2 Private Savings: Registered Retirement Savings Plans

Registered Retirement Savings Plans (RRSPs), along with employer-based pension plans and non-tax-sheltered savings, are part of the private, non-governmental, portion of the retirement income-savings system. An estimated 8 million Canadians use either RRSPs or Registered Pension Plans (RPPs) to augment their public social-security benefits. In fact, according to the Association of Canadian Pension Management, 77 percent of eligible Canadians utilize private savings facilities, i.e., RRSPs and RPPs.

The focus of this section is RRSPs rather than RPPs or non-tax-sheltered savings, due to the public accessibility of the RRSP system. Pension plans, by definition, are provided by employers and managed largely by professionals. RRSPs, however, are much more readily available, used, and thus understood by Canadians, since they are largely managed and directed by individual investors in conjunction with an RRSP provider. The analysis of losses associated with the FPR is nonetheless equally applicable to Registered Pension Plans (RPPs).

RRSPs are an investment vehicle that can be used by Canadians to save and invest, tax-free. Contributions to RRSPs are made on the basis of gross income rather than on an after-tax basis, since RRSP contributions reduce an individual's taxable income.

Canadians can contribute to RRSPs until age 69 as long as they have earned income in the year prior to the contribution. The allowable contributions are limited to 18 percent of the previous year's annual earned income up to a maximum of $13,500. Only individuals with income less than $75,000 are able to contribute 18 percent of their income to RRSPs because of the monetary limitation on contributions of $13,500.

Additional provisions

It is important to note two special provisions of the RRSP system: carry-forward and spousal plans. The carry-forward provision allows Canadians to accumulate unused RRSP contribution balances at the end of each year. For instance, suppose an individual was eligible to contribute $1,000 in each of three years but was only able to make contributions in the amount of $500 each year. If the individual earned $20,000 in the fourth year, he or she would be able to make RRSP contributions in the amount of $5,100: $3,600 (18 percent of eligible earnings in year four) plus $1,500 (unused portion of past RRSP contributions in years one, two, and three).

The second provision, spousal RRSPs, allows one spouse to contribute to the other's RRSP and claim the deduction. The spousal RRSP provision allows couples to split their income during retirement by dividing their retirement savings during their working lives.

Age limit

Individuals are precluded from making contributions to an RRSP account after the age of 69 and are required to collapse their RRSPs into one of a host of other products including annuities and Registered Retirement Income Funds. The reason for the transition from RRSPs at age 69 is to ensure that individuals claim a portion of their RRSPs as income during their lifetime. For instance, many choose to transfer their RRSPs to Registered Retirement Income Funds (RRIFs) that pay a minimum amount of income from the fund on a regular basis (e.g., weekly, monthly, or annually). The amount paid out by the fund is subject to personal income tax. Thus, the individuals receiving the payments are subject to income tax on an incremental basis rather than all at once at retirement.

Investments

The earnings on contributions to RRSPs also grow tax-free until retirement or until money is withdrawn from the fund.

The ability to shelter investment returns from taxation represents an enormous boost to investment growth since it allows returns to compound tax-free.

There are a host of investments that qualify under Revenue Canada guidelines for investment in an RRSP, including:

1 certain bonds, debentures, and similar obligations of the Government of Canada, a province, a municipality, or Crown corporation or such indebtedness guaranteed by the Government of Canada;

2 guaranteed investment certificates issued by a Canadian trust company;

3 shares and debt obligations of corporations listed on a prescribed exchange in Canada;

4 shares listed on a prescribed stock exchange outside of Canada;

5 shares of the capital stock of certain public companies;

6 units of a mutual fund trust (Revenue Canada 1992).

In addition, to the aforementioned investment options, Revenue Canada guidelines also allow for the inclusion of Canada Savings Bonds as part of an investor's domestic assets (Revenue Canada 1992).

There are, however, a host of investment options that are either limited or precluded from inclusion in an RRSP. For instance, precious metals, certificates in respect of precious metals, coins, and collections of currency are excluded from RRSPs (Revenue Canada 1992).

The objective of this paper is to examine and explain the main limitation placed on the investment options of RRSPs and RPPs, the Foreign Property Rule, which places a 20 percent limit on the book value of foreign assets in an individual's RRSP or RPP account. Any amount over the limit results in a 1 percent penalty tax assessed on the amount over the limit. (Revenue Canada 1995).

Changes to RRSPs

In 1990, several important tax changes were announced. The limit for RRSP contributions was originally scheduled to reach $15,500 by 1994 but the government slowed the pace at which the contribution limit increased due to budget constraints. In 1996, the Canadian government further delayed increases in the maximum contribution amount. The 1996 budget froze the contribution limit at $13,500 until the year 2003. Under the new schedule, the RRSP limit will increase to $14,500 in 2004 and $15,500 in 2005 (Department of Finance 1996).

It is important to emphasize that RRSPs are defined-contribution plans, whereby the contributions, as opposed to the benefits, are specified. For instance, RRSPs specify that the investor will contribute a certain amount of money each week or month to the plan. The benefits under a defined contribution plan are a function of the performance of the RRSP account (Ernst and Young 1997). Thus, two individuals who contribute the same amount of money may have different benefits in retirement depending on the rate of return each investor garnered from their investments.

Registered Pension Plans (RPPs), unlike RRSPs, can be either defined-benefit plans or defined-contribution plans. There has been a substantial movement away from defined-benefit plans toward defined-contribution plans. Thus, RPPs are increasingly emulating the structure of RRSPs.

Historical analysis of RRSPs and RPPs

Table 9 shows the number of both tax filers and RRSP contributors and the value of their contributions and income between 1979 and 1996.

The number of Canadians claiming RRSP deductions increased, on average, 7.7 percent per year between 1979 and 1996 (See table 9 and figure 5). More importantly the value of contributions to RRSPs increased, in nominal terms, on average, 13.7 percent during the same period (table 9 and figure 6). Controlling for inflation, the real growth in the value of RRSP contributions between 1979 and 1996, as measured in 1996 dollars, was 8.6 percent.

The value of RRSP contributions and the number of contributors grew more rapidly than either the number of tax filers or the total value of income assessed (figures 5 and 6). The number of tax-filers grew 2.2 percent between 1979 and 1996, less than one-third of the rate of growth in the number of Canadians claiming RRSP deductions.

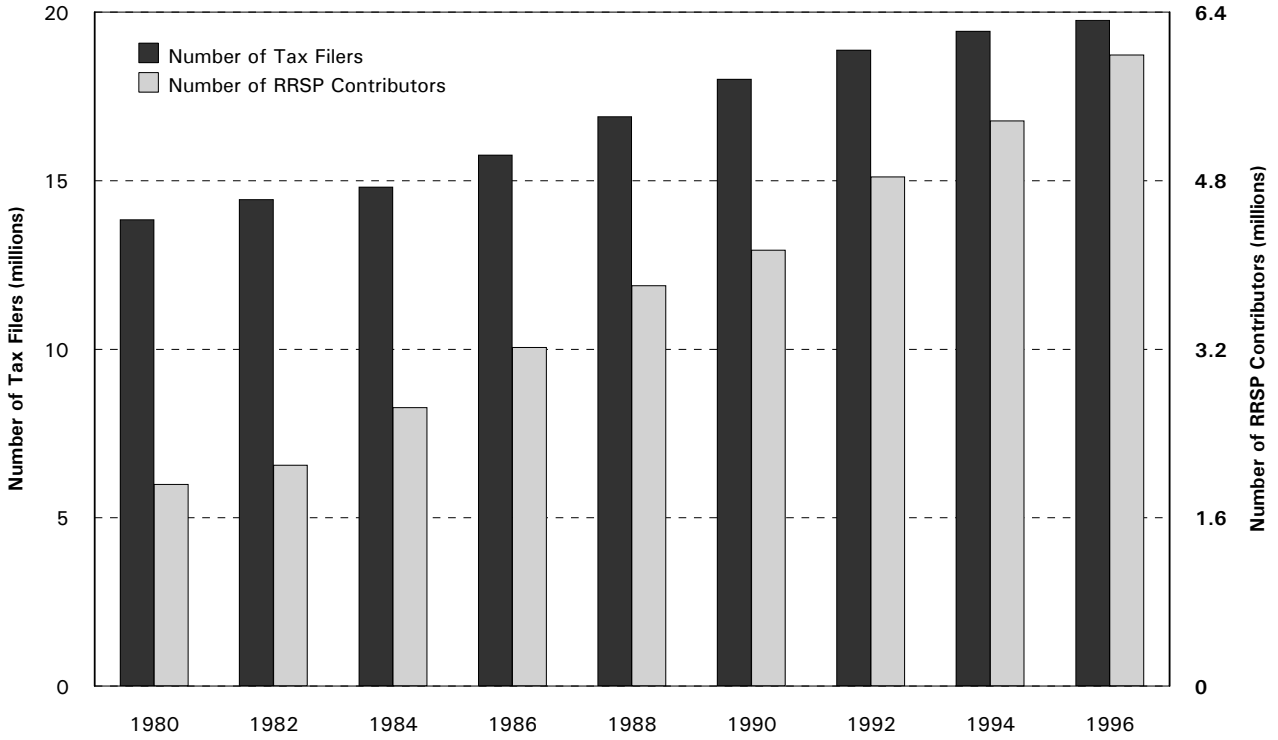
Similarly, the value of income assessed grew at a nominal rate of 6.9 percent, and a real, or constant dollar rate of 1.9 percent. Thus, the value of total income growth was less than one-quarter the growth in the value of RRSP contributions.

Table 9: Number and Value of RRSP Contributions & Income Returns

	RRSPs		Income Tax Returns		Percent of Tax Filers Claiming RRSP Deductions	Value of RRSP Contributions Relative to Total Income Assessed
	Number of Contributors (millions)	Dollar Value (billions)	Number of Income Returns	Dollar Value (billions)		
1979	1.7	3.1	13.7	177.3	12.6%	1.7%
1980	1.9	3.7	13.9	202.5	13.8%	1.8%
1981	2.0	3.9	14.4	234.0	13.6%	1.7%
1982	2.1	4.3	14.4	256.1	14.5%	1.7%
1983	2.3	5.0	14.6	265.2	16.0%	1.9%
1984	2.7	5.8	14.8	283.7	17.9%	2.0%
1985	2.9	6.7	15.2	307.6	19.1%	2.2%
1986	3.2	7.9	15.8	327.7	20.4%	2.4%
1987	3.5	9.0	16.3	353.3	21.3%	2.6%
1988	3.8	10.6	16.9	393.4	22.5%	2.7%
1989	4.2	11.9	17.5	431.8	23.9%	2.8%
1990	4.1	10.6	18.0	455.1	23.0%	2.3%
1991	4.6	13.4	18.2	465.7	25.4%	2.9%
1992	4.8	14.8	18.9	490.5	25.6%	3.0%
1993	5.1	17.5	19.2	503.4	26.8%	3.5%
1994	5.4	19.3	19.4	546.9	27.6%	3.5%
1995	5.7	21.2	19.8	530.1	29.0%	4.0%
1996	6.0	26.3	19.8	541.6	30.3%	4.9%

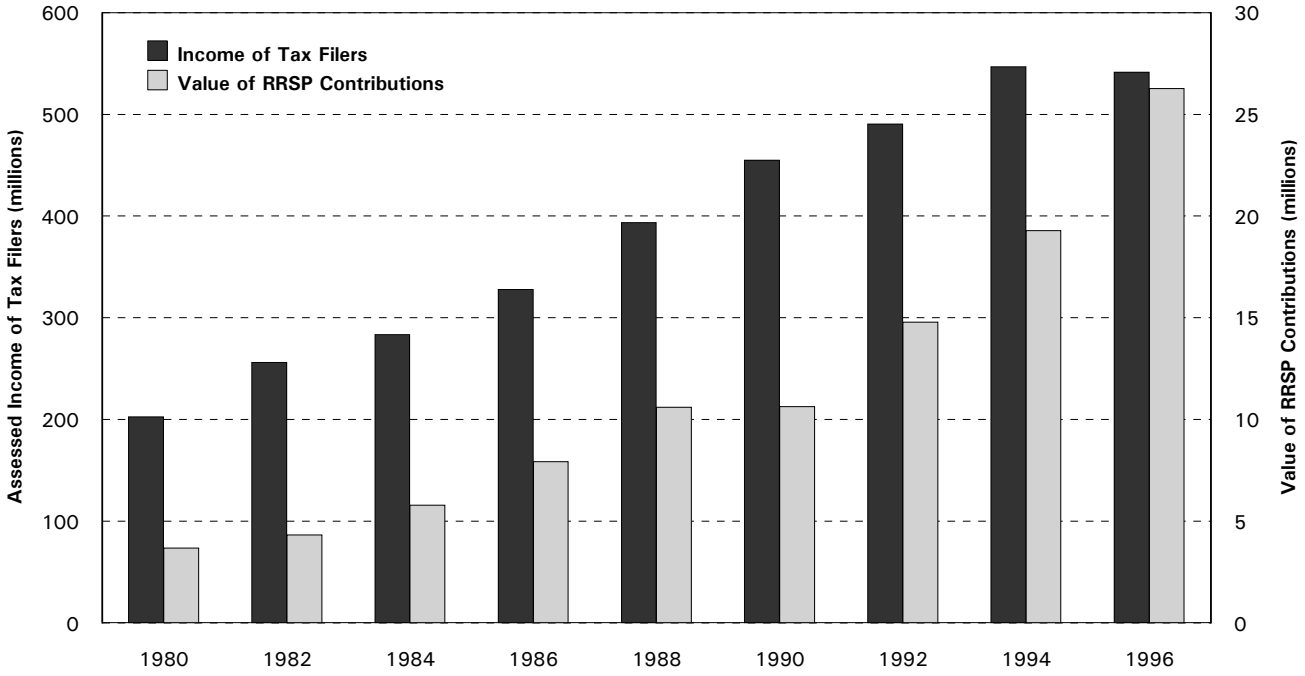
Source: Revenue Canada, *Tax Statistics on Individuals*, 1979–1996 Tax Years; calculations by the authors.

Figure 5: Number of Tax Filers and RRSP Contributors (1980–1996)



Source: Revenue Canada, *Tax Statistics on Individuals, Series 1979–1998*.

Figure 6: Assessed Income of Tax Filers and Value of RRSP Contributions (1980–1996)



Source: Revenue Canada, *Tax Statistics on Individuals, Series 1979–1998*.

Registered Pension Plans (RPP)

Another interesting barometer of the extent to which Canadians are using RRSPs is the comparison between RPP contributions and RRSP contributions. Table 10 presents the number and value of RPP contributions between 1979 and 1996.

Table 10: Registered Pension Plan Contributions

	Number of RPP Contributors (millions)	Relative to the Number of RRSP Contributors	Value of RPP Contributions ($billions)	Relative to the Value of RRSP Contributions
1979	3.3	189.4%	2.7	86.4%
1980	3.4	176.9%	3.0	82.7%
1981	3.5	177.7%	3.4	88.7%
1982	3.4	163.6%	3.9	89.9%
1983	3.4	147.1%	4.1	81.2%
1984	3.5	131.2%	4.3	73.4%
1985	3.5	121.2%	4.4	66.1%
1986	3.5	109.2%	4.5	56.9%
1987	3.6	104.1%	4.7	51.9%
1988	3.5	92.0%	5.0	47.3%
1989	3.6	86.0%	5.4	44.9%
1990	3.7	89.3%	5.9	55.9%
1991	3.7	79.2%	6.3	47.1%
1992	3.7	76.8%	6.8	45.7%
1993	3.7	72.2%	6.9	39.5%
1994	3.7	68.2%	6.9	36.0%
1995	3.7	63.8%	6.9	32.7%
1996	3.6	59.4%	6.8	25.9%

Source: Revenue Canada, *Tax Statistics on Individuals, 1979–1996 Tax Years*. Calculations by the authors.

The number of Canadians contributing to RPPs increased only marginally, 0.5 percent on average, between 1979 and 1996 (table 10 and figure 7). The value of RPP contributions grew at a nominal rate of 5.8 percent and at a constant dollar, or real rate, of 0.83 percent (table 10 and figure 8) compared to an average real growth in the value of RRSP contributions of 8.6 percent. The fact that the nominal value of RPP contributions in 1996 was 25.9 percent of the contributions made to RRSPs is evidence that Canadians are shifting their savings to RRSPs.

Profiles of RRSP contributors

There is a view that only affluent Canadians use RRSPs and that any restrictions placed on RRSPs would disproportionately affect only the wealthy. This misunderstanding of the use of RRSPs is illustrated by information released by Statistics Canada, which asserted that only 29 percent of Canadians contributed to RRSPs and that 81 percent of those earned more than $20,000 per annum (ACPM 1995).

Statistics Canada, however, failed to point out that Canadians with low income do not need to contribute to retirement savings plans in order to maintain a standard of living in retirement which is comparable to their pre-retirement levels (ACPM 1995). As the Association of Canadian Pension Management observed:

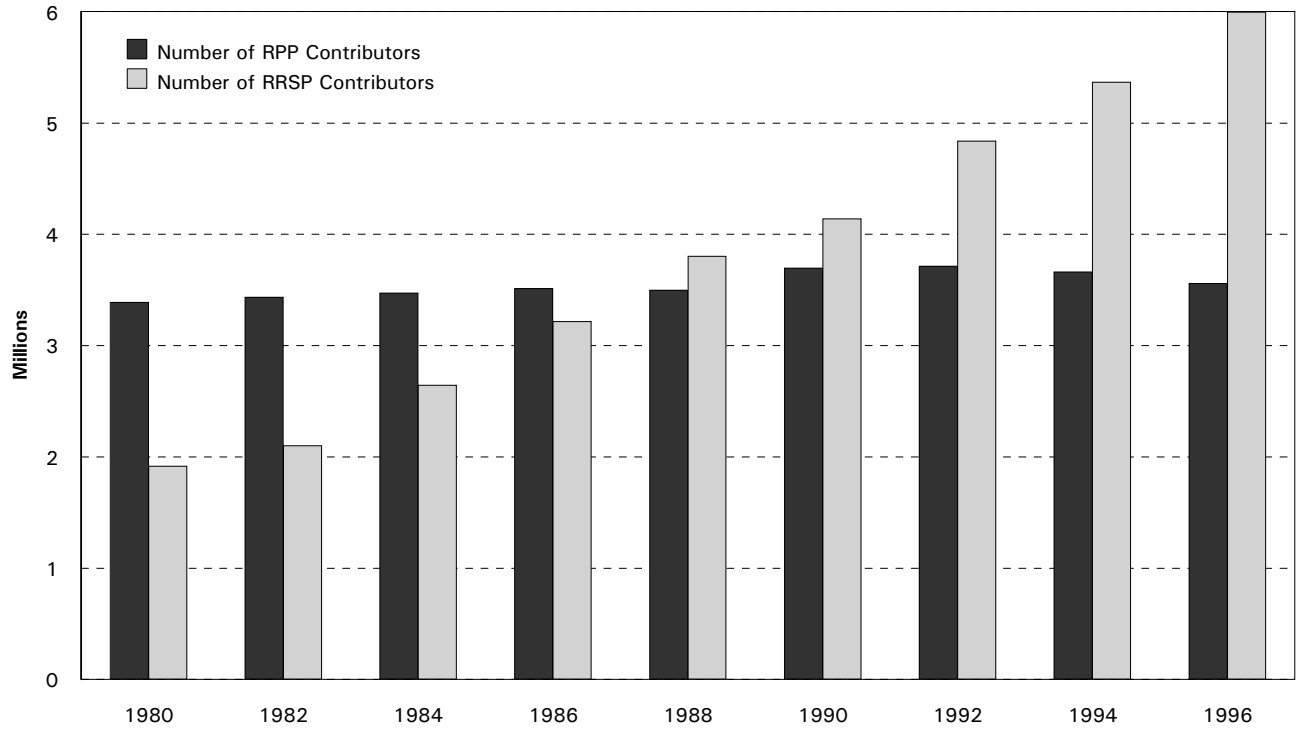
> Statistics Canada would serve Canada's retirement income system better if it pointed out that while only 29 percent of tax filers contributed to RRSPs in 1995, if one excludes those under age 25 and over 65, the participation rate increases to 36 percent. If those with earnings less than $20,000 per annum are excluded the participation rate increases further, to 56 percent. If those individuals who participate in registered pension plans instead of contributing to RRSPs are also factored in, the overall percentage of Canadians participating in private pension arrangements is 77 percent (ACPM 1995).

The following two tables present 1995 data for contributions made at different income levels and at different ages and show that RRSPs are broadly used by Canadians.

It is clear from table 11 and figure 9 that Canadians in every income bracket use RRSP accounts. It is interesting to note that 82.1 percent of all RRSP contributors earn less than $60,000 annually and that the value of contributions made by individuals earning less than $60,000 represents 63.0 percent of the total value of all RRSP contributions.

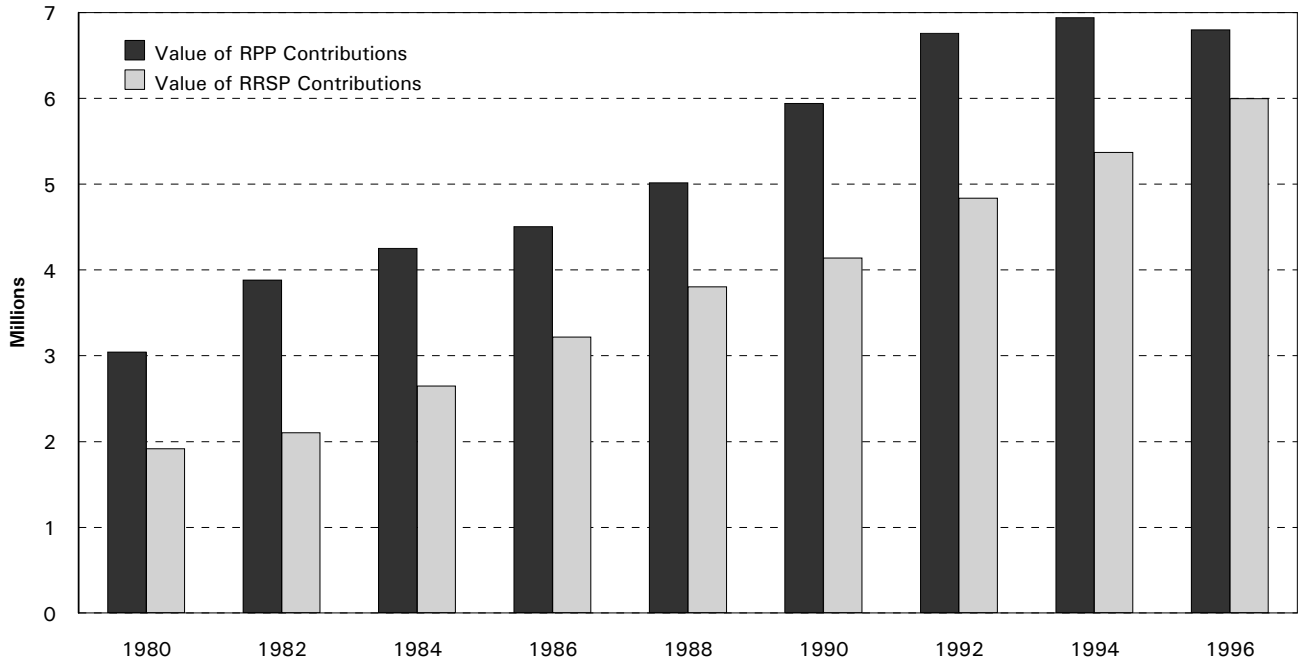
Table 12 reinforces the findings from table 11 that RRSPs are broadly used by Canadians. It is interesting to note that the largest increases in the proportion of those filing taxes who used RRSPs are in the younger age groups. For instance, the number of those filing taxes aged 20 to 29 who claimed RRSP contributions increased from 6.0 percent in 1982 to 21.8 percent in 1995, an increase of 263.3 percent. The percentage increase for the next three age groups (30–39, 40–49, and 50–59) decreased incrementally as the age increased; 147.9, 91.4, and 52.2 percent increase, respectively between 1982 and 1995.

Figure 7: Number of RRSP and RPP Contributors (1980–1996)



Source: Revenue Canada, *Tax Statistics on Individuals, Series 1979–1998*.

Figure 8: Value of RRSP and RPP Contributions (1980–1996)



Source: Revenue Canada, *Tax Statistics on Individuals, Series 1979–1998*.

Contrary to the general impression of many Canadians and, indeed, contrary to the statements made by Statistics Canada, RRSPs are increasingly being used by Canadians in all income groups in an attempt to ensure that they can retire with a reasonable level of income.

The RRSP system offers a flexible alternative to both pension and non-tax sheltered savings and is an attractive vehicle for savings to augment state-funded social-security benefits. The system maintains a few restrictions, namely the age up to which individuals can contribute, the amount of income permitted in contributions, and the investment options permitted.

Table 11: Distribution and Value of RRSP Contributions, 1995 Tax Year

Income Group	Proportion of Tax-Filers Who Made RRSP Contributions	Distribution of Contributors	Average Contribution ($)	Average Contribution as a Percent of Median Income
Loss and Nil	0.4%	0.1%	3,371	N/A
$1–$10,000	3.9%	3.2%	1,129	23%
$10,000–$20,000	13.8%	12.6%	1,724	11%
$20,000–$30,000	32.9%	19.0%	2,254	9%
$30,000–$40,000	47.7%	20.5%	2,906	8%
$40,000–$50,000	57.5%	15.5%	3,630	8%
$50,000–$60,000	64.2%	11.3%	4,292	8%
$60,000–$70,000	69.4%	6.7%	5,174	8%
$70,000–$80,000	73.7%	3.7%	6,539	9%
$80,000–$90,000	76.1%	2.1%	7,943	9%
$90,000–$100,000	77.3%	1.2%	9,061	10%
$100,000–$150,000	77.6%	2.4%	11,149	9%
$150,000–$250,000	76.8%	1.1%	13,274	7%
$250,000 and over	74.6%	0.6%	15,165	6%
Total	27.9%	N/A	3,695	N/A

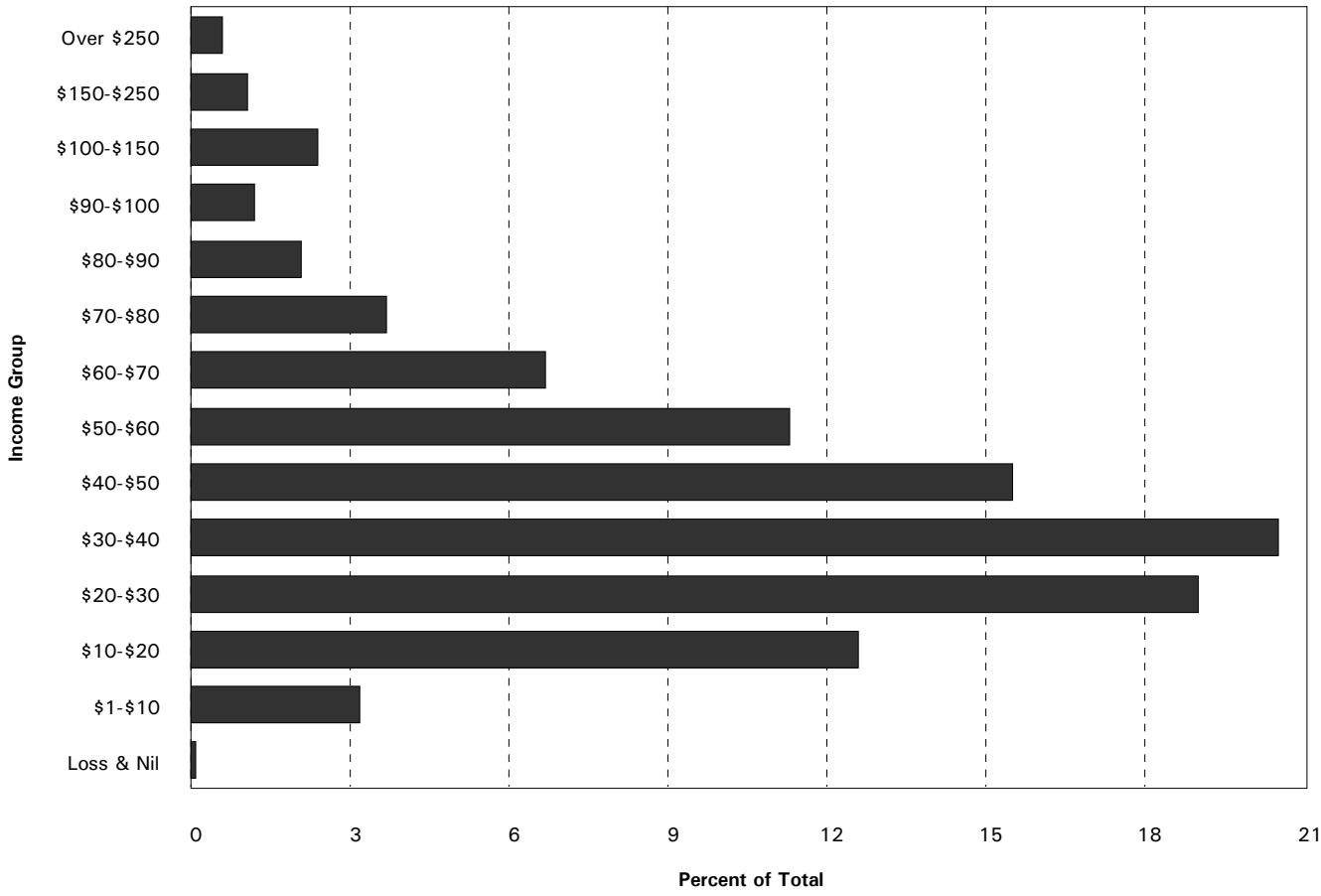
Source: Revenue Canada, *Tax Statistics on Individuals, 1995 Tax Year*; Emes 1998.
Calculations by the authors.

Table 12: Age Distribution of RRSP Contributors and the Value of Contributions

Age Group	Proportion of Tax-Filers who Contribute to RRSPs		Distribution of RRSP Contributions (Value)		Distribution of RRSP Contributors (Number)	
	1982	1995	1982	1995	1982	1995
Under 20	1%	3.3%	0%	0%	0%	0%
20-29	6%	21.8%	9%	9%	12%	14%
30-39	14%	34.7%	21%	27%	25%	29%
40-49	21%	40.2%	22%	31%	23%	29%
50-59	27%	41.1%	27%	23%	26%	19%
60-64	27%	28.2%	12%	6%	10%	5%
Over 65	6%	4.9%	8%	4%	4%	3%

Source: Revenue Canada, *Tax Statistics on Individuals, 1995 Tax Year*; Emes 1998.
Calculations by the authors.

Figure 9: Distribution of RRSP Contributors (1995)



Source: Emes 1998.

3 Portfolio management and diversification

This section provides a general overview of the principles associated with portfolio management and investment so as to establish a foundation with which to assess the remainder of the study.

The relationship between risk and return

The relationship between risk and return is at the core of any financial decision. The greater the level of risk assumed by investors, the greater the expected or anticipated rate of return required in order to compensate investors for the higher level of risk.

The lack of diversification opportunities caused by the Foreign Property Rule increases the level of risk while at the same time limiting the possible rates of return. It effectively distorts the relationship between risk and return that is fundamental to any investment decision.

Types of return

There are two types of return available to investors: income and capital appreciation. The first type of return refers to annual or periodic income (i.e., dividends) distributed to investors. The size of the income is directly related to the size of the total investment. For instance, dividends are paid on a per-share basis and thus the more shares an investor owns, the greater the amount of dividend income earned. The two key characteristics of periodic income are that it is based on an underlying investment and it is paid regularly over a specified time period.[10]

The second type of return refers to the appreciation or depreciation of the investment itself—capital gains and losses. Capital gains and losses refer to the difference between the beginning or purchase value of an investment (asset) and the ending or sale price of the investment. Unlike income, capital gains and losses are not regular payments; they are realized only at the time of disposition or sale.

Understanding risk

Risk refers to a situation in which the likelihood of the outcome of an event is unknown or not known with certainty. The are a number of sources of risk but almost all can be placed in one of four categories.

1 general economic risk due to the possibility that a particular jurisdiction will experience economic stagnation or recession;

2 inflation/deflation risk due to the uncertainty regarding pricing policies, financing costs, the costs of labour and materials, and the relationship between inflation and effective tax rates;

3 firm and issue-specific risk:

   a business risk due to the general market within which the firm operates;

   b financial risk due to the amount of financing provided by creditors and the level of fixed financial costs;

   c issue-specific risk due to the types of securities, and any provisions attached to them, that the firm uses to finance its operations;

4 international risk due to competition from foreign operations in the domestic market and the domestic firm's competitors in foreign markets. (Canadian Securities Institute 1993)

Correlation analysis

Much of portfolio diversification is aimed at reducing the level of risk in a portfolio without sacrificing the rates of return. Reduction of risk is analyzed using the correlation value of the assets included in a portfolio. A correlation is a measure of the degree to which two variables are linearly related, that is, the extent to which they move together.

The range of possible correlation values is positive 1 to negative 1. A correlation of positive 1 indicates a perfectly positive correlation, meaning that the two assets move in unison. For instance, if the value of asset A increased by 10 percent, and was perfectly positively correlated with asset B, then the value of asset B would also increase by 10 percent.

A correlation greater than 0 but less than 1 (figure 10a) indicates a positive, although less than perfectly positive relationship between the assets. A positive correlation means that the two assets generally move in the same direction but to different extents and at different times. If asset A increased in value by 10 percent, the value of asset B would also increase but to a different extent, possibly by 5 or 15 percent.

A correlation of negative 1 indicates a perfectly negative relationship, meaning that the two assets move in exactly the opposite direction. If asset A's value increased 10 percent, the value of asset B would decrease by 10 percent, assuming the two assets were perfectly negatively correlated.

A correlation of less than 0 but greater than negative 1 (figure 10b) indicates a negative relationship, although not perfectly negative. If the value of asset A increased 10 percent, then the value of asset B would decline, but by less or more than 10 percent.

Finally, a correlation of 0 (figure 10c) indicates the absence of any relationship between the two assets. The absence of a correlation indicates that the two assets move independently of one another.

In practice, it is extremely difficult to find stocks that are negatively correlated. Most stocks are positively correlated, although not perfectly so. That is, most stocks tend to move up and down together to some degree.

Systematic and unsystematic risk

There are two types of risk in portfolio management: systematic and unsystematic risk.

Unsystematic risk is sometimes also referred to as company-specific risk. It relates to particular risks and events that affect a particular company such as strikes, prod-

Figure 10a: Asset Correlations: Correlation Greater than 0.0 (+)

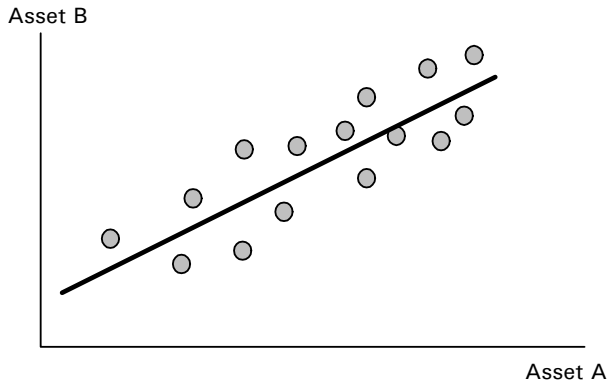


Figure 10b: Asset Correlations: Correlation Less than 0.0 (–)

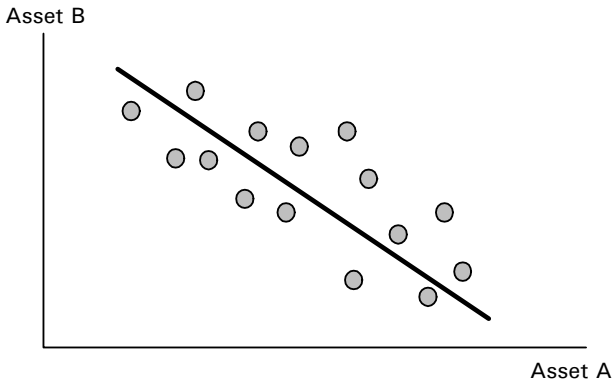
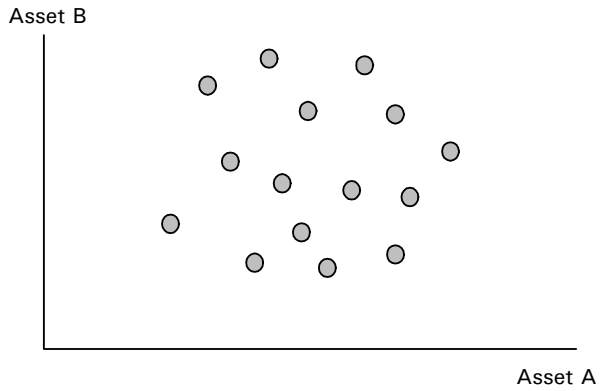


Figure 10c: Asset Correlations: Correlation Equal to 0.0 (No Correlation)



Source: Davis and Pinches 1988: 122

uct development, and other occurrences unique to a firm. Within a portfolio, unsystematic risk is the risk that the price of a specific security, or a group of securities, will change to a different degree or in a different direction from the market as a whole.

Unsystematic risk can be reduced by holding a variety of securities such that a negative event affecting one or two securities does not affect the overall portfolio to any great extent. Table 13 summarizes the ways in which a portfolio manager can reduce both systematic and unsystematic risk.

Table 13: Methods of diversifying an investment portfolio to reduce risk

Systematic Risk

1 Diversify all types of asset by
- type of asset: cash, fixed income, and equity
- term to maturity: short, medium and long
- geographic region

Unsystematic Risk

1 Diversify Fixed Income Securities by
- issuer's credit rating: mix of corporate and government bonds
- securities features: preferred vs. participating, retractable vs. convertible, etc.

2 Diversify Equities by
- degree of risk: conservative, growth, venture, and speculative stocks
- industries
- geographic location
- currency
- broad economic sectors: regulated, interest-sensitive, mature, growth, etc.

Source: Canadian Securities Institute 1993: table 16, 399.

Systematic risk is often referred to as market risk. It includes general economic conditions, the impact of monetary and fiscal policies, inflation, and other events that affect all firms in an industry or country. It is essentially the risk of being in a particular capital market.

Systematic risk can be reduced by investing in different asset groups (see table 13). It can also be managed within each component of the portfolio.

Risk measurement: beta analysis

Risk is calculated, in general, as the probability of a particular event occurring. Risk within a diversified portfolio is usually measured by how the returns of specific assets move, or are correlated with, the returns of the portfolio as a whole. To measure the risk of a diversified portfolio, the returns of the portfolio are measured against the returns of a broad indicator, such as the Toronto Stock Exchange 300 Composite Index in Canada, or the Standard & Poor 500 Index in the United States.

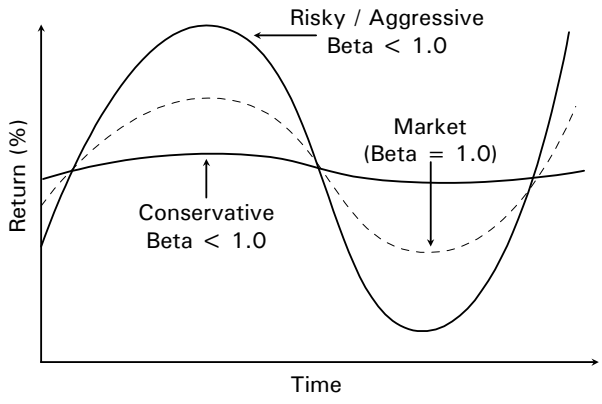
Beta analysis is a particular measure of risk. It refers to the amount of risk between portfolios and the broader market, such as the TSE 300. Figure 11 depicts the returns of two portfolios as well as the market as a whole, as measured by a broad indicator such as the TSE 300 Composite Index. The dashed line in between the two solid lines represents the market return over time. The market beta value is 1.00. A beta (β) of 1.00 indicates perfectly correlated movement with the market. A portfolio whose beta value was 1.00 would have the same risk as the market, indicated by the dashed line in figure 11.

Beta values in excess of 1.00 indicate more volatility and thus greater risk than is present in the broader market: the risky or aggressive portfolio earns higher rates of returns in the up cycle than does the broader market but also yields significantly lower returns during the down phase.

Alternatively, betas values of less than 1.00 indicate less volatility and therefore have less risk than is present in the broader market. The conservative portfolio does not yield as high a return as the market during the up phase but also does not lose as much of its value during the down phase.

Thus, we see a direct relationship between the expected rates of return from the three portfolios of investments and the level of risk, or volatility associated with each

Figure 11: Beta, Volatility, and Returns



Source: Davis and Pinches 1988: 136

portfolio. Table 14 presents further illustrations of the use of beta values in understanding risk and returns.

Table 14: Beta Coefficients for Select Firms

Firm	Beta
Alcan Aluminium	0.89
Bell Canada	0.56
Dofasco	1.01
National Bank	1.12
Placer Dome	1.44
Seagram	0.72
Trans Canada Pipe Lines	0.94

Source: Davis and Pinches 1988: 137.

The closer a beta value is to 1.00, the closer the returns of the underlying asset mirror the returns of the broader market. In the examples provided in table 14, Dofasco, a Hamilton-based steel company comes the closest to mirroring the returns of the market.

Alternatively, Bell Canada, a central Canadian telecommunications company maintains the lowest beta value, indicating a lower rate of return but also a lower rate of volatility, i.e. less risk.

Placer Dome, on the other hand, exhibits a much higher beta value (1.44) than any of the other firms, indicating that its fluctuations are significantly higher than those experienced by the broader market.

To reiterate, beta values are an approximate method by which to compare a portfolio and its investment returns relative to a broad market index of performance.

Security Market Line: a conceptual tool

Another method of examining the relationship between risk and return is the Security Market Line (SML), a conceptual tool that aids in the understanding of the relationship between risk and rates of return presented in the previous section.

Figure 12 depicts the relationship between the required rate of return (vertical axis) and the expected level of volatility, or risk (horizontal axis). The level of required return increases as one moves along the SML. That is, as the level of risk, or volatility, increases, so does the required rate of return. It is important to understand that the intercept between the SML and the vertical axis is the point of risk-free return; that is, the intercept represents a point at which the rate of return has zero volatility (risk), or a 100 percent probability of occurrence.

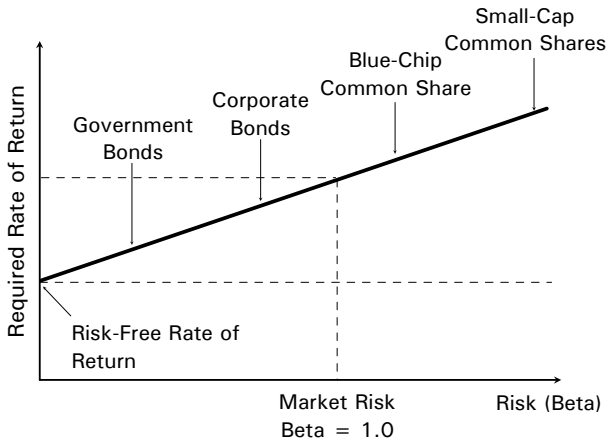
The Security Market Line (SML) slopes positively outward from this point of intersection, indicating a positive relationship between risk, or volatility, and the required rate of return; as risk increases, so does the required rate of return.

An example will further clarify the relationship presented in figure 12. Let us examine the relationship between corporate bonds and blue-chip common shares. The SML depicted in figure 12 indicates that blue-chip common shares are inherently more risky and thus require a greater rate of return than corporate bonds. There are a number of factors that contribute to making common shares more risky than bonds: these include the fact that owners of bonds have priority claims on both the income and assets of the firm, bonds have a fixed duration, and payment of income is guaranteed. Common shareholders, on the other hand, are subordinate in their claims for both income and the assets of a company and have no guarantee of either dividends or the appreciation of their shares. The increased risk associated with holding common shares is offset by the higher anticipated rate of return.

Management of investment portfolios

The relationship between risk and return is the foundation of investment. Higher levels of risk, or volatility, result in higher expected rates of return. Central to this concept is the matching of individual tolerance for risk with appropriate investments. There are a variety of factors that are

Figure 12: Security Market Line Illustrating Risk and Return



Source: Davis and Pinches 1988: 140

assessed in constructing an individual portfolio, all of which are analyzed in order to match the investor's tolerance of risk with the investment portfolio. The following lists the main considerations in constructing an investment portfolio:

1 personal data: age, marital status, health, number of dependants, etc.

2 net worth or family budget

3 tax position

4 investment knowledge

5 unacceptable risks

6 risk tolerance

7 time horizon

These factors are assessed in formulating a reasonable estimate of risk tolerance and investment objectives. There are essentially three separate but not mutually exclusive objectives in portfolio management: income, growth, and safety. There are also secondary considerations such as taxes and liquidity (marketability) that may affect the precise nature of the portfolio.

Of particular importance in the construction of the portfolio is the individual's age. Figure 13 presents the life-cycle theory of investment objectives. In general, there is a propensity for individuals to assume greater levels of risk, regardless of their particular level of risk tolerance, during the early phases of saving and investment. When they are older, investors are less willing to assume risk, as safety and income considerations become paramount. The framework provided by the life-cycle theory of investment objectives provides a rough outline of how the age of an individual will affect the particular construction of a portfolio.

Portfolio management is basically about considering all of the constituent aspects of investing—the risk/reward relationship, the life-cycle investment objective, portfolio diversification, and risk management—and creating a cohesive investment plan for an individual investor. Specifically, portfolio management entails the matching of an investor's risk tolerance and life-cycle profile with a specific portfolio mix. It also involves the composite structure of the particular portfolio mix utilized. Again, based on the risk tolerance and life-cycle of the investor, coupled with general principles of diversification, the portfolio manager crafts specific investment selections within each component of the portfolio.

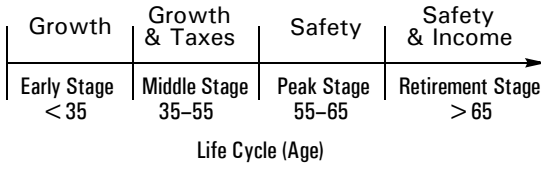
Let us use an example to illustrate the portfolio management process. An individual with an average income, at age 35, begins a portfolio. The portfolio management process would first assess the investor's risk tolerance. Next, given the investor's age, a life-cycle profile is constructed indicating that growth is the primary objective, with tax minimization as a strong secondary objective. From this data, a general portfolio mix is then constructed with approximately 35 percent to 50 percent equity, 35 percent to 50 percent fixed-income, and approximately 10 percent cash or cash equivalents.

The construction of the general portfolio mix is relatively easy compared to the complexities associated with formulating a specific investment strategy; that is, choosing specific instruments such as stocks and bonds for inclusion in the portfolio. For instance, what cash and cash equivalents should be purchased? Should they all be denominated in Canadian dollars?

More vexing are the investment questions relating to the fixed income and equity sections of the portfolio. What mix of government and corporate bonds should be used? What specific level of bonds should be purchased relative to equities? Should any foreign-denominated bonds be included? To what extent should blue-chip and established companies form the bulk of the equity portfolio? How large a position should be taken in growth companies? How much of the equity portfolio should be invested in foreign equities?

Many of these particular questions are answered using the same data, namely risk tolerance, life-cycle, and income, that were used to construct the general portfolio mix. However, diversification is of paramount importance to the portfolio manager. Diversification is a unique situation for investors in that it offers the possibility of a "win-win" situation: higher rates of return coupled with lower risk. Diversification reduces both systematic and unsystematic risk by spreading the investment pool over a large number of varied assets.

Figure 13: Life-Cycle Investment Objectives



Source: Canadian Securities Institute (1993)

Diversification of investment portfolios

Diversification of the investment portfolio is brought about by purchasing more than one asset in a way that protects the investor from adverse movements in any one particular asset, industry, currency, country, or region. Portfolio diversification is essentially aimed at reducing risk in a portfolio of investments. Diversification is basically a process of investing in more than one asset, where the assets do not move proportionately in the same direction at the same time. Table 15 is a summary of the diversification strategies listed in table 13. There are a host of diversification strategies. The Foreign Property Rule, however, inhibits the ability of investors to adequately diversify their portfolios.

Table 15: Summary of diversification strategies

1 type of asset:
   - cash,
   - fixed income, and
   - equity

2 term to maturity:
   - short,
   - medium and
   - long

3 geographic region: different regions and countries

4 issuer's credit rating: mix of
   - corporate and
   - government bonds

5 securities features:
   - preferred vs. participating,
   - retractable vs. convertible

6 degree of risk:
   - conservative,
   - growth,
   - venture, and
   - speculative stocks

7 industries: different industries

8 currency: different countries that use separate currencies

9 broad economic sectors:
   - regulated,
   - interest-sensitive,
   - mature,
   - growth.

Source: Canadian Securities Institute 1993: table 16, 399.