankers' Acceptances. This series includes bonds, debentures and notes with an original term to maturity of less than one year. Treasury Bills for all three levels of government are *excluded* and shown separately.

For mortgage loan companies associated with banks, the series also includes short-term notes and Bankers' Acceptances. However, provincial and municipal Treasury Bills are *included* in entry 3a for the bank affiliated mortgage lenders.

**4.,4a Government of Canada Treasury Bills**

Government of Canada Treasury Bill holdings are shown as separate asset categories for both trust and mortgage loan firms and bank mortgage loan subsidiaries.

**5. Provincial and Municipal Treasury Bills**

Provincial and municipal Treasury Bill holdings are shown in entry 5 for trust and mortgage loan companies excluding bank mortgage loan subsidiaries. These security classes are incorporated in entry 3a for the bank-related mortgage lenders, since these firms hold very few, if any, of these securities.



Column	1	2	3	4	5	6	7	8					
End of period En fin de période	TRUST AND MORTGAGE LOAN COMPANIES EXCLUDING BANK MORTGAGE LOAN SUBSIDIARIES: MONTHLY STATEMENT OF ESTIMATED ASSETS AND LIABILITIES (Millions of dollars) SOCIÉTÉS DE FIDUCIE OU DE PRÊT HYPOTHECAIRE NON COMPRIS LES FILIALES HYPOTHECAIRES DES BANQUES A CHARTÉ: SITUATION MENSUELLE (En millions de dollars)											BCR Table D1	
	Assets Actif											RBC Tableau D1	
	Cash and demand deposits Encaisse et dépôts à vue	Term and notice deposits Dépôts à terme ou à préavis	Short-term paper and bankers' acceptances Papier à court terme et acceptations bancaires	Government of Canada treasury bills Bons du Trésor du gouvernement canadien	Provincial and Municipal treasury bills and short-term notes Bons du Trésor et effets à court terme des provinces et des municipalités	Canadian bonds Obligations canadiennes	Provincial and municipal Emises ou garanties par le gouvernement canadien	Corporate Emises par les sociétés	Mortgage loans and sales agreements Prêts hypothécaires et contrats de vente	Personal loans Prêts personnels			
		Chartered banks Banques à charte	Other banks Autres banques				direct and guaranteed Emises ou garanties par le gouvernement canadien	and municipal Emises par les provinces et les municipalités	Total Total	Of which: Residential Dont: Secteur résidentiel			
	B1703	B1705	B1706	B1707	B1708	B1709	B1712	B1713	B1714	B1715	B1722	B1716	
1986	M	1,084	1,295	591	2,662	3,006	659	1,974	1,588	3,996	45,037	37,495	4,186
	J	1,246	1,191	557	2,392	3,239	741	2,033	1,445	3,952	46,008	38,557	4,379
	J	1,249	958	654	2,101	3,280	626	2,040	1,461	4,016	46,536	39,042	4,510
	A	1,446	647	608	2,272	3,432	515	2,000	1,503	4,036	47,189	39,708	4,521
	S	1,057	882	446	2,213	3,281	685	1,818	1,490	4,175	48,007	39,825	4,580
	O	1,232	1,022	507	2,602	3,206	358	1,820	1,485	4,043	48,677	40,224	4,768
	N	971	955	774	2,319	3,402	619	1,800	1,465	4,090	49,130	40,602	4,909
	D	1,393	1,113	904	2,136	3,356	725	1,658	1,445	4,277	50,067	41,933	4,988
1987	J	1,601	736	610	2,153	3,810	539	1,946	1,405	3,997	50,294	41,933	5,059
	F	1,440	844	580	1,872	4,156	448	2,089	1,423	3,765	50,817	42,304	5,237
	M	1,350	855	570	1,616	4,374	537	2,151	1,476	3,899	51,333	42,685	5,464
	A	1,194	554	582	2,105	3,943	344	2,207	1,527	3,945	52,501	43,524	5,692
	M	1,621	824	666	1,852	3,604	313	2,237	1,523	4,121	53,391	44,405	5,880

Column	9	10	11	12	13	14	15
End of period En fin de période	TRUST AND MORTGAGE LOAN COMPANIES EXCLUDING BANK MORTGAGE LOAN SUBSIDIARIES: MONTHLY STATEMENT OF ESTIMATED ASSETS AND LIABILITIES (Millions of dollars) SOCIÉTÉS DE FIDUCIE OU DE PRÊT HYPOTHECAIRE NON COMPRIS LES FILIALES HYPOTHECAIRES DES BANQUES A CHARTÉ: SITUATION MENSUELLE (En millions de dollars)						continued suite
	Assets Actif						Liabilities Passif
	Business loans Prêts commerciaux	Canadian preferred and common shares Actions canadiennes privilégiées ou ordinaires	Leasing contracts Contrats de crédit-bail	Other assets Autres éléments de l'actif	Total assets Ensemble de l'actif	Memo: Total major assets Pour mémoire: Ensemble des principaux avoirs	Savings deposits Dépôts d'épargne
	Collateral Prêts sur nantissement	Other Autres					Chequable Transférables par chèques
							Non-chequable Non transférables par chèques
							Total Total
							Of which: Dont: Daily interest A intérêt quotidien
							Total Total
							Of which: Dont: Daily interest A intérêt quotidien
	B1724	B1721	B1717	B1718	B1719	B1700	B1701
							B1729
							B1741
							B1730
							B1742
1986	J	1,414	561	4,448	855	4,355	77,712
	M	1,334	547	4,518	857	4,313	78,750
	J	1,409	541	4,664	857	4,294	79,196
	A	1,524	439	4,689	870	4,479	80,171
	S	1,703	315	4,687	874	4,403	80,618
	O	1,804	332	4,847	881	4,918	82,502
	N	1,901	333	4,803	872	5,008	83,349
	D	1,858	360	5,011	879	4,637	84,807
1987	J	1,713	425	4,909	862	4,279	84,337
	F	2,156	383	4,747	846	5,060	85,863
	M	2,262	461	4,567	829	5,353	87,095
	A	1,637	390	4,580	862	5,298	87,359
	M	2,044	288	4,482	868	4,870	88,584

Column	16	17	18	19	20	21	22	23	24				
End of period En fin de période	TRUST AND MORTGAGE LOAN COMPANIES EXCLUDING BANK MORTGAGE LOAN SUBSIDIARIES: MONTHLY STATEMENT OF ESTIMATED ASSETS AND LIABILITIES (Millions of dollars) SOCIÉTÉS DE FIDUCIE OU DE PRÊT HYPOTHECAIRE NON COMPRIS LES FILIALES HYPOTHECAIRES DES BANQUES A CHARTÉ: SITUATION MENSUELLE (En millions de dollars)											continued  suite	
	Liabilities Passif												
	Term deposits, guaranteed investment certificates and debentures Dépôts à terme, certificats de placement garantis et débiteures	Total deposits Ensemble des dépôts	Of which: Tax exempt Dont: Exempts d'impôts	Bank loans Emprunts bancaires	Debentures issued under Trust Indenture Débiteures émises en vertu d'un contrat de fiducie	Promissory notes Billets à ordre	Total major liabilities Ensemble des principaux engagements	Other liabilities Autres éléments du passif	Shareholders' equity Avoir propre des actionnaires	Total liabilities Ensemble du passif			
	Less than 1 year Moins de 1 an	1 year and over 1 an ou plus	Total			Less than 1 year Moins de 1 an							
	B1732	B1733	B1731	B1727	B1743	B1734	B1735	B1737	B1738	B1726	B1739	B1740	B1725
1986	M	6,585	45,665	52,250	68,567	16,948	180	55	139	1,385	70,327	3,759	77,796
	J	6,369	45,737	52,107	69,529	17,107	287	56	128	1,342	71,342	3,668	78,750
	J	6,402	46,500	52,903	70,055	17,168	182	53	126	1,377	71,793	3,734	79,208
	A	6,117	46,660	52,777	70,803	17,287	360	50	133	1,529	72,876	3,706	80,361
	S	5,967	46,640	52,607	70,601	17,350	460	47	167	1,724	73,000	3,807	80,618
	O	6,129	47,809	53,938	72,826	17,409	448	47	151	1,477	74,949	3,944	82,669
	N	6,216	49,135	55,351	73,824	17,491	321	47	115	1,384	75,691	4,291	83,925
	D	6,523	49,373	55,896	74,980	17,555	438	47	143	1,343	76,951	3,892	84,807
1987	J	6,387	49,980	56,368	75,057	17,992	316	40	30	1,241	76,684	3,415	84,202
	F	6,662	50,405	57,067	76,359	18,669	335	40	33	1,238	78,004	3,876	85,960
	M	7,376	50,652	58,029	77,443	18,954	458	39	28	1,311	79,279	3,799	87,095
	A	7,283	50,798	58,080	77,510	19,064	421	39	38	1,304	79,311	3,871	87,285
	M	7,456	50,930	58,386	78,399	19,101	347	39	61	1,311	80,156	3,867	88,210

	1a	2a	4a	3a	6a	7a	8a	9a	12a					
End of period En fin de période	MORTGAGE LOAN COMPANIES ASSOCIATED WITH CHARTERED BANKS: ESTIMATED ASSETS AND LIABILITIES (Millions of dollars) SOCIÉTÉS DE PRÊT HYPOTHÉCAIRE LIÉES AUX BANQUES À CHARTES: SITUATION MENSUELLE (En millions de dollars)										BCR Table D2 RBC Tableau D2			
	Assets Actif													
	Cash and demand deposits Encaisse et dépôts à vue	Term and notice deposits Dépôts à terme ou à préavis	Government of Canada treasury bills Bons du Trésor du gouvernement canadien	Short-term notes, bankers' acceptances and other treasury bills Effets à court terme, acceptations bancaires et autres bons du Trésor	Canadian bonds Obligations canadiennes	Mortgage loans and sales agreements Prêts hypothécaires et contrats de vente	Personal loans Prêts personnels	Business loans Prêts commerciaux	Other assets Autres éléments					
		Chartered banks Banques à charte	Other Autres		Government of Canada Gouvernement canadien	Total Total	Of which: Residential Dont: Secteur résidentiel	Collateral Prêts sur nantissement	Other Autres					
	B1903	B1905	B1906	B1907	B1908	B1913	B1912	B1916	B1921	B1917	B1923	B1920	B1918	
1986	M	73	203	1	1,187	253	428	1,500	38,975	36,990	1,507	675	41	522
	J	46	289	4	1,233	256	414	1,396	39,692	37,694	1,416	634	50	532
	J	66	222	1	1,262	265	416	1,336	40,553	38,522	1,331	1,024	51	504
	A	80	213	-	1,489	255	406	1,322	41,450	39,391	1,261	1,062	47	491
	S	96	201	-	1,729	232	405	1,287	43,278	40,360	2,017	970	44	516
	O	135	215	-	1,617	575	645	1,485	43,888	40,913	1,884	897	38	558
	N	69	184	-	1,519	81	680	1,513	44,741	41,724	1,753	931	27	719
	D	201	223	-	1,620	15	809	1,585	44,949	41,912	1,859	968	25	892
1987	J	41	207	-	1,964	14	436	909	45,278	42,184	1,750	1,117	21	1,252
	F	25	280	-	2,279	20	514	952	46,193	43,097	1,838	1,151	23	942
	M	51	252	-	2,162	51	514	1,059	46,348	43,257	1,837	1,171	23	789
	A	71	245	-	2,446	32	489	1,041	46,801	43,671	1,748	1,199	20	724
	M	92	598	-	3,118	60	560	1,090	47,657	44,406	2,717	1,218	19	764

	14a	13a	16a	17a	18a	19a	20a	21a	22a	23a				
End of period En fin de période	MORTGAGE LOAN COMPANIES ASSOCIATED WITH CHARTERED BANKS: ESTIMATED ASSETS AND LIABILITIES (Millions of dollars) SOCIÉTÉS DE PRÊT HYPOTHÉCAIRE LIÉES AUX BANQUES À CHARTES: SITUATION MENSUELLE (En millions de dollars)										continued suite			
	Memo: Total major assets Pour mémoire: Ensemble des principaux avoirs	Total assets Ensemble de l'actif	Liabilities Passif	Term deposits, guaranteed investment certificates and debentures Dépôts à terme, certificats de placement garantis et débiteures	Total Total	Total deposits Ensemble des dépôts	Bank loans Emprunts bancaires	Debentures issued under Trust Indenture Débiteures émises en vertu d'un contrat de fiducie	Promissory notes Billets à ordre	Total major liabilities Ensemble des principaux engagements	Other liabilities Autres éléments du passif	Shareholders' equity Avoir propre des actionnaires		
		or liabilités	Term deposits, guaranteed investment certificates and debentures Dépôts à terme, certificats de placement garantis et débiteures	1 year 1 an	Total Total	1 year 1 an	1 year 1 an	1 year 1 an	1 year 1 an	1 year 1 an	1 year 1 an	1 year 1 an		
	B1901	B1900	B1928	B1929	B1927	B1926	B1933	B1934	B1936	B1937	B1925	B1938	B1939	
1986	M	43,699	44,937	2,771	23,677	26,448	27,959	1,681	314	2,229	1,375	33,557	9,458	1,922
	J	44,334	45,551	2,761	23,909	26,670	28,692	1,624	281	1,912	1,457	33,965	9,679	1,907
	J	45,037	46,616	2,897	24,261	27,158	29,939	1,303	355	1,942	1,578	35,117	9,564	1,935
	A	46,070	47,671	2,996	24,492	27,488	30,967	1,110	354	2,020	1,630	36,081	9,611	1,979
	S	48,841	50,372	3,012	24,696	27,708	31,855	2,915	354	1,939	1,684	38,746	9,579	2,047
	O	49,798	51,290	3,084	25,615	28,699	33,458	2,192	454	1,837	1,708	39,649	9,601	2,041
	N	49,861	51,539	2,725	27,109	29,834	35,084	1,319	453	1,825	1,725	40,407	9,055	2,077
	D	50,452	52,337	2,721	27,822	30,544	36,258	864	520	2,138	1,891	41,670	8,561	2,106
1987	J	50,163	52,553	2,591	28,354	30,945	37,066	632	520	2,011	1,880	42,109	8,284	2,160
	F	51,587	53,703	2,664	28,552	31,216	37,657	1,131	519	2,045	1,857	43,209	8,293	2,201
	M	51,761	53,744	2,671	28,827	31,497	38,276	789	423	2,142	1,953	43,583	7,939	2,222
	A	52,386	54,329	2,477	28,847	31,324	38,479	615	423	2,121	2,070	43,707	8,343	2,278
	M	55,332	57,333	2,635	29,015	31,650	41,828	354	525	1,731	2,080	46,517	8,475	2,341

	14a	13a	16a	17a	18a	19a	20a	21a	22a	23a				
End of period En fin de période	MORTGAGE LOAN COMPANIES ASSOCIATED WITH CHARTERED BANKS: ESTIMATED ASSETS AND LIABILITIES (Millions of dollars) SOCIÉTÉS DE PRÊT HYPOTHECAIRE LIÉES AUX BANQUES À CHARTES: SITUATION MENSUELLE (En millions de dollars)									continued suite				
	Memo: Total major assets Pour mémoire: Ensemble des principaux avoirs	Total assets or liabilities Ensemble de l'actif ou du passif	Liabilities Passif Term deposits, guaranteed investment certificates and debentures Dépôts à terme, certificats de placement garantis et débetures Less than 1 year moins de 1 an	1 year and over 1 an ou plus	Total Total	Total deposits Ensemble des dépôts	Bank loans Emprunts bancaires	Debentures issued under Trust Indenture Débetures émises en vertu d'un contrat de fiducie	Promissory notes Billets à ordre Less than 1 year Moins de 1 an	Other Autres	Total major liabilities Ensemble des principaux engagements	Other liabilities Autres éléments du passif	Shareholders' equity Avoir propre des actionnaires	
	B1901	B1900	B1928	B1929	B1927	B1926	B1933	B1934	B1936	B1937	B1925	B1938	B1939	
1986	M	43,699	44,937	2,771	23,677	26,448	27,959	1,681	314	2,229	1,375	33,557	9,458	1,922
	J	44,334	45,551	2,761	23,909	26,670	28,692	1,624	281	1,912	1,457	33,965	9,679	1,907
	J	45,037	46,616	2,897	24,261	27,158	29,939	1,303	355	1,942	1,578	35,117	9,564	1,935
	A	46,070	47,671	2,996	24,492	27,488	30,967	1,110	354	2,020	1,630	36,081	9,611	1,979
	S	48,841	50,372	3,012	24,696	27,708	31,855	2,915	354	1,939	1,684	38,746	9,579	2,047
	O	49,798	51,290	3,084	25,615	28,699	33,458	2,192	454	1,837	1,708	39,649	9,601	2,041
	N	49,861	51,539	2,725	27,109	29,834	35,084	1,319	453	1,825	1,725	40,407	9,055	2,077
	D	50,452	52,337	2,721	27,822	30,544	36,258	864	520	2,138	1,891	41,670	8,561	2,106
1987	J	50,163	52,553	2,591	28,354	30,945	37,066	632	520	2,011	1,880	42,109	8,284	2,160
	F	51,587	53,703	2,664	28,552	31,216	37,657	1,131	519	2,045	1,857	43,209	8,293	2,201
	M	51,761	53,744	2,671	28,827	31,497	38,276	789	423	2,142	1,953	43,583	7,939	2,222
	A	52,386	54,329	2,477	28,847	31,324	38,479	615	423	2,121	2,070	43,707	8,343	2,278
	M	55,332	57,333	2,635	29,015	31,650	41,828	354	525	1,731	2,080	46,517	8,475	2,341

## 6.,6a Canadian Bonds

Canadian bonds are bonds, debentures and notes with an original term to maturity of one year or more. They are broken down into three subcategories for the trust and non-bank-related mortgage loan companies. These categories are: Government of Canada direct and guaranteed bonds; provincial and municipal bonds, grouped together; and corporate bond holdings. For the mortgage loan companies associated with banks, there are only two categories—holdings of Government of Canada bonds and total holdings. The latter category incorporates provincial and municipal bonds and corporate bonds shown separately for the trust and non-bank mortgage loan companies.

## 7.,7a Mortgage Loans and Sales Agreements

Mortgage loans and sales agreements for both lender classes show a total figure followed by the residential component. Mortgage loans and sales agreements is by far the largest trust and mortgage loan company asset category; for bank affiliated mortgage lenders, this category carries an even higher weight in total assets. Historically, the residential component represents a very large share of total mortgage loans and sales agreements.

Trust and mortgage loan companies are required by law to hold a large percentage of their assets as “quality assets”. The existing test for “quality of assets” requires that a company have at least two-thirds of its assets invested in readily marketable debt instruments (primarily government bonds, bank certificates and short-term promissory notes of corporations with specified earnings records), residential mortgages and insured mortgages on commercial property (i.e., entries 1, 1a-6, 6a and a high percentage of entry 7, 7a).

Historically, trust and mortgage loan companies have been major buyers of residential mortgages included in entry 7, 7a and have had no difficulty meeting the quality asset test. However, due to increased competition in the mortgage market from banks and credit unions, the proportion of trust and mortgage loan company assets invested in residential mortgages, while still important, declined significantly in the early 1980s.

Given this, the trust and loan industry began to express concern that, as their companies turned to

investments other than residential mortgages, it became more difficult for them to meet the 2/3 rule “quality asset” test. Thus, the industry asked for a “fifty percent rule”. Ottawa rejected this, but in response to their concern the federal government expanded quality assets in April of 1984 to include commercial property mortgages which, while *not insured*, meet specified standards intended to ensure that they are high quality. The conditions for an uninsured commercial mortgage to qualify as a quality asset are: it must never have been in default; it must not exceed 75 percent of the value of the property; it must not exceed one-half of one percent of the institution’s assets, and it must be “seasoned” or on the books for at least three years. If it is less than three years old, the revenue from the property must be sufficient to cover the cost of maintaining the property and servicing the loan.

## 8.,8a Personal Loans

Trust and mortgage loan companies make personal loans roughly comparable to chartered bank personal loans. For trust companies, non-bank mortgage loan companies and bank mortgage loan subsidiaries, personal loans include both secured and unsecured loans.

## 9.,9a Business Loans

The business loan entry is broken down into business loans supported by collateral and other loans (with no collateral). Collateral loans, which account for the largest share of business loans, include secured loans to investment dealers and farm loans.

## 10. Canadian Preferred and Common Shares

Trust and non-bank-related mortgage loan companies can and do buy common and preferred shares issued by Canadian companies, although present legislation restricts these holdings to no more than 30 percent of the shares of any company.

Mortgage loan companies associated with chartered banks only hold a very small amount of equities. Thus, this asset category is not shown explicitly on the balance sheet for this class.

## 11. Leasing Contracts

Trust companies and non-bank-related mortgage loan companies have a small amount of leasing contract assets, which are shown in entry 11. This entry is not shown for mortgage loan companies associated with chartered banks.

## 12.,12a Other Assets

Other assets include other investments in Canada (e.g., equities and lease contracts for bank-related mortgage loan subsidiaries) as well as investments in institutions and corporations outside Canada, accounts receivable and accrued revenue, fixed assets, real estate and other assets.

## 13.,13a Total Assets

Total assets is the total of entries 1-12 and 1a-12a.

## 14.,14a Memo: Total Major Assets

Total major assets include cash and demand deposits, Treasury Bills, term and notice deposits, short-term paper and collateral loans placed with investment dealers, plus Canadian bonds, mortgage loans and sales agreements, personal loans and Canadian preferred and common shares. Prior to January 1984, foreign securities were also included; after that date, these securities are included in other assets.

The remaining part of the table on page 12 and the table on the middle of page 13 set out trust and mortgage loan company liabilities. These are discussed below in entries 15 to 24 and 16a to 23a.

## 15. Savings Deposits

Trust and mortgage loan companies, excluding the bank mortgage loan subsidiaries, have two broad categories of savings deposits—chequable deposits and non-chequable deposits. Non-chequable savings include certain tax sheltered deposits discussed in entry 17.

These two deposit categories are roughly comparable to the equivalent types of bank deposits discussed in chapter 3 and together account for about 15-25 percent of total major liabilities for trust and

mortgage loan companies. Mortgage loan companies associated with chartered banks do not offer these deposits.

13		14		15	
IS:					
1)					
		THECAIRES DES BANQUES A CHARTRE:		suite	
		Liabilities			
		Passif			
		Savings deposits			
		Dépôts d'épargne			
		Chequable		Non-chequable	
		Transférables		Non transférables	
		par chèques		par chèques	
		Total Of which:		Total Of which:	
		Total Daily interest		Total Daily interest	
		Dont:		Dont:	
		A intérêt		A intérêt	
		quotidien		quotidien	
100	B1701	B1729	B1741	B1730	B1742
712	70,880	7,695	5,660	8,622	3,453
750	71,845	8,225	5,915	9,198	3,880
196	72,268	7,967	5,940	9,186	3,815
171	73,085	8,360	6,035	9,667	4,278
318	73,613	8,067	6,089	9,927	4,404
502	74,959	8,697	6,260	10,191	4,449
349	75,707	8,403	6,250	10,070	4,451
307	77,487	8,780	6,371	10,304	4,533
337	77,243	8,620	6,191	10,070	4,501
363	78,083	9,037	6,203	10,255	4,479
195	78,954	9,179	6,299	10,236	4,312
169	79,349	9,218	6,543	10,212	4,387
584	81,044	9,327	6,619	10,685	4,529

Chequable and non-chequable savings deposits are each divided into two sub-series—a total for each class and the fast growing daily interest component, shown separately. (The two daily interest components only include those deposits held by companies surveyed by the Bank of Canada.)

As with bank deposits, trust and mortgage company deposits are federally insured up to \$60,000 by Canada Deposit Insurance Corporation if the trust or mortgage company is federally incorporated. (Provincially chartered companies can apply for membership in CDIC.)

Finally, as with banks, trust and mortgage loan companies offering non-insured instruments (e.g., foreign currency deposits, over five-year securities, pooled funds, mortgage and real estate investments) are required to include the words "not insured" on the face of the security.

## 16.,16a Term Deposits, Guaranteed Investment Certificates and Debentures

By far the largest trust and mortgage loan company liabilities are captured in the category including term deposits, GICs and debentures. These deposits are

broken down by term. Under one-year term deposits usually account for about 10-15 percent of total deposits at trust and mortgage loan companies, excluding bank mortgage loan subsidiaries, and 5-15 percent at the mortgage loan subsidiaries. The largest category is one-year and over deposits/GICs/debentures which accounts for 60-70 percent of all trust and non-bank mortgage loan deposits and 85-95 percent of deposits at chartered bank mortgage loan subsidiaries. Almost all of this is accounted for by one- to five-year GICs, although longer term debentures with terms out to 20 years are included in this category. Deposits and GICs are covered by CDIC, but debentures are not covered.

### 17.,17a Total Deposits

Total deposits for the trust and non-bank mortgage loan companies is the sum of entries 15 and 16. For bank-related mortgage loan companies, the total corresponds to the total for entry 16a, since bank-related mortgage loan companies do not offer savings deposits.

For trust companies and non-bank-related mortgage loan companies, the summary asset statement also shows the amount of total deposits which are tax exempt. Tax exempt deposits include RRSPs and other tax-sheltered funds in savings and term deposits.

### 18.,18a Bank Loans

Trust and mortgage loan companies excluding bank mortgage loan subsidiaries have borrowed a small amount of money from banks to finance their operations. These loans may be from Canadian or foreign banks and may be in Canadian or foreign currencies. However, most of these loans have been taken by mortgage loan companies associated with chartered banks. They are shown in entry 18a.

### 19.,19a Debentures Issued Under Trust Indenture

Entries 19 and 19a set out the amount of debentures issued under trust indentures. These debentures are different from the deposit type debentures included in entries 16 and 16a in that they are covered by a specific trust indenture and form part of the capital base for trust and mortgage loan companies. They are not covered by CDIC.

16
17
18

TRUST AND MORTGAGE LOAN COMPANIES EXCLUDING BANK MORTGAGE LOAN SUBSIDIARIES

MONTHLY STATEMENT OF ESTIMATED ASSETS AND LIABILITIES (Millions of dollars)

SOCIÉTÉS DE FIDUCIE OU DE PRÊT HYPOTHECAIRE NON COMPRIS LES FILIALES DES BANQUES

SITUATION MENSUELLE (En millions de dollars)

Liabilities

*Passif*

Term deposits, guaranteed investment certificates and debentures

Dépôts à terme, certificats de placement garantis et débentures

Less than 1 year	1 year and over	Total
Moins de 1 an	1 an ou plus	Total
6,585	45,665	52,250
6,369	45,737	52,107
6,402	46,500	52,903
6,117	46,660	52,777
5,967	46,640	52,607
6,129	47,809	53,938
6,216	49,135	55,351
6,523	49,373	55,896
6,387	49,980	56,368
6,662	50,405	57,067
7,376	50,652	58,029
7,283	50,798	58,080
7,456	50,930	58,386

Total deposits

*Ensemble des dépôts*

Of which: Tax exempt

*Dont: Exempts d'impôts*

Bank loans

*Emprunts bancaires*

Total deposits	Of which: Tax exempt	Bank loans
<i>Ensemble des dépôts</i>	<i>Dont: Exempts d'impôts</i>	<i>Emprunts bancaires</i>
68,567	16,948	180
69,529	17,107	287
70,055	17,168	182
70,803	17,287	360
70,601	17,350	460
72,826	17,409	448
73,824	17,491	321
74,980	17,555	438
75,057	17,992	316
76,359	18,669	335
77,443	18,954	458
77,510	19,064	421
78,399	19,101	347

16a		17a		18a		19a					
COMPANIES ASSOCIATED WITH CHARTERED BANKS: ESTIMATED ASSETS AND LIABILITIES											
HYPOTHECAIRE LIÉES AUX BANQUES À CHARTRE: SITUATION MENSUELLE (En millions de dollars)											
Liabilities		Total		Bank		Debt securities					
Passif		deposits		loans		issued					
Term deposits, guaranteed investment certificates and debentures		Ensemble des dépôts		Emprunts bancaires		under Trust Indentures					
Dépôts à terme, certificats de placement garantis et débentures		dépôts				Débentures émises en vertu d'un contrat de fiducie					
Less than 1 year		1 year and over									
moins de 1 an		1 an ou plus									
Total		Total									
B1928		B1929		B1927		B1926		B1933		B1934	
337	2,771	23,677	26,448	27,959	1,681	314					
351	2,761	23,909	26,670	28,692	1,624	281					
316	2,897	24,261	27,158	29,939	1,303	355					
371	2,996	24,492	27,488	30,967	1,110	354					
372	3,012	24,696	27,708	31,855	2,915	354					
290	3,084	25,615	28,699	33,458	2,192	454					
339	2,725	27,109	29,834	35,084	1,319	453					
337	2,721	27,822	30,544	36,258	864	520					
353	2,591	28,354	30,945	37,066	632	520					
703	2,664	28,552	31,216	37,657	1,131	519					
744	2,671	28,827	31,497	38,276	789	423					
329	2,477	28,847	31,324	38,479	615	423					
333	2,635	29,015	31,650	41,828	354	525					

### 20.,20a Promissory Notes

The last major liability entry is promissory notes. This entry is broken down into two separate categories—notes less than one year in term and all other promissory notes. Other promissory notes include promissory notes with an original term to maturity of one year or more, subordinated notes and other notes.

19

20

21

22

23

24

DIARIES:

ollars)

HYPOTHECAIRES DES BANQUES A CHARTRE:

Debentures issued under Trust Indenture Débentures émises en vertu d'un contrat de fiducie	Promissory notes <i>Billets à ordre</i> Less than 1 year Moins de 1 an	Other Autres	Total major liabilities <i>Ensemble des principaux engagements</i>	Other liabili- ties <i>Autres éléments du passif</i>	Share- holders' equity <i>Avoir propre des action- naires</i>	Total liabili- ties <i>Ensemble du passif</i>
B1735	B1737	B1738	B1726	B1739	B1740	B1725
55	139	1,385	70,327	3,759	3,710	77,796
56	128	1,342	71,342	3,668	3,740	78,750
53	126	1,377	71,793	3,734	3,681	79,208
50	133	1,529	72,876	3,706	3,780	80,361
47	167	1,724	73,000	3,807	3,811	80,618
47	151	1,477	74,949	3,944	3,777	82,669
47	115	1,384	75,691	4,291	3,943	83,925
47	143	1,343	76,951	3,892	3,964	84,807
40	30	1,241	76,684	3,415	4,103	84,202
40	33	1,238	78,004	3,876	4,079	85,960
39	28	1,311	79,279	3,799	4,017	87,095
39	38	1,304	79,311	3,871	4,103	87,285
39	61	1,311	80,156	3,867	4,187	88,210

## 22.,22a Other Liabilities

Other liabilities are debt owing to parent, subsidiary and affiliated companies, accounts payable and accrued liabilities, corporation income taxes payable, deferred income, mortgages payable, deferred income taxes and other liabilities.

## 23.,23a Shareholders' Equity

Shareholders' equity represents the common and preferred share investments in the two sectors by the shareholders.

## 24. Total Liabilities

Entry 24 sets out total liabilities for the trust companies and mortgage loan companies which are not associated with chartered banks. It is the total of entries 15, 16, 18, 19, 20, 22 and 23.

Total liabilities for the mortgage loan companies associated with banks is set out in entry 13a, titled "total assets or liabilities".

19a

20a

21a

22a

23a

ND LIABILITIES (Millions of dollars)  
LB (En millions de dollars)

Debentures issued under Trust Indenture Débentures émises en vertu d'un contrat de fiducie	Promissory notes <i>Billets à ordre</i> Less than 1 year Moins de 1 an	Other Autres	Total major liabilities <i>Ensemble des principaux engagements</i>	Other liabili- ties <i>Autres éléments du passif</i>	Share- holders' equity <i>Avoir propre des action- naires</i>
B1934	B1936	B1937	B1925	B1938	B1939
314	2,229	1,375	33,557	9,458	1,922
281	1,912	1,457	33,965	9,679	1,907
355	1,942	1,578	35,117	9,564	1,935
354	2,020	1,630	36,081	9,611	1,979
354	1,939	1,684	38,746	9,579	2,047
454	1,837	1,708	39,649	9,601	2,041
453	1,825	1,725	40,407	9,055	2,077
520	2,138	1,891	41,670	8,561	2,106
520	2,011	1,880	42,109	8,284	2,160
519	2,045	1,857	43,209	8,293	2,201
423	2,142	1,953	43,583	7,939	2,222
423	2,121	2,070	43,707	8,343	2,278
525	1,731	2,080	46,517	8,475	2,341

## 21.,21a Total Major Liabilities

Total major liabilities comprise total deposits, bank loans, debentures issued under trust indentures and promissory notes, i.e., the summation of entries 15-20 and 16a-20a.

## IV. CONSUMER CREDIT: OUTSTANDING BALANCES OF SELECTED HOLDERS

The last section on page 13 sets out the amount of consumer credit extended by seven different categories of lenders. Data for six of these lending groups is shown on a seasonally adjusted month end basis covering a 13-14 month period, while data for the seventh lending category, credit unions and caisses populaires, is shown on a seasonally adjusted quarterly basis. The data shown in this table duplicate the lending classes shown in the second half of table E2 in the monthly *Bank of Canada Review*.

The data relate mainly to credit extended to individuals, but also include unidentifiable amounts of credit extended for non-consumer purposes. Credit extended through the use of all-purpose credit cards is included with the balances of the selected lender responsible for their issuance.

The data do not represent *total* consumer indebtedness since they do not include credit on the books of furniture, T.V. and appliance stores; other retail outlets; motor vehicle dealers; public utilities; other credit card issuers not elsewhere included in the data; and credit card accounts of oil companies.

## CONSUMER CREDIT: OUTSTANDING BALANCES OF SELECTED HOLDERS (Millions of dollars)

BCR Table E2

ENCOURS DU CRÉDIT À LA CONSOMMATION CONSENTI PAR LES PRINCIPAUX PRÊTEURS (En millions de dollars)

RBC Tableau E2

Seasonally adjusted

Données désaisonnalisées

Chartered bank total personal loans <i>Banques à charte (prêts personnels total)</i>	Sales finance and consumer loan companies <i>Sociétés de financement ou de prêt à la consommation</i>	Life insurance company policy loans <i>Compagnies d'assurance-vie (prêts sur polices)</i>	Quebec savings banks (unsecured personal loans) <i>Banques d'épargne du Québec (prêts personnels autres que sur titres)</i>	Department stores <i>Grands magasins</i>	Trust and mortgage loan companies <i>Sociétés de fiducie ou de prêt hypothécaire</i>	Total of foregoing <i>Ensemble des postes précédents</i>	Credit unions and caisses populaires <i>Caisses populaires et credit unions</i>	Total <i>total</i>
B127	B128	B129	B130	B131	B132	B133	B134	B135
39,724	3,565	2,671	251	2,140	4,040	52,391		
39,928	3,661	2,672	260	2,147	4,220	52,889	8,669	61,558
40,866	3,783	2,673	267	2,149	4,401	54,139		
41,168	3,896	2,675	275	2,159	4,534	54,707		
41,491	4,020	2,678	289	2,164	4,647	55,289	9,105	64,394
42,088	4,147	2,680	298	2,169	4,808	56,190		
41,996	4,247	2,682	297	2,095	4,919	56,236		
42,190	4,338	2,685	297	2,110	4,972	56,592	9,085	65,678
42,732	4,414	2,688	305	2,190	5,018	57,347		
43,065	4,456	2,691	314	2,177	5,139	57,842		
43,589	4,443	2,694	326	2,175	5,281	58,508		
44,290	4,459	2,696	339	2,182	5,480	59,447		
45,035	4,467	2,697	346	2,205	5,688	60,437		

In addition, data are not included for fully secured loans, personal loans for business purposes, long-term indebtedness (such as residential mortgage and home improvement loans), loans between individuals or balances on bills owed to professional practitioners, clubs, hospitals or other personal service establishments.

## 1. Chartered Bank Total Personal Loans

Chartered bank total personal loans were discussed in chapter 2 with respect to the chartered bank asset statement. These loans dominate consumer credit.

## 2. Sales Finance and Consumer Loan Companies

Sales finance and consumer loan company credit extended is the fourth largest source of consumer credit. Data for sales finance and consumer loan companies include the conditional sales agreements held by these companies in connection with instalment financing of consumer goods, personal cash loans made by these companies under the Small Loans Act and personal cash loans not covered by the Small Loans Act.

Since January 1970 the data exclude outstanding

loans for the financing of passenger cars used for commercial purposes, and since January 1971 the amounts shown are net of unearned interest and finance charges. The data exclude consumer receivables outstanding on the books of wholly-owned sales finance company subsidiaries of department stores.

## 3. Life Insurance Company Policy Loans

Life insurance company policy loans, which are made at low fixed rates of interest, rose strongly in 1974 and 1979-81 as market interest rates rose sharply. The data shown in the table for policy loans covers the 16 major federally incorporated life insurance companies which accounted for about 80 percent of net premium income in Canada in 1970. The data do not include provincially incorporated life insurance companies. The end of month data for dates other than year end are estimated by the Department of Insurance on the basis of loans made by the 16 federally incorporated companies.

## 4. Quebec Savings Banks (Unsecured Personal Loans)

By far the smallest loan category in the table is Quebec savings banks unsecured personal loans.

These include all personal loans other than those fully secured by marketable bonds and stocks. The seasonally adjusted totals include data for Quebec savings banks on an unadjusted basis since no significant seasonality is present for this series. This series will disappear now that Montreal City and District Savings Bank has been taken over and renamed Laurentian Bank.

## 5. Department Stores

The fifth entry in this table is consumer credit outstanding on the books of department stores.

## 6. Trust and Mortgage Loan Companies

Consumer credit extended by trust and mortgage loan companies is set out in entry 6. Aside from the fact that the series shown here is seasonally adjusted, the data would be similar to that shown in entry 8 in the table at the top of page 12 covering the asset categories for trust and mortgage loan companies.

## 7. Total of Foregoing

Entry 7 is the total of entries 1-6. Since the seasonally adjusted total is the sum of seasonally adjusted *components*, it will differ slightly from the seasonally adjusted consumer credit aggregate discussed in part VI, entry 1, below (the section titled "Credit Measures") since the *aggregate* series in part VI is obtained by adjusting the sum of the component series.

## 8. Credit Unions and Caisses Populaires

The second largest category of consumer credit outstanding (after bank loans), is credit extended by credit unions and caisses populaires, shown in entry 8. Unfortunately, unlike the data shown in entries 1-7, consumer credit extended by credit unions and caisses populaires has only been available on a quarterly basis (since 1967).

## 9. Total

Entry 9 is the total of entries 7 and 8 and shows the grand total of all consumer credit extended on a quarterly basis.

## V. RESIDENTIAL MORTGAGE CREDIT: OUTSTANDING BALANCES OF MAJOR PRIVATE INSTITUTIONAL LENDERS

At the top of page 14, the WFS set out 13-14 months of seasonally adjusted data for residential mortgage credit outstanding by class of private lending institution. These data are on an average of Wednesdays basis. The information is also shown in table E3 of the *Bank of Canada Review*, although E3 also presents all the unadjusted data as well.

### 1. Chartered Banks

Chartered banks currently show the largest volume of residential mortgage loans. These figures include mortgages held by the bank mortgage loan subsidiaries.

### 2. Trust and Mortgage Loan Companies

The second largest category shows data for trust and mortgage loan companies. This series excludes bank mortgage subsidiaries and is estimated from Statistics Canada end-of-quarter data and a monthly survey of major companies by the Bank of Canada.

### 3. Life Insurance Companies

Life insurance companies are the fourth largest class of lender in the residential mortgage field (see entry 7 below). Data for life insurance companies include life branches, accident and sickness branches, and segregated funds. Residential mortgage holdings for dates other than year end are estimated from a monthly survey of 16 major companies.

### 4. Sales Finance and Consumer Loan Companies

Sales finance and consumer loan companies have a very small presence in the residential mortgage market. Since June 1973, data for sales finance and consumer loan companies are derived from Statistics Canada end-of-quarter data and a monthly survey by the Bank of Canada. Prior to June 1973, monthly values were calculated by interpolating the quarterly Statistics Canada figures. These data are presented on



Column	1	2	3	4	5	6	7	8	9	10
Average of Wednesdays and average of month-ends <i>Moyenne mensuelle des mercredis et moyenne en fin de mois</i>	RESIDENTIAL MORTGAGE CREDIT: OUTSTANDING BALANCES OF MAJOR PRIVATE INSTITUTIONAL LENDERS (Millions of dollars) <i>CREDIT HYPOTHECAIRE A L'HABITATION: ENCOURS DES PRINCIPALES CATEGORIES INSTITUTIONS PRETUSES DU SECTEUR PRIVE</i> (En millions de dollars) Seasonally adjusted <i>Données désaisonnalisées</i>									BCR Table E3 <i>RBC Tableau E3</i>
	Chartered banks <i>Banques à charte</i>	Trust and mortgage loan companies <i>Sociétés de fiducie ou de prêt hypothécaire</i>	Life insurance companies <i>Compagnies d'assurance-vie</i>	Sales finance and consumer loan companies(1) <i>Sociétés de financement ou de prêt à la consommation(1)</i>	Quebec savings banks(1) <i>Banques d'épargne du Québec(1)</i>	Total of foregoing(2) <i>Ensemble des postes précédents(2)</i>	Credit unions and caisses populaires <i>Caisses de retraite(1) et credit unions</i>	Pension funds(1) <i>Caisses de retraite(1)</i>	Other financial institutions(1) <i>Autres institutions financières(1)</i>	Total <i>Total</i>
	B982	B983	B984	B985	B986	B981	B987	B988	B989	B980
1986 M	43,028	37,529	10,687	507	996	92,746				
J	43,686	38,129	10,743	503	1,023	94,084	18,866	7,020	1,832	121,802
J	44,660	38,767	10,786	505	1,050	95,768				
A	45,676	39,303	10,862	510	1,058	97,409				
S	46,478	39,693	10,940	511	1,066	98,688	19,523	6,805	1,975	126,991
O	47,349	39,996	10,999	506	1,080	99,929				
N	48,508	40,334	11,082	508	1,094	101,525				
D	49,129	41,177	11,135	514	1,108	103,063	20,093	6,497	2,206	131,859
1987 J	49,623	41,868	11,230	519	1,130	104,369				
F	50,043	42,146	11,282	524	1,153	105,148				
M	50,608	42,563	11,339	527	1,174	106,211			2,598	
A	51,472	43,207	11,468	531	1,196	107,874				
M	52,597	44,117	11,610	536	1,229	110,090				

(1) Unadjusted/Données non désaisonnalisées.

(2) Sum of seasonally adjusted components/Somme des composantes désaisonnalisées.

a seasonally unadjusted basis since there is no stable seasonality in the series.

## 5. Quebec Savings Banks

Quebec savings banks also have a small presence in the mortgage market. Here again, these data show no seasonality and are presented on an unadjusted basis. This entry disappears with the takeover of Montreal City and District Savings Bank and its renaming as Laurentian Bank.

## 6. Total of Foregoing

The total seasonally adjusted figure is the sum of seasonally adjusted chartered bank, trust and mortgage loan company and life insurance data and unadjusted data for sales finance and consumer loan companies and Quebec savings banks, i.e., the total of entries 1-5 above. It therefore differs from the seasonally adjusted mortgage credit aggregate discussed below in part VI, entry 2, for which the seasonal adjustment procedures are applied to the sum of the component series.

## 7. Credit Unions and Caisses Populaires

Credit unions and caisses populaires is the third largest lending class in the mortgage market. Unfortunately, these data are not reported monthly; data are as at end of quarter and include holdings of both locals and centrals.

## 8. Pension Funds

Pension fund holdings of residential mortgages are shown in entry 8 on a seasonally unadjusted end-of-quarter basis. These data include both residential and non-residential mortgages.

## 9. Other Financial Institutions

Data for other financial institutions are as at end of quarter and are also seasonally unadjusted. These data include real estate investment trusts (for which information is only available since December 1972) and estimates of residential mortgage holdings of investment funds and property and casualty insurance companies.

## 10. Total

The seasonally adjusted figure for total residential mortgage holdings represents the sum of the seasonally adjusted components and those unadjusted components where no stable seasonality exists, i.e., the total of entries 1-9.

## VI. CREDIT MEASURES

In April 1983, the Bank of Canada began to publish data for some newly created credit measures.<sup>4</sup> This information appears each month in the *Bank of Canada Review*, table E1, where, interestingly, it is published with the monetary aggregates in a table titled, "Selected indicators of money and credit". The same measures of credit were incorporated into the WFS beginning April 7, 1983. These credit aggregates are presented at the bottom of page 14 of the WFS.

The new credit measures data are seasonally adjusted and non-seasonally adjusted aggregations of already existing data on outstanding credit to various categories of borrowers. All series shown are Wednesday averages or month end averages. Up to fifteen months of data are shown to allow for revisions and calculation of a one-year growth rate.

It is important to note that these credit measures do not cover all credit outstanding; they are aggregations of readily available data. However, even though the data are only partial, they provide better information than previously existed about the growth of credit. And, given that they are presented with the monetary aggregates in table E1 of the *Review*, the expansion of money (a bank liability concept) can be compared with the expansion of credit (a financial institution asset concept).

### 1. Consumer Credit

The first series shown in the broad credit measures aggregate is consumer credit. This includes monthly reported data set out in the table at the bottom of page 13. Included are estimated amounts of consumer credit extended by chartered banks, sales finance and

consumer loan companies, trust and mortgage loan companies, department stores, life insurance company policy loans and loans made by Quebec savings banks. Credit extended by credit unions and caisses populaires is excluded, since this is only available quarterly. The consumer credit data shown here on a seasonally adjusted basis can vary slightly from the same data set out in the consumer credit table on page 13 because only the total for this series is adjusted.

### 2. Residential Mortgage Credit

Residential mortgage credit is the estimated amount of residential mortgage loans on the books at chartered banks, trust and mortgage loan companies, sales finance and consumer loan companies, life insurance companies and Quebec savings banks. It excludes the quarterly reporting institutional groups, i.e., credit unions and caisses populaires, pension funds and "other financial institutions" (part V, entries 7, 8 and 9).

### 3. Total Household Credit

Total household credit is the total of consumer credit and residential mortgage credit, entry 1 plus entry 2.

### 4. Short-Term Business Credit

The last table at the bottom of page 14 sets out data on business credit. The first series, short-term business credit, combines business loans, leasing receivables and non-residential mortgages at chartered banks, sales finance and consumer loan companies and financial institutions affiliated with foreign banks. Further, the series also includes Bankers' Acceptances and short-term paper issued by non-financial corporations. Finally, foreign currency loans to residents booked at chartered banks in Canada (domestic and foreign) are included (excluding Government of Canada), along with foreign currency loans supplied by financial institutions associated with foreign banks.

### 5. Other Business Credit

Other business credit covers longer term business finance in Canada. The series includes outstanding

<sup>4</sup> These measures were first discussed in an article titled, "Technical note: New and revised monetary and credit aggregates", *Bank of Canada Review*, March 1983, pp. 3-33.

Column	1	2	3
Average of Wednesdays and average of month-ends <i>Moyenne mensuelle des mercredis et moyenne en fin de mois</i>	CREDIT MEASURES (Millions of dollars) <i>MESURES DU CREDIT (En millions de dollars)</i>		BCR Table E1 <i>RBC Tableau E1</i>
	Consumer credit <i>Crédit à la consommation</i>		Residential mortgage credit <i>Crédit hypothécaire à l'habitation</i>
	Unadjusted <i>Données non-désaisonnalisées</i>	Seasonally adjusted <i>Données désaisonnalisées</i>	Unadjusted <i>Données non-désaisonnalisées</i>
	B153	B168	B152
1986 M	52,260	52,387	92,310
J	53,079	52,896	93,792
J	54,195	54,178	95,905
A	54,692	54,759	97,680
S	55,338	55,358	99,079
O	56,230	56,204	100,235
N	56,204	56,161	101,747
D	56,943	56,499	103,342
1987 J	57,701	57,300	104,398
F	57,632	57,781	105,013
M	58,169	58,538	105,922
A	59,093	59,462	107,419
M	60,297	60,460	109,534
			109,953
			144,570
			146,871
			150,099
			152,372
			154,417
			156,465
			157,951
			160,284
			162,098
			162,646
			164,091
			166,511
			169,831
			145,037
			146,910
			149,954
			152,195
			154,032
			156,106
			157,752
			159,643
			161,727
			163,003
			164,731
			167,277
			170,413

Column	4	5	6	7
Average of Wednesdays and average of month-ends <i>Moyenne mensuelle des mercredis et moyenne en fin de mois</i>	CREDIT MEASURES (Millions of dollars) <i>MESURES DU CREDIT (En millions de dollars)</i>		continued <i>suite</i>	
	Short-term business credit <i>Crédit à courte terme aux entreprises</i>		Total business credit <i>Ensemble des crédits aux entreprises</i>	
	Unadjusted <i>Données non-désaisonnalisées</i>	Seasonally adjusted <i>Données désaisonnalisées</i>	Unadjusted <i>Données non-désaisonnalisées</i>	Seasonally adjusted <i>Données désaisonnalisées</i>
	B156	B171	B154	B169
1986 M	153,773	152,967	277,938	277,133
J	154,106	153,772	279,578	279,244
J	154,768	153,191	281,823	280,247
A	153,002	152,519	281,366	280,883
S	153,527	153,698	282,542	282,713
O	154,647	154,508	284,672	284,532
N	153,854	154,589	285,221	285,956
D	154,492	156,344	287,297	289,149
1987 J	153,183	155,141	287,178	289,136
F	154,035	155,206	288,877	290,048
M	156,449	155,447	292,379	291,377
A	156,378	154,846	293,726	292,194
M	157,473R	156,587R	296,721R	295,835R
J	158,969R	158,602R	299,762R	299,394R
				N
				N
				422,508
				426,449
				431,923
				433,738
				436,959
				441,137
				443,172
				447,582
				449,277
				451,522
				456,470
				460,238
				466,561
				422,169
				426,154
				430,201
				433,079
				436,745
				440,638
				443,708
				448,792
				450,863
				453,051
				456,108
				459,471
				466,248

marketable bonds and preferred and common shares of non-financial businesses in Canada. Other business credit is presented on an unadjusted basis only, since Bank of Canada research found no stable seasonality in this series.

## 6. Total Business Credit

Total business credit is the sum of short- and long-term business credit, entry 4 plus entry 5.

## 7. Total Business and Household Credit

The last series shown covers total business and household credit outstanding. This series is the sum of entries 1, 2, 4 and 5 (or the sum of entries 3 and 6).

## VII. CANADA-U.S. PRIME CORPORATE PAPER RATES AND EXCHANGE RATES

Page 15 sets out Canada and U.S. 30-day prime corporate paper rates and the uncovered differential

between the two countries in two charts at the top of the page. The charts at the bottom of the page set out the spot and 30-day forward exchange rate for the Canadian dollar in terms of U.S. funds. The charts are updated using Wednesday's data each week and cover the current year and the latest completed year.

### 1. Canada-U.S. 30-Day Prime Corporate Paper Rates

The 30-day prime corporate paper rate used for Canada is the series discussed in chapter 7, entry 7. The 30-day prime corporate paper rate for the U.S. is the rate on dealer-placed paper as of Wednesday and is calculated by the Federal Reserve Bank of New York. It is then adjusted from a commercial discount basis to a true yield basis and further adjusted from a 360-day year to a 365-day year to ensure comparability with the Canadian rate series. The technique for adjusting the U.S. rate series was discussed in chapter 7.

### 2. Uncovered Differential

The uncovered differential shown under the two rate series discussed above is the spread between the Canadian and U.S. 30-day rates (the Canadian rate minus the U.S. rate). *The Bank of Canada considers this spread to be key for the Canadian dollar.* The wider the spread in favour of Canada the more support there is for the Canadian dollar, while a narrow or negative differential tends to encourage a decline in the Canadian dollar.

### 3. Closing Spot Rate for the Canadian Dollar in U.S. Funds and for the U.S. Dollar in Canadian Funds

The first exchange rate chart sets out the Wednesday closing spot rate for the Canadian dollar in U.S. funds on the left axis and for the U.S. dollar in Canada on the right axis. These data are taken from entries 12 and 13, discussed in chapter 6. From time to time, the Bank of Canada gives the exchange rate a high priority in its conduct of monetary policy.

The Bank has often tried to influence the short-term interest rate differential for exchange rate reasons. Increases in short-term interest rates are supposed to shore up a weak currency by widening the interest rate differential to other countries. However, this may only

impact the C\$ if an increase in the short rate differential is transmitted right across the entire yield curve—a proviso hardly ever noted in the published literature on monetary tools and techniques. For example, during much of 1978, Bank rate increases had hardly any impact on one-day interest rates (call and day loan rates) and longer term rates (10-25 year term to maturity). This was a key reason why the Bank's approach to push up the Canadian Bank rate did not really help the Canadian dollar in that year. That is, a Bank policy to push up interest rates via Bank rate increases was only really felt along a small segment of the yield curve.

### 4. 30-Day Forward Differential (Canadian Dollar in U.S. Funds)

The 30-day forward premium (or discount) to spot for the Canadian dollar (in U.S. funds) is determined in the market based on the interest rate differential for comparable debt instruments between Canada and the Eurodollar market (in this case the 30-day term). This calculation is based on mid-market closing quotes each Wednesday. The spread shown here will typically be positive when U.S. rates exceed Canadian rates and negative when Canadian rates exceed U.S. rates. Given a perfectly functioning capital market with only one 30-day security class in each country, *the 30-day forward differential should eliminate the uncovered interest rate differential, making the covered differential zero.* That is, the 30-day forward differential for the Canadian dollar in U.S. funds should be the inverse of the uncovered interest rate differential between the two countries.

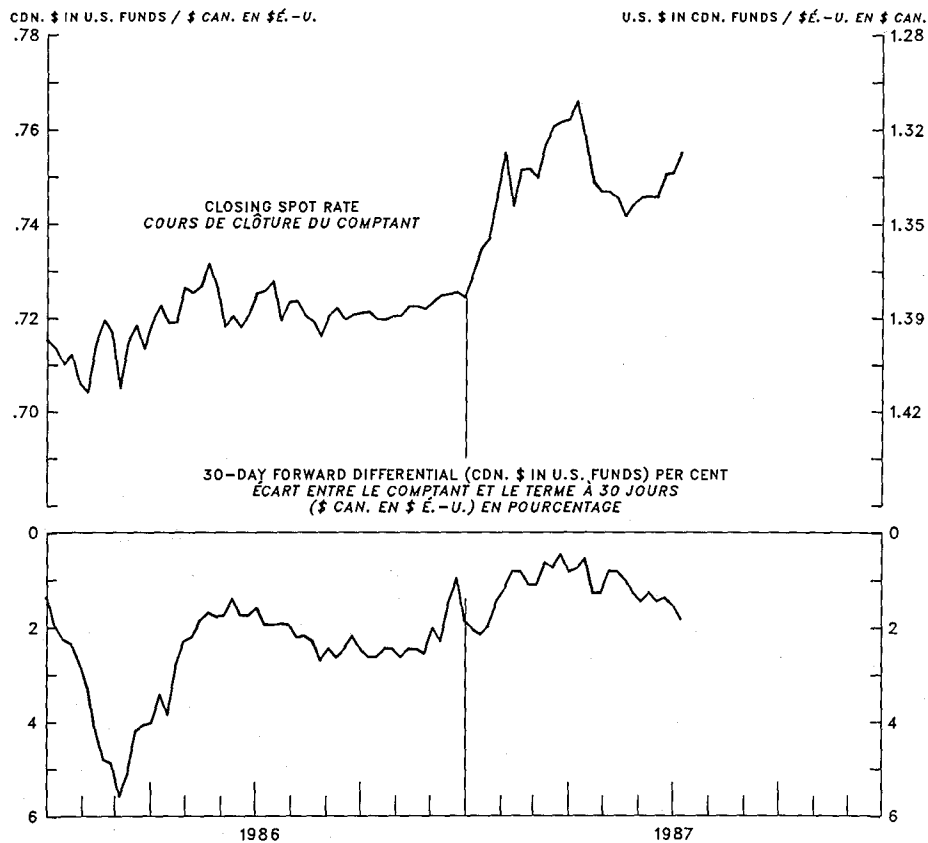
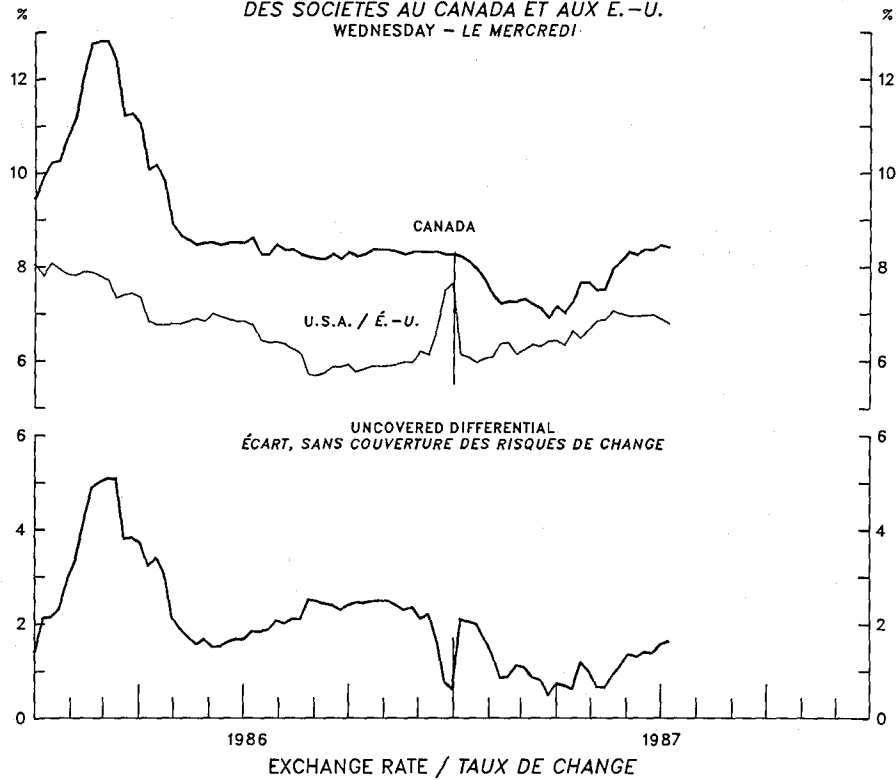
#### a) Some Technical Aspects of the Forward Arbitraging Mechanism and the Flow of Fully Hedged Funds

Having noted that the 30-day forward spread should adjust to eliminate the 30-day uncovered interest rate differential between the two countries, it is important to note that there will often be periods ranging from a few minutes to one to two days when this will not occur.<sup>5</sup>

There are many technical reasons for this. For

<sup>5</sup> When there is a fully hedged flow of funds, it is normal for the forward rates to adjust fairly quickly to eliminate the hedged flow.

CANADA - U.S. 30-DAY PRIME CORPORATE PAPER RATES  
 TAUX DU PAPIER DE PREMIER CHOIX A 30 JOURS  
 DES SOCIÉTÉS AU CANADA ET AUX É.-U.  
 WEDNESDAY - LE MERCREDI



LAST DATA POINT PLOTTED: JULY 8  
 LES COURBES S'ARRÊTENT AU 8 JUIL  
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example, very large commercial activity in the forward market may move the forwards, but foreign exchange traders may be slow to put together trades which would cause fully hedged flows to take the market back to equilibrium. This market, though close to being "perfect", does not adjust instantaneously.

Second, in the very short run, covering operations originating from excess supply or demand for the U.S. dollar in the forward market can alter the spot and forward rates independently of the interest rate differentials.

Generally speaking, however, if money does flow into Canada fully hedged, Canadian interest rates would tend to fall to eliminate the differential at a given forward or given interest rate structure (i.e., either the interest rate or the forward or both would adjust). When this develops, the all-in return to the investor falls and the market adjustment would soon shut off the "northbound". At this point, the market is back to a state of equilibrium. Thus, a flow of fully hedged funds is evidence of disequilibrium conditions in the forward foreign exchange market.<sup>6</sup>

A third important technical factor which can produce fully hedged flows of funds between Canada and the U.S. or Eurodollar market is the emergence of abnormal interest rate spreads which might develop between various classes of high quality securities in Canada, the U.S. or the Eurodollar market. For example, foreign exchange arbitrage usually takes place in two types of high grade securities—government Treasury Bills and bank deposits.<sup>7</sup> Thus, if Euro-CDs returned 6 percent and Canadian CDs 8 percent and the forward differential to spot is 2 percent (annualized), there is no flow possible. However, if *provincial* Treasury Bills in Canada returned an abnormally large 9 percent, a Euro-investor might purchase this security fully hedged to produce an all-in, fully hedged return of 7 percent compared to, say, 6 percent on Euro/U.S. deposits. It can be seen that the yield spread between high quality security classes in both Canada and the U.S. Eurodollar market is

crucial. If spreads between credits are wider than "normal" quality and liquidity differences alone warrant, a potential inflow or outflow situation exists via arbitraging *non-equivalent* pairs of high quality securities.

A fourth important point to note is that the existence of two U.S. dollar markets (domestic U.S. and Euro U.S.) creates situations where funds can flow fully hedged. This is because the forward exchange rates will not be able to exactly equilibrate both U.S. dollar markets to the Canadian market if the two U.S. rates for essentially the same instrument and term are different.

In fact, the forward usually arbitrages domestic Canadian bank Certificates of Deposit and U.S. Eurodollar CDs. This is because Eurodollar CD rates are usually above domestic U.S. rates, reflecting the fact that American banks can pay more for offshore dollars since they do not have to hold reserves against these deposits. Finally, weakness in the U.S. dollar from time to time will cause selling of U.S. dollar paper in Europe, forcing up Euro U.S. rates relative to domestic U.S. rates. This could create situations where the U.S. dollar would trade at a discount in the forward market in Canada, even though Canadian interest rates are above domestic U.S. rates. In turn, higher Euro U.S. rates, with a given forward pick-up or loss, imply that the lending client will almost always end up with a Eurodollar CD if he wants maximum return on a swap.

A fifth technical factor can occur when chartered banks are active in the forward market to fund a Canadian lending programme. Here, a bank may quote very attractive forward rates to key depositors to "induce" fully hedged yields which will attract Canadian swap deposits. These attractive swap yields may then attract an inflow of funds. A specific transaction could occur as follows: the bank would borrow three-month U.S. dollars in the Eurodollar market. It would then enter into a foreign exchange transaction involving the sale of these dollars for Canadian funds in the spot market (which are subsequently loaned out, say, for three months) and simultaneously buy the U.S. dollar forward for three months. This transaction would tend to strengthen the U.S. dollar forward spread to spot.

Finally, the existence of transaction and flexibility costs means that the forward may not exactly equalize rate differentials. For example, if Eurodollar 30-day rates are 8 percent and Canadian rates are 9 1/4 percent, a 10.4 point forward should ensue for the 30-day forward in a perfect market. However, if the

<sup>6</sup> If there is an inflow of fully hedged funds, foreign exchange reserves will rise until the forward matures. However, once the forward matures the foreign currency flows back out, leaving the net effect on reserves at zero. Thus, the initial foreign exchange reserve gain from a fully hedged flow is not "real", since an outflow is built into the contract.

<sup>7</sup> Some high-grade commercial paper could be arbitrated were it not for the withholding tax which does not apply to government securities and bank deposits.

forward were 8 points, an American could obtain an all-in, fully hedged yield in Canada of about 8.29 percent (9 1/4 percent minus 0.96 percent), compared to 8 percent in the Eurodollar market. This should lead to an inflow of fully hedged funds to Canada which is generally induced by attractive swaps. However, this differential may or may not be sufficient to induce the foreigner to invest in Canada, given the additional administrative costs he may face (delivery problems, a limited amount of paper he can buy free of withholding tax, etc.).

In addition, transaction costs can be high should a foreigner want to unwind the swap prior to maturity. Here, he would have to arrange to sell both the Canadian security he owns and the forward exchange contract. The fast unwinding of two specific maturity contracts at a profit is not always easy.

## 5. The "Covered Differential"

The above discussion made the point that forward premiums or discounts on currencies do not exactly equalize interest rates. The extra return to the lender after adjusting the uncovered differential in entry 2 with the cost of forward cover in entry 4 (the forward premium or discount) is called the "covered differential". Theoretically, this differential should be zero, but in practice it can be positive or negative.

When it is positive, foreign lenders can invest in Canada (with no exchange risk) at a rate which is higher than they could obtain in their own countries. This means an inflow of short-term foreign funds to Canada is encouraged. When the covered differential is negative, an outflow usually ensues.

Generally speaking, the covered interest rate differential will range from 10 to 25 basis points, reflecting the reduced liquidity in swaps and administrative/transaction costs. Normally, funds only flow in size on a fully hedged basis when the covered differential is positive or negative by more than about 10 to 15 basis points.

## VIII. SELECTED INTEREST RATES AND THE CANADA-U.S. GOVERNMENT LONG-TERM BOND YIELDS

Page 16 sets out three important Canadian short-term interest rates at the top of the page. The bottom part of the page presents yield data for Canadian and U.S. long-term bonds.

## 1. Selected Interest Rates

The chart at the top of the page plots the 91-day Treasury Bill rate and the overnight money market financing rate as of Wednesday of each week, calculated by the Bank of Canada as a seven-day average for the week ending with Wednesday.

This chart is an extremely valuable addition to the WFS because it allows the reader to see at a glance whether the Bank's monetary policy in general, and cash reserve management policy in particular, is "easy" or "tight". For example, when the call loan average is above the Bill yield, policy is tight. This should normally be reflected by a tight excess cash setting in chapter 4, entry 6. The chart shows how the Bank tends to "lean against the wind" when interest rates are both rising and falling. Finally, the chart also shows a more stable call loan rate relative to Bills since early September 1983. This results from the shift to weighted reserve averaging discussed in chapter 4.

## 2. Chartered Bank Prime Lending Rate

The chart on the prime lending rate presents data shown in chapter 7, entry 3b. This series closely parallels the Bill rate series shown above.

## 3. Canada-U.S. Government Long-Term Bond Yields

The two charts at the bottom of page 16 present the only long-term bond yield information shown in the charts. The first chart plots Wednesday yields for a specific and representative (current coupon) long-term Government of Canada bond and a specific and representative long U.S. Treasury bond.

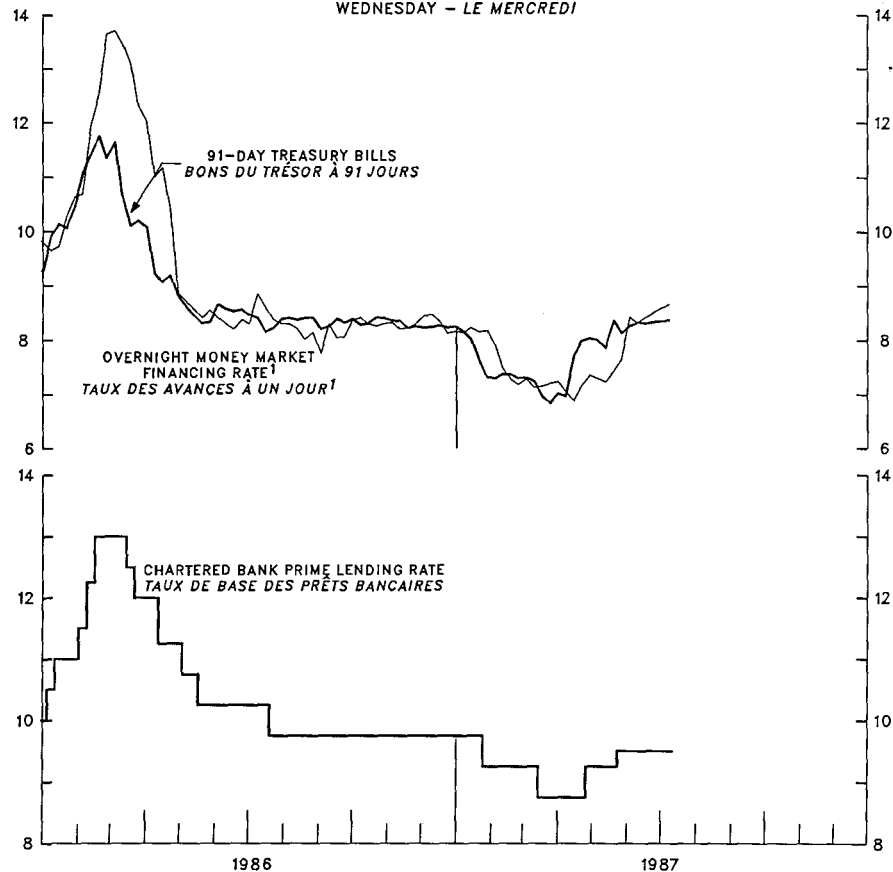
## 4. Uncovered (Long-Term) Differential

The small chart at the bottom of the page plots the uncovered long Canada-U.S. interest rate differential as measured by the Canadian yield minus the U.S. yield. This spread provides a good guide to the level of foreign long-term borrowing by Canadian credits and the strength or weakness in the Canadian dollar. When the uncovered differential is above two percentage points, Canadian credits tend to be more active borrowers in the U.S. and Eurodollar markets as long as this spread prevails when the foreign market

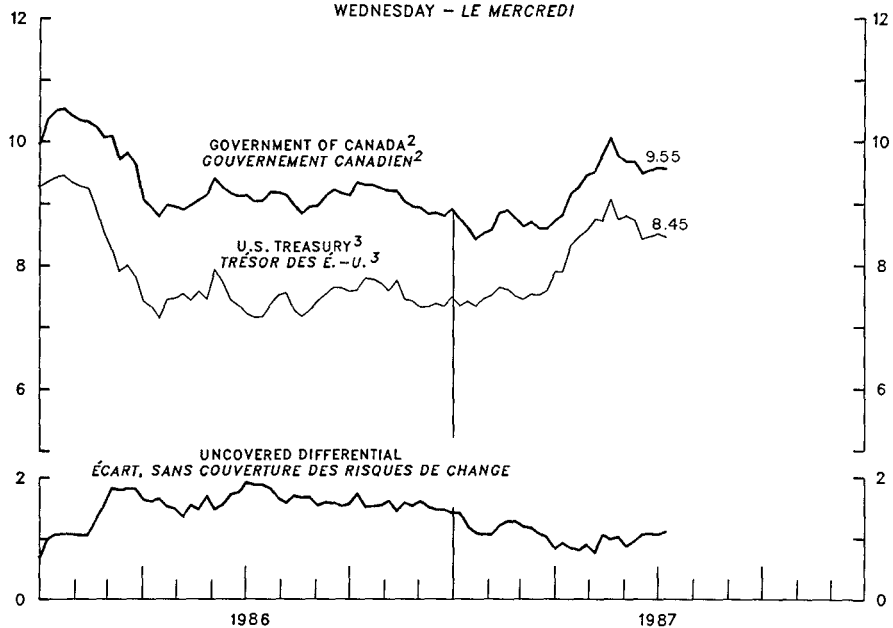
is stable and receptive to new issues. The spot exchange rate chart on page 15 shows that this, in turn, typically helps the Canadian dollar. When the spread drops below 100 basis points, there is little long-term foreign borrowing by Canadian credits and the C\$ tends to weaken (*ceteris paribus*).



SELECTED INTEREST RATES / QUELQUES TAUX D'INTÉRÊT  
WEDNESDAY - LE MERCREDI



CANADA - U.S. GOVERNMENT LONG-TERM BOND YIELDS  
OBLIGATIONS À LONG TERME DES GOUVERNEMENTS CANADIEN ET AMÉRICAIN  
WEDNESDAY - LE MERCREDI



1. SEVEN DAY AVERAGE FOR WEEK ENDING WITH THE WEDNESDAY / MOYENNE DE SEPT JOURS  
POUR LA SEMAINE SE TERMINANT À DATE INDICUÉE.
2. STARTING MAY 13, 1987. 9 1/2% 01/06/2010. / À PARTIR DU 13 MAI 1987. 9 1/2% 01/06/2010.
3. STARTING MAY 13, 1987. 8 3/4% 15/05/2017. / À PARTIR DU 13 MAI 1987. 8 3/4% 15/05/2017.

LAST DATA POINT PLOTTED: JULY 8  
LES COURBES S'ARRÊTENT AU 8 JUIL  
RELEAS 87-7-9 10:53



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# CHAPTER 9

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A SIMPLE FORMAT FOR  
EVALUATING MONETARY  
POLICY USING THE  
WEEKLY FINANCIAL  
STATISTICS  
AND  
HOW TO USE THE WFS FOR  
MAKING MONEY  
—TWO CASE STUDIES—

## **I. GENERAL**

Given the plethora of information in the WFS, even experienced analysts can have problems sorting out the flow of data. The following framework is one the author uses; it is encompassing, efficient and allows for quick and accurate evaluation.

### **1. Start on Page 1**

On page 1, start on the liability side of the Bank of Canada balance sheet by first observing the change in federal deposits at the Bank of Canada to see if the Bank is sterilizing cash outside the financial system.

Also, go to the "other investments" entry on the asset side to see how the Bank of Canada is modifying its normal drawdown/redeposit. If there is an increase here, the Bank is providing liquidity.

Next, check the securities held on the asset side. If this entry is rising, there is a potential liquidity increase. If this entry is changing, the analyst should then look to see if the Bank is permitting the impact to hit the system via increased notes in circulation.

Check the foreign currency deposit entry to see if the Bank is drawing its foreign currency lines of credit to stabilize a weak C\$.

At this point, the analyst will have a "feel" for the Bank's approach. But, no clear cut policy conclusion can be drawn at this stage of the analysis since the observed tighter or looser cash reserve management policy could relate to either a passive offset approach or an active policy approach.

### **2. Go to Page 5**

The key to evaluating policy is to separate passive offsets from active policy. This is done by examining the excess cash data on page 5 of the WFS. Here, the analyst checks the dollar amount of excess cash and the ratio of excess cash to deposits for the averaging period to date and at the Wednesday close. A roughly neutral stance will be reflected in an average excess cash setting of 0.03-0.04 percent. If policy is tightening, this figure will decline (or go negative if policy is significantly tighter). If policy is easing, the ratio will rise well above 0.04 percent.

### **3. Go to Pages 7-8 and 15-16**

The next move is to check the impact of the change in

excess cash observed on page 5 against what actually happens in the market to determine how a change in excess cash affected various interest rates and interest rate spreads. The C\$ can then be checked against the interest rate movements. These movements are observed on page 7 (C\$) and on page 8 (interest rates). Key data are then charted on pages 15 and 16.

The first impact of a Bank of Canada drawdown or redeposit is on the overnight rate, so this should be checked first on page 8. Then, the analyst should proceed to examine how the initial impact on the overnight rate filters out along the yield curve to 30- to 90-day rates.

The short-term spread between the overnight rate and 30- to 90-day rates (sometimes referred to as the "dealer carry") is key to assessing the very short-term impact. If this spread narrows, policy is normally tightening; if it widens, policy is tending to ease.

At this point, some analysts will draw a clear cut policy conclusion. However, this can be premature. One should also examine how the money market impact filters out further along the yield curve to long-term rates. This is done by checking the movement in longer term rates shown in tabular form on page 8 and in chart form on page 16.

Once the domestic market impact has been evaluated, Canadian monetary policy has to be examined in an international context. To do this, the analyst should check the Canada-U.S. short-term interest rate differential on page 8 to see if the Bank of Canada is tracking the U.S. interest rate trend or tending to follow an independent policy. If the interest rate spreads are unchanged, Canada is mirroring the U.S. If the spread widens, we are tighter; if it narrows, Canadian policy is easier.

The last area the analyst should check is the impact of monetary policy on the C\$. Specifically, the analyst should look to see if the change in short- and longer term Canada-U.S. interest rate differentials (shown on pages 8, 15 and 16) is impacting the C\$ (shown on pages 7 and 15).

### **4. Go Back to Pages 2, 3, and 4**

Having examined the market impact, it is worthwhile to examine how money market dealers and banks are reacting to the levels of excess cash in the system and the impact this is having on interest rates and the C\$. To do this, the analyst should return to pages 2, 3 and 4 of the WFS and examine the aggregate balance sheet for the chartered banks. A series of questions are

asked and answered from this data.

First, are the banks increasing their liquid assets, e.g., special call loan/Bills (bullish for interest rates to decline), or decreasing them (bearish)? Are they increasing their less liquid assets, e.g., loans (bearish), or decreasing them (bullish)?

On the liability side, are they increasing their deposit take (especially CDs/BDNs), which would tend to force up interest rates, or allowing a runoff (bullish)?

The analyst can also use the data on pages 2, 3 and 4 for business loans and BAs to determine whether the interest rate spread between BAs and bank loans is too wide or narrow. This helps forecast short-term pressure on the market.

Finally, in this section, the analyst should check the net foreign asset position to determine if it is increasing or decreasing. It is usually negative. Thus, an increase reflects a net inflow of foreign funds to finance Canadian loans (bearish) or vice versa.

## 5. Return to Page 1

Finally, the analyst can check to see if the cash swing or market developments (i.e., tightness or ease) forced the banks or dealers to borrow from the Bank of Canada. For banks, this is normally done simply by examining the Bank of Canada advances, although in 1985-86 this was made very difficult by the fact that the Bank gave "extended credit" type advances for bailouts. That is, the Bank of Canada included in the advance series both the advances related to liquidity and monetary policy and the advances related to bailouts. However, the Bank did not give a breakdown, so the analyst was often in the dark about how the banks were reacting to Bank of Canada cash reserve management policy.

For dealers, the impact is determined by dealers doing more or fewer PRAs. Also, on some occasions the dealer "carry" has been so negative as to have the Bank of Canada offer dealers PRAs above their credit lines; these are known as special PRAs.

## II. HOW TO USE THE WEEKLY BANK OF CANADA STATISTICS FOR MAKING MONEY OR REDUCING POTENTIAL LOSSES: TWO CASE STUDIES

Having examined the weekly Bank of Canada Statement page by page and column by column and

having set out a general format for dissecting it, let's now turn to the bottom line: *how to use the information to make money or cut losses*. To do this, two real world "classic" cases will be discussed, a case from May-June 1980 and a case from January-February 1986.

### 1. Case One: The Late May 1980 Money Market Crunch

#### a) Background

The first example occurred in the last week of May 1980 when short rates fell 400 basis points. Here, the Bank of Canada acted very aggressively to "crunch" the banking system and the money market. This really emerged following a decline in interest rates from April-June 1980, during which time three-month Bills fell from 16 percent to 10.25 percent and long Canada bonds rallied from 14 percent to 11.25 percent. The Bank of Canada decided this was too much when the May 22 Bill tender saw the 91-day Bills, which were auctioned at 11.58 percent, quickly rally to 11 percent the same day between 2:00 and 4:30 p.m. The Bank was irritated by this and at those dealers holding paper back from the market in order to build speculative trading positions for a big run at the bull market.

#### b) The First Signal—Cash Management via System Drawdown

The Bank's attitude was that the May market rally had gone too far. This attitude should have been evident to all market participants via the very large system drawdowns which showed as huge cumulative negative excess cash figures on the Bank of Canada's weekly Statement (page 5). This occurred near the end of the first May averaging period and again in the early part of the second May averaging period (\$971 million cumulative negative excess cash position in the first six days of the second averaging period).

#### c) The Sledgehammer—Open Market Operations

Against the background of a disorderly market not paying attention to "the teacher", the Bank of Canada moved into the market late on Thursday, May 22, following the tender, to sell Bills at 11.25 percent—a

huge 25 basis points over the trading levels. Unfortunately, many dealers and banks not only ignored the published data but also ignored the Bank's market activity, and the Bills rallied further to 10.85 percent the next day. Again, the Bank signalled chartered banks and the street to face facts by selling Bills over the market at 10.90 percent.

Meanwhile, to back up its open market activity the Bank continued its very aggressive system drawdown, which the Bank Statement showed resulted in a cumulative excess cash reserve ratio on May 28 of minus 0.07 percent and an overall system reserve deficiency of \$677 million, *which was then a new record deficiency with just two days to go in the averaging period.* This was a very unusual and aggressive development in that it implied that the Bank of Canada would not supply the cash to allow the banks to meet their required reserves at the end of the averaging period. (A lesser, though still large, deficiency also occurred with one day to go in the first May averaging period.)

Given that the Bank of Canada had pushed the banking system far offside on its cash reserves with only two days to go in the averaging period, the banks were forced to sell \$892 million of Bills in the week ended May 28 to cover the reserve deficiency.<sup>1</sup> But even this was not enough, and the banks started moving early to ask the Bank of Canada for cash advances which showed up at \$75 million on May 28. Passing over the end of the averaging period, there were huge cash advances by the Bank of Canada to the chartered banks which did not show up on the Thursday Bank Statement because the advances were not outstanding on the Wednesday reporting day.

#### *d) The Impact*

Against this background, the rally ended abruptly as dealers and banks suddenly woke up to the fact that the Bank of Canada really was swinging the sledgehammer, and the emerging tightness bit all at one fell swoop. Almost instantaneously, call loan rates moved sharply higher (from 15-17 percent to 20-23 percent) and Bill yields gapped up 75 basis points.

Amid all this tightness surrounding the large offside

positions, the banks had to face another problem which further complicated their cash management. As Bank of Canada tightening pushed overnight rates to record heights, many financial institutions suddenly started to draw down their chartered bank lines of credit at or just above the 13.75 percent prime lending rate and re-lend this money as call loans to money market dealers at 20-23 percent. The end result was a huge \$759 million increase in general loans outstanding in a week when they normally would have been flat or even falling.

Overall, after the dust had cleared, several new and unpleasant records had been set at the end of May 1980, and Canadian money market rates had generally backed up 100 basis points in less than a week.

#### *e) The Cost to Dealers of Not Paying Attention to Key Bank of Canada Data*

*It is worthwhile to set out a few ball park estimates of what it cost money market dealers alone by their failure to correctly read the weekly Bank of Canada Statements in May 1980 and to take note of Bank of Canada cash management policy and open market operations.* A few rough calculations will set this in perspective. Given that dealer inventory banking costs averaged about 18-19 percent in the week against the approximate 11-12 percent yield to dealers on their inventory, the street was looking at an average negative carry of 6-8 percent, a new record at that time. Separate Investment Dealer Association figures for the week showed money market inventories at \$4.2 billion. Assuming an average total inventory position at this level for the week and assuming that 20 percent of this was out on repo or financed at a fixed call loan rate for term, then about \$3.4 billion of money market inventory was fully exposed to the 6-8 percent negative carry. This works out to an average street loss on a day-to-day basis of about \$650,000 per day *just to finance the inventory.*

Thus, a major firm, say, with 15 percent of the street inventory, that did not read and understand the weekly Bank of Canada Statement and did not see the Bank of Canada's axe about to fall would have lost almost \$100,000 per day or almost \$500,000 in one week *just on the carry.* Since interest rates on the paper held in inventory also rose with the banking squeeze, capital losses over and above financing costs meant that money market losses at some firms could have totalled about \$1 million for just one week.

*This whole situation is a clear-cut example of why it*

<sup>1</sup> These sales occurred in a market where rates were almost instantaneously "gapping" up 75 basis points (see section 1d), so there were few street bids for the Bills. Consequently, the Bank of Canada was, in effect, asked to buy the Bills (at 11.70 percent) as lender of last resort.

*is so important for market participants to understand the mechanics of monetary policy and to be able to read and understand the weekly Bank of Canada Statement. In just this one instance, a thorough understanding of the weekly Bank Statement would have reduced these losses by several hundred thousand dollars per firm.*

## **2. Case Two: The Bank of Canada's February 1986 Policy Reversal and Attack on Speculators in the C\$**

The second case was the Bank of Canada's massive moves on February 5, 1986, to reverse its somewhat laissez-faire approach to the then declining C\$. On that day, the Bank moved aggressively in one of the fastest, most wide-ranging co-ordinated moves in Canadian monetary history.

### *a) The Background*

During the period October 1985 to January 1986, U.S. short rates were generally unchanged. U.S. treasury long rates declined from the 10.5 percent area to about 9.25 percent, and the U.S.\$ declined against most currencies other than the C\$. In Canada, a steady weakening of the C\$ against the U.S.\$, based on negative market sentiment in reaction to the fall in world oil prices, a rise in the federal budget deficit and an erosion in the current account balance, backed up by outright speculation against the C\$, led the Bank of Canada to sell U.S. dollars in the foreign exchange market and to run a moderately tight policy, especially from November to January. There were several large drawdowns and several negative excess cash weeks during this period which, from time to time, produced small negative dealer carries (25-50 basis points) and rising short rates. This, along with the market's tendency to push interest rates up as the C\$ weakened, had the predictable impact. The spread between Canadian and U.S. short rates opened up from 50-75 basis points in October to 125 by mid-January, while the long spread opened from about 50 basis points to 100. However, the Bank of Canada's moves still represented a gradualist approach to tightening and, as such, they had a muted impact on the C\$ as speculative pressure built through January 1986. As a result, the C\$ continued to fall during the period, from about 73.25¢ U.S. to about 71¢.

McLeod Young Weir (now Scotia McLeod) described the Bank of Canada's approach late in January 1986 in a published report as follows:

The Bank ... has been encouraging the lowest interest rates possible under the circumstances. Thus, it only put forward a minimum degree of C\$ defense. Two powerful arguments support this view.

First, at no time has the Bank tightened the banking system to significantly invert the money market yield curve. But, history shows that an aggressive approach would involve an inversion in the area of 200 basis points.

Second, only in the last two weeks has the Bank pushed for a Canada-U.S. yield spread that would begin to bite on the C\$. Recently, spreads moved from 100 basis points to almost 300 at the short end and from 50 to about 125 at the long end. But, even these new wider spreads are at the low end of the range historically needed to stabilize the C\$. *To really do the job, Canadian short rates would have to be as much as 500 basis points above comparable U.S. rates and our long rate would have to be 125-200 basis points higher ... (emphasis added)*

Thus, ... with the Bank of Canada on the sidelines until late January, a classic speculators environment developed.<sup>2</sup>

But, just as a sound understanding of Bank of Canada data led traders to profitably short the C\$ during this period, the data also signalled that the market was starting to live on borrowed time in late January. However, unless the analyst/trader understood and worked with the data every week, it was very easy to overstay a short position in the C\$.

### *b) The Sledgehammer: Late January to February 5*

On January 29 the market received the first significant clear-cut signal of a much more aggressive policy stance to counter the selloff in the C\$—a mammoth \$832 million system drawdown. This was backed up by a February 5 drawdown of another \$415 million to keep the tightening pressure building.

The Bank also moved aggressively into the market to sell about \$630 million of securities in the week ended February 5 (over \$2 billion was subsequently sold in the month of February). Specifically, it sold three-month Bills at three different levels, starting at 10.9 percent (when the market was 10.70—65

<sup>2</sup> 1 McLeod Young Weir, "Bond and Money Market Letter", January 31, 1986.

percent) and rising to 11.10 percent.

The full brunt of the Bank's policy shift hit the market on February 5, 1986, in a set of moves not seen in the market since 1980. This included the ongoing system drawdowns and open market sales of securities, as well as two other moves designed to push the C\$ up. The Bank was a very aggressive seller of the U.S.\$ in the foreign exchange market, with C\$ purchases rumoured to be at least \$150-200 million on Wednesday, February 6, alone. (The Bank sold \$859 million, U.S., in all of January.) Also, in a very unusual move the Bank of Canada was not only dealing with banks but also with FX brokers (in small size) to make its presence fully felt across the entire spectrum of market participants.

Finally, the Department of Finance announced a U.S. \$1 billion Eurobond issue and a U.S. \$1 billion drawdown on its bank line of credit to both add to FX reserves and generate a large capital inflow to cover the increased current account deficit in Q1. The minister said these reserves would be used to defend the C\$.

#### *c) The Market Impact*

The market impact of the Bank's moves was instantaneous on February 5. The tighter system immediately pushed call loan rates from 10.60 percent to 12 percent. This, along with open market sales of securities, led 30-day money market rates up 100 basis points and one-year rates up 50 basis points to produce the needed inversion of the yield curve—three-month Bills at 11.20 percent, six-month Bills at 10.90 percent and one-year Bills at 10.80 percent. Further, the moves had the desired impact on the dealer carry, shifting a positive carry in January and early February to 200 basis points negative by late February—exactly what McLeod Young Weir had said was necessary to turn the C\$ around. In the process, the Canada-U.S. short-term interest rate differential widened from 285 basis points in late January to over 400 basis points by mid-February. And, the long spread widened from 105 basis points to 150-200. Here again, both spreads were what McLeod had said were needed to properly defend the C\$.

Against this background, the foreign exchange crises was over within eight hours. The C\$ jumped from a record low of 69.13¢ (U.S.) on February 4 to close at 70.42¢ on February 5. And, the currency continued to strengthen further, moving to 73¢ later in 1986 and in early 1987.

#### *d) Conclusions*

Here again, sound knowledge of the weekly Bank Statement proved highly rewarding. First, it let the market participants short the C\$ with relative impunity during the period October 1985 to late January 1986. Second, the Statement indicated a covering strategy was appropriate in late January when the data showed the Bank of Canada was becoming much more aggressive in trying to halt the slide in the C\$. Third, by February 4-5, 1986, the data and overt moves by the Bank called for long positions in the C\$. *In every case, the data published in the WFS correctly signalled the interest rate moves and the moves in the foreign exchange market.*

Knowledge of the WFS data and how it would move the market also made money for nimble corporate treasurers in other ways. When a few recognized that the massive system drawdown and Bank of Canada market operations meant that market rates would move up faster than the prime lending rate, they were quick to draw down their bank lines of credit at prime (12 percent at the time) and pay down their BAs (every week in February) and re-lend to dealers at the higher call loan rate (13 percent) to pick up the spread. Further, when the C\$ crisis was over and rates began to fall, astute treasurers reversed their strategy, paying down their bank loans and doing more BAs when market rates fell below prime.

Finally, the Bank Statement was also a gold mine for retail type investors who, when they saw the C\$ stabilize and the Bank start to ease its grip in mid-February, were quick to redeem their 9 1/4 percent CSBs and lock in six-month or one-year Treasury Bills at 11 to 11 1/2 percent.

Here again, as in case one, there is graphic evidence to show that there is meaningful money to be made or saved by anyone involved in the securities market via an understanding of the mechanics of day-to-day monetary policy action in Canada as portrayed each week in the WFS.

As these two cases indicate, Canadians make major financial mistakes when they say Canadian markets always tag on the U.S. and Federal Reserve moves. It is true that we are highly dependent on the U.S., but *we are not slaves to conditions in the U.S. and international markets.*



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# LOOKING TO THE FUTURE

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In looking to the future, it is hoped that this book will not only aid the money and banking educational process but will encourage the Bank of Canada to release even more and better data and analysis. For example, a thorough understanding of the present Bank Statement would likely lead analysts to request a small amount of additional key information to make it even more useful in the future.

The author believes more and better data should be available in several key areas—four related to the Bank of Canada, three related to chartered banks, one related to the monetary aggregates and two related to the federal government.

## I. ADDITIONAL BANK OF CANADA DATA

It is interesting to note that in substantially expanding the data published each week in the new WFS in 1981, *the Bank of Canada did not release any new information about itself*. However, in 1987, the new Bank of Canada Governor, John Crow, began to release the Minutes of Bank of Canada Board meetings and key policy committee meetings, albeit with a lag. This finally paralleled the U.S. where FOMC meeting minutes had been published for many years.

### 1. Daily Excess Cash Figures

By far the most important omission was the Bank's failure to include, in the excess cash data on page 5, a footnote to show bank excess cash reserves, including the spot and cumulative average excess cash figures and the ratio to deposits, in the banking system for *each day*. Such a data series, if announced daily, would enable money market participants to see the Bank's *trajectory* for the cash setting as it unfolded during each averaging period. Further, the Bank would be a winner because it would give added weight to its key ongoing control variable. Thus, a tightening or loosening of the cash setting would be evident to "the street" each day and, therefore, would impact on the market faster. Interestingly, the important Dingle, Sparks and Walker article (1972) concluded by saying that one needs to know the *daily* trajectory of excess cash to understand monetary policy.<sup>1</sup> Now, over a

<sup>1</sup> Dingle, Sparks and Walker, "Monetary Policy and the Adjustment of Chartered Bank Assets", *Canadian Journal of Economics*, November 1972, pp. 494-514.

decade later, the Bank of Canada still does not publish this data.

### 2. Publication of the Reserve Calculation Worksheet

Second, it would be useful if the Bank could publish more detail on its cash reserve calculation (i.e., a one-page summary of its internal cash reserve worksheets). Such a report could easily be designed to parallel comparable data published in the U.S. dealing with *individual factors* specifically supplying bank reserves and the factors absorbing reserves. Here again, publication of details on the reserve calculation would reinforce the importance of excess cash reserve data.

Such data would also help analysts separate passive offset policy from active cash reserve management.

### 3. Bank of Canada Activity in Marketable Securities

It would also help the analyst immensely if the Bank were to report the amount of its own maturing bonds and Bills in the WFS each week and how much of each new issue it bought. The street now has to estimate the size of Bank support at the weekly Bill tender, because it does not know exactly how many Bills the Bank had maturing or held under PRA. Further, it does not know the Bank's dollar buying amount of Bills at tender.

In addition, it would be useful to have a data set which separates Bank activity in new issues from secondary market activity, since such activity is undertaken for different reasons. In the U.S., for example, Federal Reserve open market operations are widely publicized, and this gives the market key information on the level of rates at which the Fed intervenes and the size of the purchase or sale. In Canada, if page 1 of the Bank Statement shows the Bank added \$100 million in Bills to its portfolio during the last statement week, and this purchase did not reflect \$100 million in dealer PRAs, the figure could reflect a one-shot net \$100 million Bill purchase by the Bank to support the tender. By contrast, it might also reflect the Bank buying \$200 million in Bills at the tender (net) and selling \$100 million of these Bills back into the market before Wednesday of the following week.

Existing data do not allow these transactions to be

clearly seen, even though these two actions reflect different circumstances and have different implications for the market.

#### **4. Bank of Canada Advances**

In 1985-86, Bank of Canada advance figures included both monetary policy related "liquidity" advances and "extended credit" type advances for bailouts. As a result, the Bank of Canada advance figures suddenly became almost useless for analysts trying to judge the day-to-day impact of monetary policy during 1985-86.

Therefore, the Bank of Canada advance series in the WFS should be broken down into two components (as is the comparable data in the U.S.). One series would set out the normal "liquidity" type advances which occur only near the end of reserve averaging periods, depending on the degree of monetary ease or tightness. The second series would show "extended credit", where the Bank is replacing a run-off of private deposits and bailing out banks which are suffering a loss of investor/depositor confidence.

## **II. ADDITIONAL DATA FOR THE CHARTERED BANKS**

As well as publishing more information about itself, the Bank could most usefully release more data in three areas relating to chartered banks.

### **1. Chartered Bank Foreign Currency Loans**

Pages 3 and 4 of the new Bank Statement set out exactly the same amount of chartered bank foreign currency data as the old Statement. More data should be provided, especially about foreign currency loans, if for no other reason than the fact that foreign lending operations of Canadian banks are now very large and the banks are exposed to large potential loan losses. This data should also cover, separately, non-performing loans (where no interest is being paid after three months) and under-performing loans (where interest payments have been reduced).

### **2. Chartered Bank Foreign Currency Deposits**

Data on foreign currency deposits *booked abroad* with Canadian and non-Canadian residents (and bank

issued foreign-pay commercial paper) should also be included in the WFS. Such deposits and paper are reserve free under the Bank Act, while the foreign deposits booked in Canada and reported on page 4 are subject to reserves. It would obviously be useful to have both sets of data published each week so the market could assess the extent to which banks are running down foreign deposits booked in Canada and increasing their deposits booked abroad to escape the reserve requirement. This is a very big escape valve for Canadian banks, and there are indications that the federal government has exerted moral suasion on them not to aggressively circumvent the reserve requirement by booking large volumes of foreign deposits offshore or by heavily issuing foreign-pay commercial paper. Presenting the relevant data each week (even with a one- or two-month time lag) would certainly bring this more out into the open.

### **3. Inter-Bank Deposits and Reserve Requirements**

Third, no data on inter-bank deposits are published in the WFS. At a minimum, total inter-bank outstandings and volume each week and the weighted average transaction rates should be published.

## **III. THE MONETARY AGGREGATES**

Given that the four pillars of the financial business are now breaking down and financial institutions are starting to aggressively enter each other's traditional areas, it is time to fully broaden the Canadian monetary aggregates to include similar deposit categories for non-bank financial intermediaries. By internalizing, for example, a deposit shift from banks to trust companies (or vice versa), the Bank of Canada eliminates distortions in today's narrow banking based aggregates caused by deposit shifts between different institutional sectors. This is important because these shifts can be large and can affect the aggregates today, even though they are irrelevant for monetary policy.

This process was in fact started in 1983 when the Bank of Canada defined M2+ and M3+ to include deposits with trust companies, credit unions, and caisses populaires and was pushed forward in 1988 with the regular reporting of M2+ in the WFS. However, to date no M1+ series or M3+ series has been published in the WFS and no plus series has been

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officially recognized as a key series for policy determination.

#### **IV. ADDITIONAL DATA FOR THE FEDERAL GOVERNMENT**

##### **1. Weekly Data on the Exchange Fund Account**

The WFS do not contain any information on the Exchange Fund account, even though the Bank of Canada actively intervenes in the FX market on behalf of the Exchange Fund account. It would be extremely useful if the Bank of Canada provided weekly data on the EFA in its WFS publication to give market participants more timely information on the Bank's foreign exchange market activities.

##### **2. Consolidated Public Sector Debt**

In chapter 8, the Bank of Canada sets out total Government of Canada securities outstanding, with breakdowns for Treasury Bills, marketable bonds and Canada Savings Bonds. However, these data do not include bank loans and, more importantly, do not include debts incurred by federal Crown corporations. Release of this data is needed to allow consistent debt comparisons between countries. Also, release of the data would tie in with provincial consolidated debt figures which, for several years now, have been provided in U.S. prospectuses.

To avoid presenting a distorted picture of debt, an expanded table on debt outstanding could be supplemented with a table showing various categories of federal government assets.

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*Bank of Canada Review*, various issues; specific issues are as follows:

<i>Year</i>	<i>Month</i>	<i>Title</i>
1988	February	"The work of Canadian monetary policy". Eric J. Hanson Memorial Lecture delivered by John W. Crow, Governor of the Bank of Canada at the University of Alberta. . . 18 January 1988, pp. 3-17.
	February	"Monetary aggregates in Canada: Some recent developments". Article prepared in the Department of Monetary and Financial Analysis, pp. 19-31.
	June	"Some Responsibilities and Concerns of the Bank of Canada". Notes for a luncheon address by John W. Crow, Governor of the Bank of Canada at the annual meeting of the Canadian Economics Association, University of Windsor. . . June 4, 1988.
1987	January	"Notes to the tables."
	October	"Evolution 1987". Opening remarks to the Canadian Payments System Conference by Serge Vachon, pp. 9-14.
	December	"The market for Government of Canada treasury bills". Article prepared by Securities Department, pp. 3-14.
1986	January	"Monetary aggregates: Some recent developments."
	February	"The interbank deposit market in Canada", by Thomas Hossfeld.
	February	Introductory statement by Gerald K. Bouey, Governor of the Bank of Canada before the House of Commons Standing Committee on Finance, Trade and Economic Affairs, 11 February 1986.
	August	"Technical note: Introduction of retroactive settlement for the daily clearing of cheques and other payment items", by James F. Dingle.
	August	Canadian Payments Association press release on retroactive settlement, 10 July 1986.

<i>Year</i>	<i>Month</i>	<i>Title</i>
	October	Remarks by John W. Crow, Senior Deputy Governor to the Investment Dealers Association of Canada, 17 September 1986.
	October	"Technical note: Revisions to the monetary aggregates".
	November	Introductory statement by Gerald K. Bouey, Governor of the Bank of Canada in an appearance before the House of Commons Standing Committee on Finance, Trade and Economic Affairs, 5 November 1986.
1985	January	"Monetary aggregates: Some recent developments".
	January	"Notes to the tables".
	March	"Notes on the modification of seasonal adjustment procedures".
	April	Statement by John W. Crow . . . to the House of Commons Standing Committee on Miscellaneous Estimates—Hearings on a circulating dollar coin, 15 April 1985.
	May	"The Canadian Payments Association, excerpts from remarks by Serge Vachon . . . to the Canadian Payments System Conference", Montreal, 15 April 1985.
	July	"The Canadian Financial Network: Where the Bank of Canada fits in", remarks by John W. Crow, 16 July 1985.
	September	Department of Finance press release on Canadian Commercial Bank and Northland Bank, 1 September 1985.
	October	Address by Gerald K. Bouey, Governor of the Bank of Canada to the Canadian Club, Toronto, 23 September 1985.
	November	Statement by Gerald K. Bouey before the House of Commons Legislative Committee considering Bill C-79, 4 November 1985.
1984	September	"Technical note: A weighted-average exchange rate index for the Canadian dollar".
	October	"Developments in the residential mortgage market".
1983	January	"Notes to the tables".
	March	"Technical note: New and revised monetary and credit aggregates".
	May	"Overnight financing in Canada: Special call loans".
	September	"Revision to the reserves regulations: Introducing weighted averaging".
	December	"Monetary aggregates: Some recent developments".
1982	January	"Notes to the tables".
	April	"Monetary policy and interest rates", Remarks by Gerald K. Bouey, Governor of the Bank of Canada, to the Men's Canadian Club of Ottawa, 6 April 1982.

<i>Year</i>	<i>Month</i>	<i>Title</i>
	June	"An introductory statement", by Gerald K. Bouey, Governor of the Bank of Canada, in an appearance before the House of Commons Standing Committee on Finance, Trade and Economic Affairs, 3 June 1982.
	September	"Monetary policy—Finding a place to stand", 1982 Per Jacobson Lecture delivered by Gerald K. Bouey, Governor of the Bank of Canada, Toronto, Canada, 5 September 1982.
	September	"Remarks by Gerald K. Bouey, Governor of the Bank of Canada", to the 53rd Annual Meeting of the Canadian Chamber of Commerce, Ottawa, 21 September 1982.
	October	"The Bank of Canada and gradualism", excerpts from remarks by John W. Crow, Deputy Governor of the Bank of Canada, to the Business Outlook 1983 Conference of The Conference Board of Canada, Toronto, 7 October 1982.
	November	"Recovering from inflation", notes for remarks by Gerald K. Bouey, Governor of the Bank of Canada, to the Canadian Club, Toronto, Ontario, 29 November 1982.
	November	"The Canadian Payments Association", speech presented by Serge Vachon, Advisor, Bank of Canada and Chairman of the Canadian Payments Association, to the Canadian Payments System Conference, Toronto, 1 November 1982.
	December	"Statement prepared for Gerald K. Bouey, Governor of the Bank of Canada", in an appearance before the Standing Senate Committee on National Finance, 8 December 1982.
1981	January	"A statement by Gerald K. Bouey, Governor of the Bank of Canada, at a meeting of the federal and provincial Ministers of Finance, Ottawa", 17 December 1980.
	January	"Memorandum on Monetary Policy, prepared for the House of Commons Treasury and Civil Service Committee of the United Kingdom", 16 January 1981.
	May	"Remarks by Gerald K. Bouey, Governor of the Bank of Canada, to the Business Outlook Conference of the Saskatchewan Chamber of Commerce", Moose Jaw, Saskatchewan, 6 May 1981.
	September	"Foreign currency operations of Canadian chartered banks: An overview of recent developments".
	September	"Remarks by Gerald K. Bouey, Governor of the Bank of Canada, to the Men's and Women's Canadian Clubs of Calgary, Alberta", 23 September 1981.
	November	"The new chartered bank statistical reporting system".
1980	January	"Short-term interest rates and the exchange rate", International Department.
	March	"Government of Canada direct marketable bonds".
	April	"Remarks by Gerald K. Bouey, Governor of the Bank of Canada, to the Canada Club of Winnipeg", 8 April 1980.
	June	"Statement prepared for the appearance of Gerald K. Bouey, Governor of the Bank of Canada, before the Standing Senate Committee on National Finance", 29 May 1980.



<i>Year</i>	<i>Month</i>	<i>Title</i>
	November	"Remarks by Gerald K. Bouey, Governor of the Bank of Canada, to the Empire Club of Canada", Toronto, 13 November 1980.
	November	"Statement prepared for the appearance of Gerald K. Bouey, Governor of the Bank of Canada, before the House of Commons Standing Committee on Finance, Trade and Economic Affairs", 30 October 1980.
	November	"Inflation and Canada's monetary policy", notes for a lecture by G.E. Freeman, Deputy Governor, Bank of Canada, sponsored by the University of British Columbia Centre for Continuing Education", Vancouver, 29 October 1980.
	December	"Some thoughts about supply policies." Notes for remarks by G.E. Freeman, Deputy Governor, Bank of Canada, at the Ontario Economic Council's Conference on "Policies for Stagflation: Focus on Supply", 25 November 1980.
1979	February	"Monetary Policy and the Exchange Rate", statement by Gerald K. Bouey, Governor of the Bank of Canada, before the House of Commons Standing Committee on Finance, Trade and Economic Affairs, 6 February 1979.
	March	"Note on seasonal adjustment of monthly currency and demand deposit statistics".
	April	"The Management of Money", remarks by R.W. Lawson, Senior Deputy Governor of the Bank of Canada, to the Professional Activity Dinner of the Institute of Canadian Bankers, Winnipeg, 29 March 1979.
	November	"Statement prepared for the appearance of Gerald K. Bouey, Governor of the Bank of Canada, before the House of Commons Standing Committee on Finance, Trade and Economic Affairs, 25 October 1979.
	December	"The fight against inflation", remarks by R.W. Lawson, Senior Deputy Governor of the Bank of Canada, to the Financial Executives Institute of Alberta in Calgary, 20 November 1979.
1978	February	"A note on revised estimates of float and the effects on monetary aggregates".
	May	"Remarks by G.E. Freeman, Deputy Governor of the Bank of Canada, at the Economic Outlook Conference of the Canadian Association for Business Economics, Ottawa", 11 May 1978.
	June	"A statement by Gerald K. Bouey, Governor of the Bank of Canada, before the House of Commons Standing Committee on Finance, Trade and Economic Affairs", 6 May 1978.
	June	"Bank of Canada: Management and Accountability. Memorandum prepared for the Royal Commission on Finance Management and Accountability", Bank of Canada, March 1978.
	October	"Remarks by R.W. Lawson, Senior Deputy Governor of the Bank of Canada, to the Swiss-Canadian Chamber of Commerce, Montreal", 21 September 1978.
	November	"Remarks by Gerald K. Bouey, Governor of the Bank of Canada, to the Men's Canadian Club of Vancouver", 8 November 1978.

Year	Month	Title
	December	"Opening statement by Gerald K. Bouey, Governor of the Bank of Canada, before the House of Commons Standing Committee on Finance, Trade and Economic Affairs", 28 November 1978.
1977	May	"Note on the use of the X-11 'Strike Option' in seasonally adjusting demand deposits at Canadian chartered banks".
	July	"Technical note on temporary Bank of Canada Exchange Fund swaps", article prepared in the Securities Department under the direction of Frank Faure.
	October	"Canadian Savings Bonds", article prepared in the Securities Department under the direction of Nick Close.
1976	January	"The Bank of Canada in 1953 and 1954: A further stage in the evolution of central banking in Canada".
1975	June	"Cash reserve management".
	October	"Remarks by Gerald K. Bouey, Governor of the Bank of Canada".
1974	November	"The Bank of Canada from 1948 to 1952: The pivotal years", George S. Watts.
1973	April	"The Bank of Canada during the war years", George S. Watts.
	November	"The Bank of Canada during the period of postwar adjustment", George S. Watts.
1972	May	"Government of Canada Treasury Bills".
	May	"The origins and background of central banking in Canada", George S. Watts.
	June	"The note issue".
	August	"The legislative birth of the Bank of Canada", George S. Watts.
	November	"The first phase of the Bank of Canada's operations: 1933-39", George S. Watts.

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