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Reforming Alberta's Heritage Fund:

Lessons from Alaska and Norway

by Robert P. Murphy and Jason Clemens

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Contents

Executive summary

The governments of Alberta, Alaska, and Norway have all created funds in which to deposit some of the revenues they receive from non-renewable natural resource activities. Despite Alberta's rich natural resource endowments, its Alberta Heritage Savings Trust Fund is smaller than the others because of its relative underfunding and because of chronic withdrawals of most income from the fund. This paper explores the history and structure of the three funds, and offers recommendations for reform in Alberta, including a formal rule for the contribution percentage and institutional mechanisms to encourage proper fund management.

Alberta's Heritage Fund was formally established in 1976. Its original three objectives were to save for the future, to strengthen or diversify the economy, and to improve the quality of life of Albertans. Its current mission statement is "to provide prudent stewardship of the savings from Alberta's non-renewable resources by providing the greatest financial returns on those savings for current and future generations of Albertans." Despite these appealing sentiments, *there is no formal requirement* for depositing non-renewable resource revenues into the fund. In fact, Alberta's Heritage Fund has suffered from poor stewardship for most of its history. Specifically, from 1977-2011, the Alberta Fund's cumulative net income (summing nominal yearly amounts over the period) was $31.3 billion. During the same period, the amount transferred *out* of the fund by the legislature was $29.6 billion—meaning virtually nothing was set aside for "inflation-proofing" to keep the principal intact in real terms. Even with generous classifications, the government has deposited a mere 5.4 percent of resource revenues into the Fund during its history. The fund has suffered not only from sparse contributions of new resource revenues, but its existing principal was not deployed in a way to maximize the fund's growth. Despite Alberta's tremendous natural resource endowment, the Fund equity (valued at cost) as of 2011 was a mere $14.2 billion.

The history of Alaska's Permanent Fund provides a useful contrast to the experience in Alberta. In 1976 Alaskan voters ratified a *constitutional amendment* that required the state to deposit at least 25 percent of specified non-renewable resource revenues into a fund, and which further restricted spending only the *earnings* of the fund, not the principal. (Later statutory requirements actually raised the contribution rate on new oil and gas fields to 50 percent for long stretches from the early 1980s to the present.) In addition, the Alaskan approach also includes a Permanent Fund Dividend program, in which a large portion of the fund's earnings are directly transferred to eligible residents. (In a typical year, Alaskan residents receive total payments of 10.5 percent of the Permanent Fund's total earnings over the prior five years.) This encour-

ages the public to police their elected officials and ensure that the fund is being managed wisely. As a result of these safeguards, the Alaska Permanent Fund can boast a cumulative net income (summing nominal yearly amounts) of $41.6 billion from 1977-2011. Over the same period, total disbursements to Alaskan residents in the form of Permanent Fund Dividend payments totalled $19.2 billion, or 46 percent of total earnings. In contrast, transfers to the government for its expenditures were a mere $424 million, or 1 percent of total earnings. The vast bulk of the remainder—$12.9 billion or 31 percent of earnings—was devoted to inflation-proofing the fund principal. From the beginning, the legislature decided that the Fund's portfolio would be managed purely for (conservative) financial returns, as opposed to broader social objectives. In 2011, the Alaska Permanent Fund had a total value of $40.1 billion.

This paper also examines Norway's Government Pension Fund Global, which was formally established in 1990 but did not receive contributions of resource revenues until 1996. Norway is an extreme case: *all* net proceeds from petroleum activities—including taxes on CO_2 emissions levied on continental shelf extraction operations—are (theoretically) deposited into the fund, with the Norwegian government only spending the fund's earnings while never touching the principal. In practice, contributions to the fund fall short of this 100 percent ideal, but nonetheless the management has approximated it surprisingly well. The fund's capital can only be transferred to the central government's budget with a resolution by Norway's parliament. As an added layer of protection of fund integrity, its managers are prohibited from investing in Norwegian assets. Because of its extraordinary contribution rate and safeguards in place for investment decisions, the Norwegian Fund enjoyed inflow of new capital (summing nominal yearly values) of NOK2.7 trillion kroner from 1997-2011. From 2001-2011, the Norwegian government spent (on average) oil revenues equal to a mere 4.3 percent of the fund's market value. In 2011, the Norwegian Fund had a market value of NOK3.3 trillion kr., the equivalent of CA$575 billion using November 2012 exchange rates.

Alaska and Norway offer clear lessons for the future management of the Alberta Heritage Fund. Obviously, Alberta's fund needs a formal requirement for contributions of non-resource revenues, perhaps reinforced with constitutional and/or other institutional safeguards (such as a dividend program that would enlist Alberta's residents in the task of safeguarding the fund).

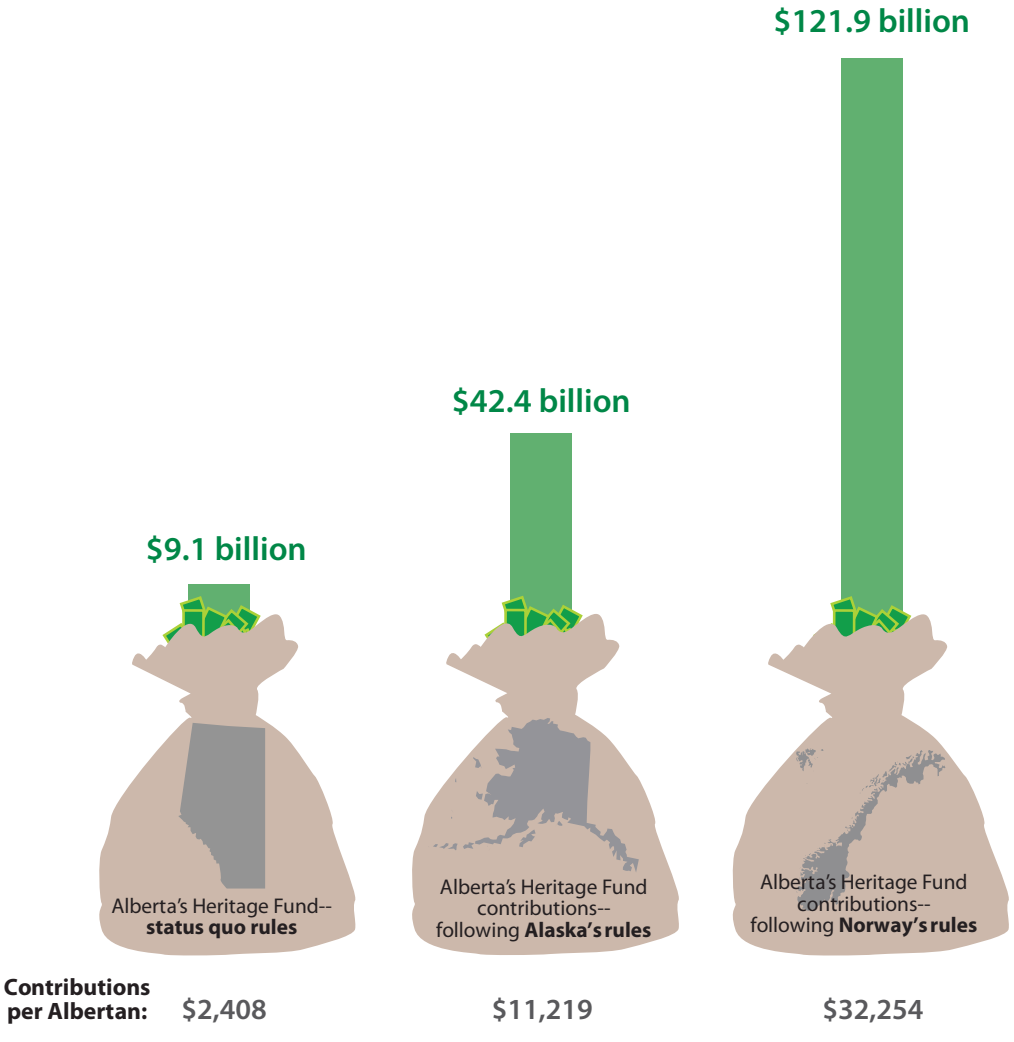
The advantages to future generations of Albertans from a higher contribution rate are plain. A simple simulation of the history of Alberta's Heritage Fund following the examples of Alaska and then Norway yields the following results:

- If the Alberta government had consistently deposited 25 percent of its non-renewable resource revenues from 1982-2011—as the Alaskan constitution requires—total contributions would have been $42.4 billion, rather than the actual contributions of $9.1 billion during this period.

- If the Alberta government had followed Norway's example, and contributed 100 percent of its non-renewable resource revenues into its Heritage Fund, then from 1982-2011 total contributions would have been $169.5 billion, rather than $9.1 billion.

As the above figures indicate, the present value of the Alberta Heritage Fund would be vastly higher had the legislature made larger contributions during the fund's history. In order to fulfill its mission of preserving Alberta's rich resource wealth for future generations, the government should seriously study the lessons from Alaska and Norway laid out in this study.

What could have been contributed to the Alberta Heritage Fund from 1981-82 to 2010-11 (in CA$)...



Source: Table 4.

Introduction

Alberta is currently struggling with ongoing deficits and real concerns regarding the effectiveness of its current economic plan, which is designed to return the province to fiscal balance after years of deficits. As it deals with these issues, the province is paying increasing attention to the status and use of non-renewable resource revenues and their relationship to Alberta's Heritage Fund. Fortunately, other jurisdictions also possessed of natural resources have learned lessons that will be useful for Alberta.

The fundamental problem with non-renewable resources is that the present generation runs the risk of consuming wealth (in the form of these resources) at the expense of future generations. To alleviate this problem, policymakers must exercise care when allocating revenues flowing from government-owned, non-renewable natural resources. In strict economic theory, such revenues are not *income* in an accounting sense, but instead are a transformation of one type of capital asset (oil deposits in the ground, for example) into another type of asset—cash in the Treasury's bank account. Therefore, to treat these revenues as analogous to sales tax receipts, and to spend them on projects that provide a flow of *present* services, would be to engage in unwise capital consumption, a drawing down of principal. Intuitively, the present generation would be selfishly eating away at a finite stockpile of wealth, rather than acting as custodians of nature's gifts on behalf of all future generations.[1]

In light of these considerations, governments sometimes establish "funds," which are a collection of assets purchased with the revenues derived from the exploitation of non-renewable natural resources. In terms of economic theory, the correct accounting treatment would have the government place *all* such revenues in a heritage-type fund, with the Treasury only permitted to spend the (inflation-adjusted) *earnings* of the fund during any given period. In this way, the government would be preserving the inflation-adjusted capital value (albeit in a different, more diversified form) of the region's natural endowment, so that future citizens could receive a comparable flow of government services, indefinitely.

In practice, governments do not live up to this theoretical ideal. However, some come closer to approximating it than others. In the real world, governments face significant challenges, the solution to which is not obvious. How does government ensure the accountability of those managing the financial fund while at the same time avoiding political interference with its investments? Should the fund managers invest purely for financial gain, or for other social objectives such as economic development or

1 For a fuller discussion, see Crowley and O'Keefe, 2006.

income redistribution? Even if financial return is the goal, how aggressive or conservative should the fund managers be?

In this paper, we analyze the cases of Alberta, Alaska, and Norway, each of which has had much different results with their respective heritage funds. In particular, Alberta's experience has been quite disappointing because policymakers could not resist the temptation to spend resource revenues to meet current obligations. In contrast, Alaska's and Norway's funds have fared much better. In the paper's final section we simulate how much larger Alberta's heritage fund would currently be worth if policymakers had followed rules similar to those in place in Alaska or Norway. We also offer suggestions on institutional changes that could help Alberta achieve such results.

Alberta's Heritage Fund

In 1976, Alberta Premier Peter Lougheed created the Alberta Heritage Savings Trust Fund (AHSTF). It was originally assigned three objectives: (1) to save for the future, (2) to strengthen or diversify the economy, and (3) to improve the quality of life of Albertans (Milke, 2006).

Turning from the founding principles to more recent publications, we read that the official mission of the Alberta Heritage Fund is "to provide prudent stewardship of the savings from Alberta's non-renewable resources by providing the greatest financial returns on those savings for current and future generations of Albertans."[2] However, in practice, Alberta's Heritage Fund has been plagued by underfunding (contributions to the fund compared to non-renewable natural resource revenues) and dubious investment projects that cater to non-pecuniary objectives.

Structure and governance of Alberta's Heritage Fund

Under the current statutes governing Alberta's Heritage Fund (Alberta, 2007), responsibility for the fund is placed directly under the supervision of the Minister of Finance in Alberta.[3] The statutes specify that each fiscal year, the Minister of Finance must "prepare and provide to the Treasury Board a business plan for the Heritage Fund." After the Treasury Board endorses the business plan, it must then be approved by a "Standing Committee."[4]

2 Mission statement quoted from Alberta Heritage Savings Trust Fund, 2011.

3 Alberta Heritage Savings Trust Fund:
2(1) There is hereby continued the Alberta Heritage Savings Trust Fund established under the Alberta Heritage Savings Trust Fund Act, RSA 1980 cA-27.
(2) The Minister of Finance shall hold, manage, invest and dispose of the assets of the Heritage Fund in accordance with this Act.
(3) The Minister of Finance shall establish and maintain a separate accounting record of the Heritage Fund.

4 The statutes define the Standing Committee as:
"6(1) There is hereby established a standing committee of the Legislative Assembly called the 'Standing Committee on the Alberta Heritage Savings Trust Fund' consisting of 9 members of the Legislative Assembly.
(2) The membership of the Standing Committee shall include 3 members of the Legislative Assembly who are not members of the governing party…
(3) The members of the Standing Committee shall be appointed at the commencement of each session in

It is crucial to note that there is no formal guarantee of contributions to the fund; the statutes merely say: "A percentage of the non-renewable resource revenue received in each fiscal year shall be transferred from the General Revenue Fund (general government revenues) to the Heritage Fund in accordance with this Act, but only if the transfer is authorized by a Special Act." There is no specific legal requirement for the government of Alberta to contribute to the Heritage Fund; rather, the contributions are made on a discretionary basis each year.

Finally, the statutes provide that the "net income of the Heritage Fund less the amount allocated to the Heritage Fund under section 11 [for inflation-proofing] shall be transferred by the Minister of Finance from the Heritage Fund to the General Revenue Fund annually."

The main provisions for inflation-proofing state:

> 11(1) Subject to subsections (2) and (3), for the fiscal year 1999-2000 and subsequent fiscal years, the Minister of Finance shall retain from the income of the Heritage Fund and allocate to the endowment portfolio as soon as convenient after the end of each fiscal year an amount equal to the value of the total equity of the Heritage Fund as recorded in the financial statements of the Heritage Fund for March 31 of the fiscal year multiplied by the percentage increase, if any, for that fiscal year in the Canadian gross domestic product price index specified by the Minister of Finance. (Alberta, 2007)

Notwithstanding the language quoted above, inflation-proofing did not actually occur until 2006. It is also important to note that subsection 11(2) allows the minister to delay inflation-proofing if income is insufficient, while 11(4) says that the entire Section 11 on inflation-proofing may be ignored if the government has outstanding debt (Alberta, 2007).

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the same way that members are appointed to other standing committees of the Legislative Assembly.
(4) The functions of the Standing Committee are
(a) to review and approve annually the business plan for the Heritage Fund;
(b) to receive and review quarterly reports on the operation and results of the operation of the Heritage Fund;
(c) to approve the annual report of the Heritage Fund;
(d) to review after each fiscal year end the performance of the Heritage Fund and report to the Legislature as to whether the mission of the Heritage Fund is being fulfilled;
(e) to hold public meetings with Albertans on the investment activities and results of the Heritage Fund."

Investment guidelines

The current statutes give only broad guidance on permissible investments:

> [W]hen making investments the Minister of Finance shall adhere to investment and lending policies, standards and procedures that a reasonable and prudent person would apply in respect of a portfolio of investments to avoid undue risk of loss and obtain a reasonable return that will enable the endowment portfolio and the transition portfolio to meet their respective objectives. (Alberta, 2007)

However, as explained later in the paper, there were restrictions on investment applied up to 1997 (or so), which some analysts believe contributed to the Alberta Heritage Fund's relatively poor investment performance up until then.

Major events in the history of Alberta's Heritage Fund

Merely focusing on the current statutes governing the Alberta Heritage Fund omits much of the relevant history. The fund was originally intended to not only preserve natural mineral wealth for future generations, but also to support infrastructure projects (bridges, sewer systems, etc.), to support "quality of life" projects (art galleries, medical research, etc.), and finally, to build a "rainy day" fund for cyclical tax revenues.[5]

The original Alberta Heritage Savings Trust Fund statute, passed in 1976, established three divisions, the first two of which were each limited to 20 percent of the total Fund: Canada Investment Division (CID), Capital Projects Division (CPD), and Alberta Investment Division (AID). Originally, the Fund was not permitted to hold equities.

The CID engaged in questionable practices right from the start, granting loans to provincial governments at preferential rates. The CPD by design was not intended to generate a profit in a conventional sense, but rather to make investments that would pay off in "lifestyle dividends." The CPD funded such projects as the Medical Research Endowment, irrigation works, airstrips, and urban parks.

Even the explicitly profit-oriented AID has a checkered history. As Allan Warrack explains:

> AID undertakings were directed to financial return. This division was hobbled by not being permitted to invest in stock market equities [finally relaxed in 1997 legislation], especially when capital gains were essential to counter high inflation

5 The historical summary of Alberta's Heritage Fund draws on Warrack (2008 update).

> in the 1980s. The primary use of AID was as a private placement banker for various provincial government-owned corporations, including Alberta Government Telephones. These loans totalled very large amounts, over half of AHF [Alberta Heritage Fund] total size. As private placements, significant fees and commissions were saved… However, the process insulated AHF and recipient Crown corporations from market forces and disciplines. AHF difficulties are partly the result of this market detachment. (Warrack, 2008 update: 10)

The financial history of Alberta's Heritage Fund

Table 1 shows the inflows and outflows from Alberta's Heritage Fund. Inflows to the fund include both earnings on the assets held in the fund and contributions made by the Alberta government, largely from resource revenues. The outflows include transfers to the Alberta government's general operating fund as well as capital expenditures.

As the table indicates, there was *no* inflow from the government from 1988 through 2005, even though (not shown in the table) the Alberta government collected a great deal of non-renewable revenues in that period. Indeed, between 1988 and 2011, the government of Alberta only contributed to the fund in three years (2006, 2007, and 2008). This was perfectly legal, in that there was no statutory requirement for a particular deposit percentage.

Further handicapping growth, in many years all or much of the net income that the Heritage Fund earned was transferred to the General Revenue Fund. For example, in five of the years between 2000 and 2011, the entire net income of the Heritage Fund was transferred to the government, and in four additional years the amount was 67 percent or higher (see table 1). Even in 2006 and 2007, when large deposits were made into the Heritage Fund, the government transferred out most of the net income, mitigating the benefits from the contributions.

Another way to think about the relationship between contributions and withdrawals is to view the sum of both over time. Over its entire history, the fund enjoyed a net income (summing the nominal dollars) of $31.3 billion, while the legislature transferred out $29.6 billion for its expenditures. Thus the fund has a relatively modest market value today, despite Alberta's rich natural resources and the fund's age.

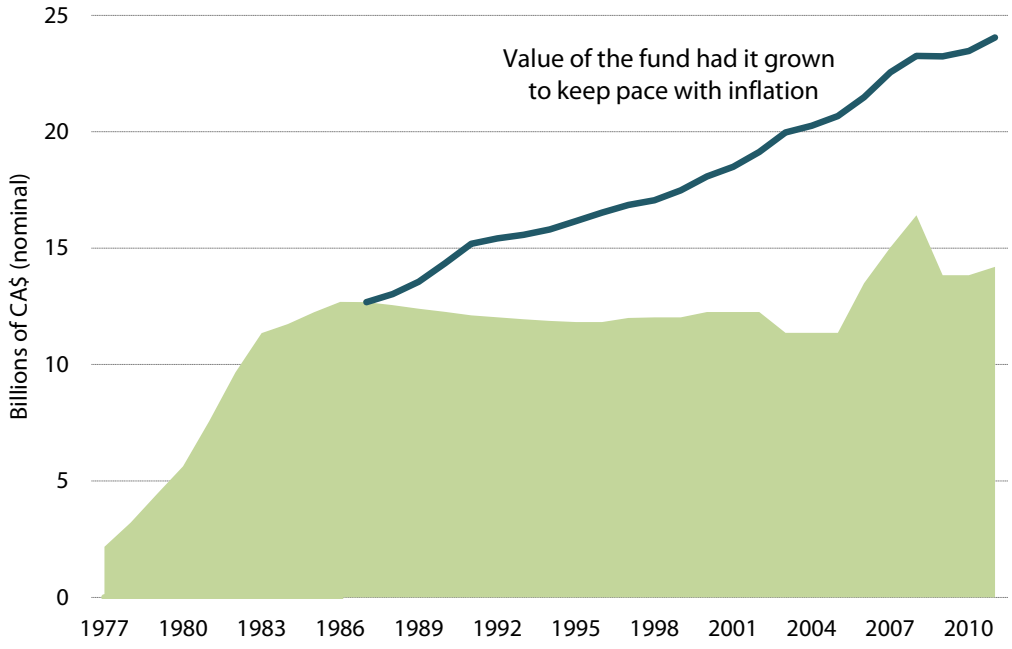
The value of the Heritage Fund (on a cost-basis) is illustrated in figure 1. The stagnant period from 1988 through to 2005 is evident in figure 1, as is the growth in assets originating in 1977 through to 1985. The solid line in the figure represents the value of the fund adjusted for inflation from 1987. In other words, the solid line shows what the value of the fund should have been based on its 1987 value if it had just kept pace with inflation. The difference between the actual value of the fund and what it should be based on its 1987 value is almost $10 billion.

Table 1: Major Elements in Alberta Heritage Fund's Financial History, fiscal year 1976-77 to 2010-2011 (in CA$ millions)

Fiscal Year (end)	Net Income (Loss)	Transfers to the Fund			Transfers From the Fund		
		Resource Revenue Allocation	New Deposits	Advanced Education Endowment	Section 8 (2) Income Transfers	Capital Project Expenditures	Fund Equity, at cost
1977*	88	2,120	—	—	—	(36)	2,172
1978	194	931	—	—	—	(87)	3,210
1979	294	1,059	—	—	—	(132)	4,431
1980	343	1,332	—	—	—	(478)	5,628
1981	724	1,445	—	—	—	(227)	7,570
1982	1,007	1,434	—	—	—	(349)	9,662
1983	1,482	1,370	—	—	(867)	(296)	11,351
1984	1,467	720	—	—	(1,469)	(330)	11,739
1985	1,575	736	–	—	(1,575)	(228)	12,247
1986	1,667	685	—	—	(1,667)	(240)	12,692
1987	1,445	217	—	—	(1,445)	(227)	12,682
1988	1,353	—	—	—	(1,353)	(129)	12,553
1989	1,252	—	—	—	(1,252)	(155)	12,398
1990	1,244	—	—	—	(1,244)	(134)	12,264
1991	1,337	—	—	—	(1,337)	(150)	12,114
1992	1,382	—	—	—	(1,382)	(84)	12,030
1993	785	—	—	—	(785)	(84)	11,946
1994	1,103	—	—	—	(1,103)	(71)	11,875
1995	914	—	—	—	(914)	(49)	11,826
1996	1,046	—	—	—	(1,046)	—	11,826
1997	932	—	—	—	(756)	—	12,002
1998	947	—	—	—	(922)	—	12,027
1999	932	—	—	—	(932)	—	12,027
2000	1,169	—	—	—	(939)	—	12,257
2001	706	—	—	—	(706)	—	12,257
2002	206	—	—	—	(206)	—	12,257
2003	(894)	—	—	—	—	—	11,363
2004	1,133	—	—	—	(1,133)	—	11,363
2005	1,092	—	—	—	(1,092)	—	11,363
2006	1,397	—	1,000	750	(1,015)	—	13,495
2007	1,648	—	1,000	250	(1,365)	—	15,028
2008	824	—	918	—	(358)	—	16,412
2009	(2,574)	—	—	—	—	—	13,838
2010	2,006	—	—	—	(2,006)	—	13,838
2011	1,080	—	—	—	(720)	—	14,198
TOTAL:	31,306	12,049	2,918	—	(29,589)	(3,486)	14,198

*The contribution of $2,120 million in 1977 is composed of $620 million from non-renewable resource revenues and a special contribution of $1,500 million.
Source: Alberta Heritage Savings Trust Fund, 2011: 19.

Figure 1: Value of Alberta's Heritage Fund (Cost)



Sources: Alberta Heritage Savings Trust Fund, 2011: 19; and Statistics Canada, Table 326-0021—Consumer Price Index (CPI), 2009 basket, annual (2002 = 100 unless otherwise noted).

Besides underfunding, Alberta's Heritage Fund also suffered from non-financial investment goals, as we have already mentioned above, and which turned out to be costly.

In his 2006 review of the fund, Alberta scholar and Fraser Institute Senior Fellow Mark Milke describes the history this way:

> In the first two decades of the Heritage Fund's existence, the Alberta Investment division was a costly, clear example of good intentions, but flawed results. The choice to intervene directly in the market—to guarantee loans for Alberta companies and/or directly lend such entities capital—placed the civil service and the legislature in the position of picking economic winners and losers, a task for which neither entity was well-suited. (Milke, 2006)

In light of these failures, what can be done to improve the fund's performance? Standard economic and Public Choice theory offer several principles for improving the performance of Alberta's Heritage Fund so that it can achieve its ostensible mission of preserving the province's endowed wealth for future generations. In the following sections we will explore how Alaska and Norway have achieved much better results with their respective funds than Alberta has.

Alaska's Permanent Fund

> This shower of riches sent Alaska into a frenzy of public spending, particularly on capital projects… By 1976 the state had spent most of the initial lease money, and Alaskans were aghast they had frittered away so much in so short a time. Fears of uncontrolled legislative spending had been confirmed, and Alaskans sought ways to protect their natural resource revenues for future generations. (Anderson, 2002: 68)

A useful contrast for Alberta comes from Alaska and how it has managed its resource fund, which was created in the same year (1976) as Alberta's resource fund.[6] Some background: In 1968, oil was first pumped from Alaska's Prudhoe Bay. The following year, the Alaskan government raised $900 million from auctioning off oil leases, a figure that was almost nine times the size of the annual state budget. The state then went on a spending spree, which eventually caused voters in 1976 to ratify a constitutional amendment by a two-to-one margin, which placed strict limits on the state government's ability to spend current oil revenues. The amendment requires that

> At least twenty-five percent of all mineral lease rentals, royalties, royalty sale proceeds, federal mineral revenue sharing payments and bonuses received by the State shall be placed in a permanent fund, the principal of which shall be used only for those income-producing investments specifically designated by law as eligible for permanent fund investments. All income from the permanent fund shall be deposited in the general fund unless otherwise provided by law. (Historical summary and quotation from Alaska's constitution based on Milke, 2006: 23.)

Two comments are in order on the constitutional language. First, the amendment does *not* include receipts from severance taxes (which are a general tax on the removal or "severing" of mineral deposits within a tax jurisdiction) in the pool to which the 25 percent minimum is applied; this decision was part of the original compromise when legislators were negotiating the precise contribution levels.[7]

6 While both Alberta's and Alaska's funds were created in 1976, Alberta deposited money into its fund that same year, while Alaska first deposited money into its fund in 1977.

7 At the time of passage, this meant in practice that the Permanent Fund was guaranteed to receive only about 10 percent of total "oil revenue" flowing to the state government in a given year. It is important to keep this subtlety in mind when comparing the Alaskan percentage with other governments' funding levels (Alaska Permanent Fund Corporation, 1997: 41). On the other hand, Warrack argues that the true per-

The other significant feature is the phrase "income-producing investments." Although seemingly innocuous, this language reflected a decision to *not* use the Fund for social or development objectives, as we discuss in more detail in a later section.

In 1980, the state established the Alaska Permanent Fund Corporation (APFC) to oversee daily management of the fund. Here is how APFC describes its duties, and how the fund historically has benefited Alaskan residents:

> The Fund is invested in a diversified portfolio of public and private asset classes. All investments, whether in Alaska or around the world, must be expected to produce income with an acceptable level of risk. The Fund is not invested in projects that are primarily focused on economic or social development.
>
> The Legislature may spend realized Fund investment earnings. Realized earnings consist of stock dividends, bond interest, real estate rent and the income made or lost by the sale of any of these investment assets. Unrealized earnings—those resulting from the change in market value of assets that are held—cannot be spent. Most of the spending from the Fund has been for dvidends to qualified Alaska residents. The Permanent Fund Dividend Division (a separate entity from the APFC) operates the PFD program, which the Legislature established in 1980. (Alaska Permanent Fund Corporation, undated)

In simple terms, a minimum of 25 percent of almost all the income generated in Alaska from mineral-related activities are required by the state constitution to be deposited in the Permanent Fund.[8] The resources in the fund are invested with the aim of maximizing the risk-adjusted rate of return and are specifically precluded from being used for social or economic development. Finally, earnings from the fund can be, and are, diverted to the state's general revenue fund, but such transfers cannot affect the capital balance of the fund.

More specifically, however, the earnings are used almost entirely to provide direct payments to Alaskan residents and provide inflation protection for the value of the Permanent Fund rather than financing direct government expenditures. Indeed, over the period covered in table 2, roughly 1 percent of the total resources available were used for direct government spending.

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centage of mineral deposits in Alaska is substantially higher than the official minimum, because in practice the legislature made substantial contributions out of mineral revenues above the constitutional requirement (2008 update: 11).

8 In actual practice, *statutory* requirements have often been higher than the constitutionally required minimum of 25 percent. Specifically, for much of the period from the early 1980s to the present, *50 percent* of the revenues from new oil and gas fields had to be deposited into the Alaska Permanent Fund (Alaska Permanent Fund Corporation, 1997: 60; and private correspondence with APFC personnel.)

The organization and governance of Alaska's Permanent Fund

The relevant legislation governing Alaska's Permanent Fund is the Alaska Statutes 37.13 (Alaska Legal Resource Centre, 2008). The actual creation of the fund, and minimum requirements for deposits into it, are laid out in AS 31.13.010:

> (a) Under art. IX, sec. 15, of the state constitution, there is established as a separate fund the Alaska permanent fund. The Alaska permanent fund consists of
>
> (1) 25 percent of all mineral lease rentals, royalties, royalty sale proceeds, net profit shares under AS 38.05.180 (f) and (g), 25 percent of federal mineral revenue sharing payments received by the state from mineral leases, and 25 percent of all bonuses received by the state from mineral leases; and
>
> (2) any other money appropriated to or otherwise allocated by law or former law to the Alaska permanent fund.
> (b) Payments due the Alaska permanent fund under (a) of this section shall be made to the fund within three banking days after the day the amount due to the fund reaches at least $3,000,000 and at least once each month.
> (c) The Alaska permanent fund shall be managed by the Alaska Permanent Fund Corporation established in this chapter.

The composition of the Board of Trustees for the Alaska Permanent Fund Corporation (APFC) is discussed in AS 37.13.050, which states:

> (a) The Board of Trustees of the Alaska Permanent Fund Corporation consists of six members appointed by the governor. Two of the members must be heads of principal departments of state government, one of whom shall be the commissioner of revenue. Four members shall be appointed by the governor from the public and may not hold any other state or federal office, position or employment, either elective or appointive, except as a member of the armed forces of either the United States or of this state.
> (b) The four public members of the board must have recognized competence and wide experience in finance, investments, or other business management-related fields.
> (c) The board shall annually elect a chairman from among its members.

Public board members serve terms of four years (with reappointment possible), and the terms are staggered so that only one member completes his term in a given

year. The statutes also require that if "a member of the board or an employee of the corporation acquires, owns, or controls an interest, direct or indirect, in an entity or project in which fund assets are invested," then he or she must "immediately disclose the interest to the board. The disclosure is a matter of public record and shall be included in the minutes of the board meeting next following the disclosure" (Alaska Statutes, AS 37.13.05).

Independence, yet accountability

The original constitutional amendment and subsequent legislation reflects the competing desires of independence and accountability. A committee report from May 4, 1979 explains:

> It was the aim of the Committee to establish a management system for the Alaska Permanent Fund which would be protected from political influences but, at the same time, responsive to changes in State policy and accountable to the people through their elected officials. In short, the aim was insulation without isolation. It was agreed that the best way of achieving these ends was not to place the management with the Department of Revenue, but to create a public corporation distinct from State government.
>
> Accountability in policy and investments were achieved by providing a clear, legal list of allowable investments[9] and budgetary review and oversight. The Fund does not receive any earnings to pay for its operating costs, unlike other similar funds, but must go through the executive budgetary process. These criteria were a direct result of the desire of the legislative body to maintain accountability. (Alaska Permanent Fund Corporation, 1997: 60)

Investment guidelines

The current rules governing investments are handled under Alaska Statutes AS 37.13.120:

> (a) The board shall adopt regulations specifically designating the types of income-producing investments eligible for investment of fund assets. When adopting regulations authorized by this section or managing and investing fund

9 Note that the list of allowable investments was subsequently relaxed.

assets, the prudent-investor rule shall be applied by the corporation. The prudent-investor rule as applied to investment activity of the fund means that the corporation shall exercise the judgment and care under the circumstances then prevailing that an institutional investor of ordinary prudence, discretion, and intelligence exercises in the designation and management of large investments entrusted to it, not in regard to speculation, but in regard to the permanent disposition of funds, considering preservation of the purchasing power of the fund over time while maximizing the expected total return from both income and the appreciation of capital.

(b) The corporation may not borrow money or guarantee from the principal of the fund the obligations of others, except as provided in this subsection. With respect to investments of the fund, the corporation may, either directly or through an entity in which the investment is made, borrow money if the borrowing is nonrecourse to the corporation and the fund.

(c) The board shall maintain a reasonable diversification among investments unless, under the circumstances, it is clearly prudent not to do so. The board shall invest the assets of the fund in in-state investments to the extent that in-state investments are available and if the in-state investments
(1) have a risk level and expected return comparable to alternate investment opportunities; and
(2) are eligible for investment of fund assets under (a) of this section.

(d) The corporation may enter into and enforce all contracts necessary, convenient, or desirable for managing the fund's assets and corporate operations, including contracts for future delivery to implement asset allocation strategies or to hedge an existing equivalent ownership position in an investment.

(e) Before adoption of a regulation under (a) of this section, the regulation, in electronic format, shall be provided to the Legislative Budget and Audit Committee for review and comment. The board shall submit investment reports to the committee at least quarterly.

Originally, there were three main visions for possible purposes of the fund: (1) social or welfare objectives, (2) economic development (such as infrastructure), and (3) fiscal returns. Eventually the legislators settled on an exclusively fiscal objective, which explains the "income-producing" language.

The "prudent investor rule" criterion likewise was intended to focus the fund managers on generating financial returns, as opposed to other laudable but non-pecuniary objectives. In the mid-1980s two analysts wrote a memorandum to the Legisla-

tive Budget and Audit Committee, responding (in part) to calls for the Alaska Permanent Fund Corporation to rid itself of stocks in companies doing business with apartheid South Africa. The analysts concluded:

> "Social investing" deals with a variety of practices and proposed practices which circumscribe or direct the investment manager's choice of investments… These practices are sharp departures from the politically neutral paradigm of the investment process. They raise questions under both the duty of loyalty and the duty of prudence.
>
> Moreover, if the pursuit of social goals involves any sacrifice of current return (at equivalent levels of risk), then it will be undoubtedly argued that the trustees have violated both the rule of prudence and… the specific language of the statutes… (Alaska Permanent Fund Corporation, 1997: 56-57)

In addition to the requirements quoted earlier, a later clause in the Alaska Statutes prohibits the APFC from using its funds to finance or otherwise influence political activities. Notwithstanding these general principles, the current statutory constraints on APFC's investment are fairly open-ended, giving the board significant discretion. This is a relatively recent phenomenon; before 2005, there were specific statutory regulations on the eligible investments, which were gradually relaxed over time.[10]

Alaska's Permanent Fund: inflation-proofing and dividend checks to residents

The bulk of spending from the Fund goes not to government programs but instead directly to Alaskan residents in the form of a Permanent Fund Dividend check. The amount to be distributed relies on a somewhat complicated formula but can be summarized as follows: The amount "available for distribution" in a given year equals 21 percent of the total earnings of the fund, calculated over a rolling five-year period. (Thus, on average, the amount "available for distribution" is roughly equal to a given year's earnings, but the five-year window smoothens out fluctuations.) However, the

10 As of 1980, the trustees of the fund (concerned about maintenance of principal but also responding to the inflation threat) only permitted investment in fixed-income securities with a maximum maturity of four years. Legislation in 1982 allowed the Alaska Permanent Fund Corporation to "invest in corporate stocks, notes secured by mortgages on commercial real estate, real estate equity and securities issued by foreign branches of US banks denominated in dollars" (Alaska Permanent Fund Corporation, 1997: 62). Later in the 1980s, investment in foreign equities was permitted, and in 2005 the only constraints on fund investment were imposed by its own board.

amount available for distribution in a given year is capped by that particular year's earnings plus earnings held in reserve. (This is to prevent the Permanent Fund Dividend checks from eating into the principal of the Fund.) Finally, once the amount of income "available for distribution" has been calculated, half of it is distributed to eligible Alaskan residents via Permanent Fund Dividend checks. Out of the balance, the amount needed for inflation-proofing is transferred out of the earnings reserve account and into the fund's principal, so that it no longer can be spent.[11]

The dividend check approach is an interesting feature of the Alaskan system from a political economy perspective: If the government wants to spend more of the available petroleum revenues in a given year, opponents of higher spending can quantify exactly how much the proposed policy will reduce the much-valued annual dividend. It is one thing to warn citizens that government spending will lead to a vague future increase in the tax burden, but it is quite another to say that the next checks coming from the government will be lower by a specific dollar amount. Consultants including Milton Friedman told the Alaskan legislature that giving citizens a direct stake in the fund would help to minimize short-sighted policies regarding its management (Alaska Permanent Fund Corporation, 1997: 49).

Financial history of Alaska's Permanent Fund

The quickest way to understand the general structure and experience of Alaska's Permanent Fund is to examine major elements of its financial reports (see table 2). Certain technical details—such as the different treatment of realized versus unrealized income—have been omitted, but enough has been retained to illustrate the program's general framework.

Table 2 contains a lot of information, but once understood, it conveys the mechanisms that are in place to preserve the wealth of Alaska's natural resources for future generations. The general rule is that the fund's principal (shown on the left as the Nonspendable Fund Balance, i.e., "principal") cannot be touched by the legislature, and only the Assigned Fund (on the right, temporarily holding the earnings on the principal) can finance transfers.[12] In the years for which the data are available, we see

11 The technical details of these rules are in AS 37.13, Sections 140 and 145. See Alaska Legal Resource Centre, 2008.

12 Note that this is a bookkeeping distinction; the APFC doesn't hold separate portfolios for the Nonspendable Fund and the Assigned Fund.

Table 2: Major Elements in Alaska Permanent Fund's Financial History (in US$millions)

Fiscal year	Nonspendable Fund Balance ("Principal")				Assigned Fund Balance (Can Be Spent)					Total Fund (fiscal year-end balance)
	Appropriations	Mineral revenues	Inflation-proofing transfers (in)	Fiscal year-end balance	Accounting net income (GAAP)	Dividends (to residents)	Inflation-proofing transfers (out)	Transfer to general fund/ other	Fiscal year-end balance	
1978		54.5		138.5	1.8			1.8		138.5
1979		83.8		84.1	8.0			8.0		83.4
1980		344.4	0.3	428.7	32.4	16.1	*0.3*	16.1		439.3
1981	900.0	385.1	0.2	1,714.1	149.9	45.5	*0.2*	45.5		1,733.6
1982	800.0	400.5	—	2,914.6	368.4	91.7	—	91.7		3,041.8
1983	400.0	421.0	231.2	3,966.8	471.1	64.1	*231.2*	65.8		4,264.8
1984	300.0	366.2	150.9	4,783.9	529.5	175.0	*150.9*	—		4,786.7
1985	300.0	368.0	234.6	5,686.5	657.8	217.3	*234.6*	—		6,493.8
1986		323.4	216.4	6,226.3	1,020.9	303.4	*216.4*	—		7,926.5
1987	1,264.4	170.6	148.1	7,809.4	1,068.5	391.0	*148.1*	—		9,606.2
1988		417.9	302.9	8,546.0	789.2	424.4	*302.9*	—		9,372.9
1989		228.4	360.2	9,135.2	868.5	460.0	*360.2*	3.5		10,473.4
1990		267.1	454.0	9,857.9	915.9	487.5	*454.0*	3.6		11,463.8
1991		435.0	558.8	10,853.3	1,030.5	489.5	*558.8*	3.8		12,425.5
1992		337.8	476.9	11,669.9	1,036.0	488.2	*476.9*	5.3		14,637.3
1993	4.6	315.3	362.5	12,354.2	1,226.0	531.9	*362.5*	5.0		15,089.8
1994	5.6	209.6	372.3	12,944.0	1,097.6	555.6	*372.3*	10.6		15,017.6
1995	6.1	318.1	347.6	13,617.8	1,013.0	565.3	*347.6*	6.0		16,441.0
1996	1,860.5	263.7	407.1	16,151.2	1,813.6	642.8	*407.1*	0.3		19,437.8
1997	824.4	308.4	485.6	17,773.1	3,149.0	746.8	*485.6*	0.5		21,045.5
1998	31.3	230.5	422.7	18,461.5	3,435.4	892.7	*422.7*	0.5		22,540.0
1999	36.1	155.5	288.2	18,946.4	2,147.8	1,044.9	*288.2*	2.5		23,876.1
2000	306.7	310.5	422.9	19,960.2	2,248.8	1,172.5	*422.9*	3.0		26,079.4
2001	7.7	339.3	685.9	20,993.1	(923.9)	1,112.6	*685.9*	3.8		25,349.2
2002	(23.4)	257.7	602.3	21,829.7	(617.0)	925.8	*602.3*	4.5		24,718.7
2003	354.0	398.0	352.0	24,094.0	962.6	690.7	352.0	0.4	100.0	24,194.0
2004	(339.0)	353.0	524.0	26,541.0	3,433.7	581.2	170.0	—	858.6	27,400.0
2005	—	480.0	641.0	28,522.0	2,640.2	532.1	641.0	26.8	1,439.8	29,962.0
2006	—	601.0	856.0	30,325.0	3,072.3	688.6	856.0	36.7	2,584.7	32,910.0
2007	—	532.0	860.0	33,694.0	5,448.1	1,021.7	860.0	42.3	4,131.5	37,826.0
2008	—	844.0	808.0	31,213.0	(1,372.2)	1,293.2	808.0	33.0	5,320.6	36,534.0
2009	—	651.0	1,144.0	29,496.0	(6,394.4)	874.8	1,144.0	—	419.9	29,916.0
2010	—	679.0	—	32,045.0	3,517.3	858.0	—	—	1,209.8	33,255.0
2011	—	887.0	533.0	37,832.0	6,811.8	800.6	533.0	12.8	2,307.8	40,140.0
Totals:	7,039.0	12,599.0	13,249.6		41,657.6	19,185.5	12,895.6	424.0		

Note: The italicized entries in the column "Inflation Proofing Transfers (Out)" refer to estimates because APFC data was incomplete.
Sources: Alaska Permanent Fund Corporation, 2012; and email and phone communication with AFPC personnel.

that the *total* year-end balance of the fund is equal to the sum of the year-end balances of the Nonspendable Fund and the Assigned Fund.[13]

Focusing on the left section of table 2—the Nonspendable Fund Balance—we see that inflows to the fund's principal are derived from a few main sources: (1) direct appropriations (deposits) from the legislature, (2) the constitutionally-mandated deposits from mineral revenues, and (3) "inflation proofing." The appropriations from the legislature are at the complete discretion of the political process. However, there are strict formulas for the (minimum) deposits based on mineral revenues as explained earlier, as well as inflation-proofing.

"Inflation-proofing" was established by statute in 1982. An amount sufficient to cover the calculated rate of inflation[14] is transferred from the fund's earnings (the right section in table 2) to "the left" into the principal, rendering it off-limits to spending. The idea is that the fund's *real* market value should be preserved, not simply its nominal market value, and thus the fund's investment earnings that are merely due to inflation should not be eligible for dividend payments or government expenditures. Note that with one exception,[15] the inflation-proofing transfer from the available fund (Assigned Fund) to the principal is exactly equal. In 2006, however, the formula required $856.0 million in inflation-proofing, so table 2 shows this amount being added to the Nonspendable Fund but subtracted from the Assigned Fund.

The Assigned Fund distributions (right section of box) show how the earnings of the overall fund have been deployed. The first column in this section shows the earnings on the fund's portfolio, according to GAAP.[16] The lion's share of the distributions between 1978 and 2011—a total of $19.2 billion or 46.1 percent—has been in the form

13 Because of evolving reporting requirements from the government in the treatment of unrealized capital gains on both balances and other such nuances, the APFC's historical figures for the end balances of the Assigned Fund before 2003 do not "fit" with the other figures in table 2, and so have been omitted to avoid confusion.

14 The formula to determine inflation-proofing for Alaska is as follows: the change in average (monthly) CPI from two years prior compared to one year prior is applied to the Fund's value to calculate the required inflation deposit.

15 The exception is in fiscal year 2004, when the principal increased $524 million due to inflation-proofing, while the Assigned Fund balance only shows a drop of $170 million for this purpose. The explanation is that for various political reasons, the legislature in FY 2003 transferred an extra $354 million into the principal (which shows up in table 2 under the first column). They ultimately classified the transfer as "pre-inflation-proofing" for FY 2004, meaning that the net amount leaving the Assigned Fund in 2004 was only $170 million. Also note that from FY 1980 – 2002, the data provided by APFC were incomplete; in table 2 we have shown the inflation-proofing outflow from the Assigned Fund in these years (in italics) to be equal to the (officially reported) inflation-proofing inflow on the Nonspendable Fund for these years.

16 Because of various regulations, the managers of the fund are required to keep two sets of books, one computing GAAP income and the other "statutory net income." We have only shown the former as it will be more pertinent to the reader.

of Permanent Fund Dividends, made directly to qualified residents of the state. The next major transfer has been for inflation-proofing, which was a total of $12.9 billion (31.0 percent). Finally, transfers out of earnings to the state's General Fund (or Other) were only $424 million (roughly 1.0 percent) over the entire period.

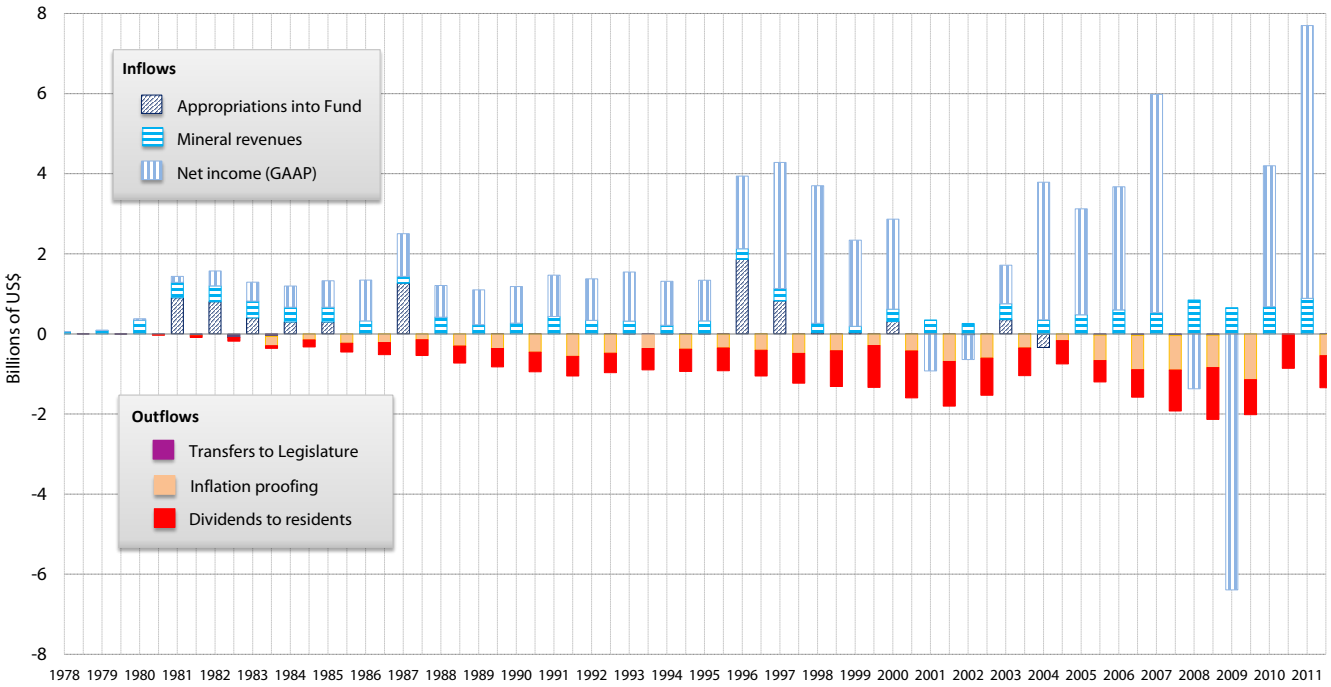
In each year from 1987–2010, the resource revenues deposited into the fund's principal were *less*—sometimes much less—than the Dividend Payments distributed to eligible residents (table 2). For example, in 2007 the government deposited $532 million out of that year's mineral revenues into the fund's principal. Yet in the same year, out of the Assigned Balance (generated by the earnings on the portfolio), dividend payments amounted to $1.02 billion. The reason the dividend payment exceeds the resource revenue deposit without diminishing the overall principal balance—which is constitutionally forbidden—is that the earnings of the fund that year were $5.4 billion.

The size of the earnings in 2007 result, in part, from the power of compound interest: By only allowing the spending out of *earnings* on the fund, the (inflation-adjusted) principal grows over time because of the stream of resource revenues deposited into the fund. Eventually, a point is reached where even just a *portion* of the fund's earnings, in a typical year, will exceed the typical influx of revenues. It is true that the specific results in Alaska's case were accelerated by the legislature's generous appropriations into the fund early in its life, but the general principle remains valid: If the government of a resource-rich community can set up a disciplined investment fund in which the principal is guarded, eventually a point will be reached when the community can receive more from the fund in a typical year than if they had myopically consumed the resource revenues every year.

Table 2 also shows the rationale for the "smoothing" element in the dividend formula. Recall that in a given year, the amount available for distribution from the fund is 21 percent of the net income earned in the most recent five fiscal years (counting the current year), subject to a cap to make sure the distribution does no more than empty the Earnings Reserve Account. Of this total amount available for distribution, *half* goes to the Dividend Fund for payment to eligible residents in Alaska. Thus, in a typical year, residents get a cumulative payment of 10.5 percent of the net income earned by the fund over the prior five years.

What this approach means in practice is that the dividend payments do not fluctuate as much as the earnings of the fund itself, because they are based a five-year moving average. For example, in FY 2009 the fund's income (according to GAAP) was *negative* $6.4 billion because of the sharp drop in equities during the financial crisis. Yet eligible residents still received dividend payments totalling $875 million because of previous earnings.

Figure 2: Components of Changes in the Value of Alaska's Permanent Fund, fiscal years 1978-2011



Source: Table 2 with calculations from the authors.

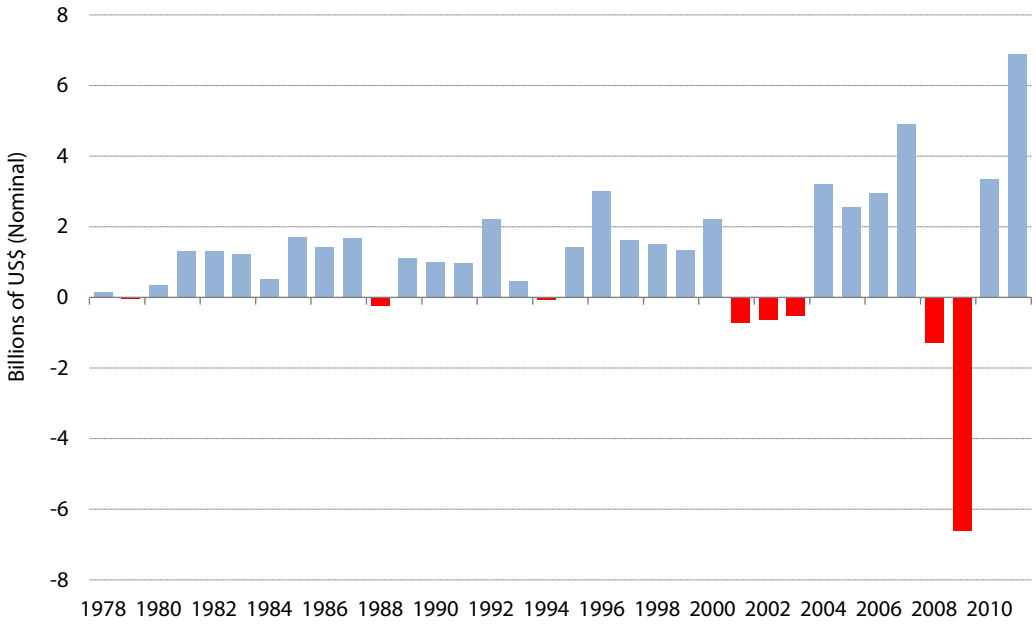
Although it necessarily brushes over some of the nuances of particular transfers in and out of the fund, figure 2 offers a general summary of the components of its changes from year to year.

Figure 3 consolidates the components from figure 2, showing the net change in the value of the Alaska Permanent Fund by year.

Lessons from Alaska's Permanent Fund

Relatively speaking, Alaska has thus far had a successful experience with its Permanent Fund. Some of the useful lessons are its constitutional floor for contributions, its skilful balance between independence and accountability, and its emphasis on the maintenance of principal and financial return (as opposed to social or broader "economic" goals). These accomplishments have been made politically feasible through Alaska's Permanent Fund Dividend program, which gives the general public a direct financial incentive to demand proper management of the fund.

Figure 3: Net Change in the Value of Alaska's Permanent Fund, fiscal years 1978-2011



Source: Table 2 with calculations from the authors.

Allan Warrack provides his own view of the major differences between the Albertan and Alaskan funds:

> For the first five years of the Alaska Permanent Fund, only bonds were held. It then adopted an outward view of investments including a stock portfolio; alas, from the outset to 1997 the opposite was true for the Alberta Heritage Fund. As a result, APF investment results have been vastly superior to AHF. APF has been inflation-proofed from the "get-go,"[17] but AHF has not. Another comparator is the fundamental means of fund governance; arms-length Trustees are appointed to lead the policies and management of the Alaska Fund. In contrast, the Alberta Fund has been in the hands of a government department and it has been hobbled over the years[18] by AHF legislative restrictions. (2008 update)

17 Actually, it was inflation-proofed within the first few years.

18 At least through the mid-1990s.

Norway's Heritage Fund

> "Oil wealth in many other countries has been used to finance colossal fortunes for the few, or bread and circuses for the many. Norway has avoided both traps. The revenue from the Petroleum Fund could help to maintain Norwegian living standards long after the oil reserves are exhausted."—The OECD, 2005 (in Milke, 2006)

In 1990, Norway established the Government Petroleum Fund, but due to the recession in the early 1990s contributions did not begin until 1996. Norway is an extreme case in which *all* net proceeds from petroleum activities—including taxes on CO_2 emissions levied on continental shelf extraction operations—are (theoretically) deposited into the fund. The fund's capital can only be transferred to the central government's budget with a resolution by Norway's parliament, the storting. In addition, neither the central government nor private sector entities can use the fund to access credit (Milke, 2006).

Organizational structure of the Norwegian fund

In 2006, the Norwegian government renamed the Government Petroleum Fund as part of a broader reorganization. As its Ministry of Finance website explains:

> The Government Pension Fund was established in 2006 and consists of two parts: "The Government Pension Fund Global," which is a continuation of the Petroleum Fund, and "The Government Pension Fund Norway," which was previously known as the National Insurance Scheme Fund. Revenues in the Government Pension Fund Global consist of the Government's total income from petroleum activities, and the return on the Fund's investments. The Ministry of Finance is responsible for the management of the Fund. The operational management of the Government Pension Fund Global is delegated to Norges Bank. The operational management of the Government Pension Fund Norway is delegated to the National Insurance Scheme Fund. The management is carried out in accordance with regulations laid down by the Ministry of Finance. (Norway, Ministry of Finance, undated)

Norges Bank Investment Management (NBIM) was established in January 1998 to be the asset manager of Norges Bank, which is Norway's central bank. One of

NBIM's chief duties is the management of what is now called the Government Pension Fund Global, but which is still often referred to as the Petroleum Fund. NBIM is a global asset management organization with 320 employees from 26 nations and offices in Oslo, London, New York, Shanghai, and Singapore (NBIM, 2011a).

The Norwegian Parliament passed the Government Pension Fund Act (in 2006), which delegated ultimate control of the fund to the Ministry of Finance. In practice, the Ministry of Finance lays out ethical guidelines (such as companies that must be excluded from the fund because of charges of corruption, for example) and the overall management mandate, but in turn delegates responsibility to Norges Bank. This in turn defers to NBIM, which acts as a professional asset management firm and administers the fund on a day-to-day basis (NBIM, 2011b).

Management mandate for the Norwegian Government Pension Fund Global

The management mandate is laid down by the Ministry of Finance. It was originally issued on November 8, 2010, with subsequent revisions (the latest of which was October 22, 2012 as of this writing).[19] The actual mandate is questionable on several grounds. First, in the opening section it declares:

> *Section 1-1 Norges Bank's management assignment*
> (1) The Ministry places the Government Pension Fund Global (GPFG) in the form of a Norwegian krone deposit with Norges Bank (the Bank) in accordance with Act no. 123... The Bank shall manage this deposit in accordance with the provisions of this mandate and the provisions issued pursuant to sections 4-4...
> (2) The Bank shall seek to achieve the highest possible return after costs measured in GPFG's currency basket...
> (3) The Bank shall make investment decisions independently of the Ministry.

Most people in the financial sector would balk at a mandate to seek "the highest possible return after management costs," because it doesn't specify the risk tolerance or the timeframe under consideration. (Much later, in section 5 of the mandate, we learn: "The Bank shall establish principles for valuation, performance measurement, and risk management, measurement and control that, as a minimum, adhere to internationally recognised standards and methods.") Moreover, to say that "the Bank shall make investment decisions independently of the Ministry" is a bit contradictory in

19 The latest management mandate is available at: http://www.nbim.no/en/About-us/governance-model/management-mandate/.

light of the management mandate which is itself nine chapters long, giving very detailed breakdowns of the permissible country allocations of equities, real estate, and fixed income investments.[20]

The management mandate hedges against the "highest possible return" objective by instructing the Bank later on:

> *Section 2-4 Environment-related investments*
> The Bank shall establish environment-related mandates within the limits defined in section 3-5. The market value of the environment-related investments shall normally be in the range of 20-30 billion kroner.

Notwithstanding the confusing and contradictory instructions, as well as the blending of financial and social goals into a single criterion of "return," there is one crucial aspect of the mandate that helps protect the integrity of the Fund: NBIM is prohibited from investing in Norwegian assets. This is, first of all, a prudent act of diversification, since Norwegians will already be hurt if the krone falls against other currencies, or if the Oslo stock market experiences downward adjustments. But beyond this narrow financial element, the prohibition on domestic investing also mitigates (though does not eliminate) the temptation for political interference.

Norwegian fund is "integrated" with government budget

The ability of the central government to spend petroleum revenues in any given year is a complex matter. It is best dealt with by quoting directly from the website of Norges Bank Investment Management (NBIM), the organization that actively manages the Fund:

> The fund is an integrated part of the government's annual budget. Its capital inflow consists of all government petroleum revenue, net financial transactions related to petroleum activities, net of what is spent to balance the state's non-oil budget deficit.
> This means the fund is fully integrated with the state budget and that net allocations to the fund reflect the total budget surplus, including petroleum revenue. Fiscal policy is based on the guideline that over time the structural, non-oil budget deficit shall correspond to the real return on the fund, estimated at 4 percent. The so-called spending rule that no more than 4 percent of the fund's return [sic]

20 Currently, NBIM is instructed to invest 60 percent in equities, 35 to 40 percent in fixed income securities, and 0 to 5 percent in real estate. As stated in the text above, the mandate offers more specificity on the proportions going to each country within these asset classes.

should over time be spent on the annual national budget was first established in 2001. (NBIM, 2011c)

Thus, when looking at the financial statements from the fund, there will not be an obvious transfer flowing to the government, reducing the fund's market value. Rather, when allocating new capital into the fund based on current revenues from petroleum activities, the Norwegian government will net out the amount that it wishes to spend. Even so, the general guideline is that the government should only spend what the fund earns in a typical year. It is important to note that there is no official sanction if the government deviates from the "rule" in a given year, but the press is aware of the rule and public discussions of fund management invoke it. If this "so-called spending rule" were strictly obeyed, and if the fund did indeed earn an average of four percent in the long run, then the Norwegian government effectively would be implementing the optimal approach to non-renewable natural resources revenues, discussed in the Introduction to this paper. That is, the Norwegian government would (effectively) put all resource revenues into the fund, spending (at most) only the investment earnings *generated* by the growing fund.

To be clear, what the Norwegian Fund does *in practice* does not live up to this ideal. The Norwegian government has in fact hit the target four percent spending rule over the period in which it has been in effect,[21] but the problem is that the fund has earned only 2.5 percent per year since 1998. This has led to public disputes between the finance minister and the central bank about whether the spending rule should be tightened, limiting annual spending to only three percent of the fund's value (Reuters, 2012, February 17). Although it falls short of the ideal in practice, in theory the framework governing the use of Norway's resource revenues is refreshingly sensible.

Financial history of the Norwegian fund

Table 3 below summarizes the financial history of Norway's Government Pension Fund Global (as it is now called), from 1996 through the end of 2011 (Norges Bank Investment Management (various years). Annual Reports).

Note that the fund's 2011 market value of NOK3.3 trillion krone is equivalent to CA$575 billion (using November 2012 exchange rates). The information in table 3 is presented in a slightly different form in figure 4 below, which breaks down the change

21 An email correspondent in Norway has analyzed the government budget (not in English) and emailed the author the following percentages of how much of the Fund value has been spent by the government since 2001 (when the 4-percent rule was in effect): 2001: 0.2%, 2002: 10.3%, 2003: 7.8%, 2004: 7.8%, 2005: 4.66%, 2006: 2.468%, 2007: 0.0644%, 2008: 5.176%, 2009: 3.6563%, 2010: 3.378%, and 2011: 2.4%. If these were annual rates of return, the average annualized return over the entire period would be 4.3%.

Table 3: Capital Inflows and Components of Norwegian Fund's Market Value, 1996-2011 (in NOK billions)

Date	Market value of equity	Market value of fixed income	Market value of fund	Inflow of new capital
December 31, 1996	—	47.6	47.6	—
December 31, 1997	—	113.4	113.4	60.9
December 31, 1998	69.5	102.3	171.8	32.8
December 31, 1999	93.6	128.8	222.4	24.5
December 31, 2000	152.8	227.3	386.4	150.0
December 31, 2001	246.6	362.9	613.7	251.5
December 31, 2002	229.8	378.0	609.0	125.7
December 31, 2003	359.6	484.1	845.3	103.9
December 31, 2004	416.3	600.1	1,016.4	138.2
December 31, 2005	582.0	817.0	1,399.0	220.3
December 31, 2006	725.9	1,057.8	1,783.7	288.3
December 31, 2007	957.9	1,060.7	2,018.6	313.6
December 31, 2008	1,129.0	1,146.0	2,275.0	384.0
December 31, 2009	1,644.0	996.0	2,640.0	169.0
December 31, 2010	1,891.0	1,186.0	3,077.0	182.0
December 31, 2011	1,945.0	1,356.0	3,312.0	271.0

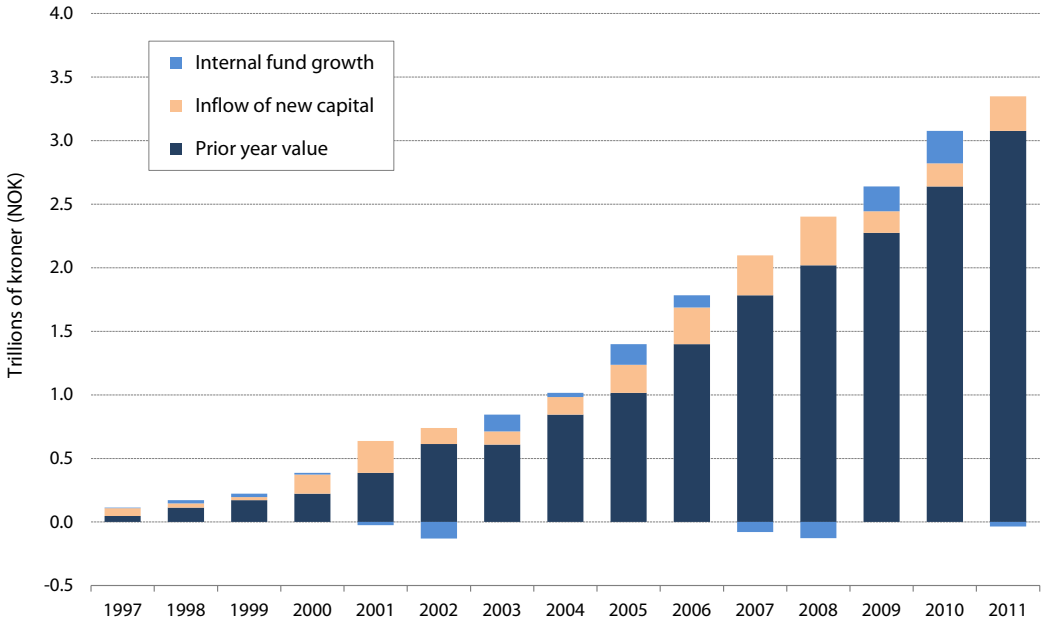
Note: Equity and fixed-income do not exhaust all categories. In addition to "ordinary" equity portfolio, there was an "Environmental Fund" (2002-03), and starting in 2011 a real estate portfolio. Inflows of new capital include transfers from the ministry of finance to both the ordinary portfolio and the Environmental Fund.
Note: There was a large loss in fund value in 2002 because of a move in the NOK exchange rate.
Source: Norges Bank Investment Management (various years), Annual Reports.

in total fund value each year into two components: new capital inflow and internal growth (or decline).

In table 3 and figure 4, the fund's value is reported in kroner. Therefore, the "internal growth (decline)" in a given year could be due to changes in the market value of the (international) portfolio of assets, priced in their respective currencies, and/or to changes in the exchange rate of these currencies against the Norwegian currency.

Finally, to reiterate an earlier point, there are no withdrawals from the fund for government expenditures because these are deducted on the front end. In other

Figure 4: Inflow of New Capital and Internal Growth (Decline) of Norwegian Fund, 1997–2011



Source: Norges Bank Investment Management (various years), Annual Reports.

words, the "inflow of new capital" in a given year will be that much lower, depending on how much petroleum revenue the Norwegian government spends.

Lessons from the Norwegian example

The rapid accumulation of assets in the Norwegian Fund is fundamentally due to the government's policy of (theoretically) depositing *all* non-renewable resource revenues into it, and only spending the fund's earnings. The actual mechanism in place allows the government to get around this constraint, if its projections for fund earnings are too optimistic. However, even with this loophole, in actual practice the contribution rate has effectively been very high, approximating the goal of full contributions.

What if Alberta's Heritage Fund had followed Alaska's or Norway's example?

To appreciate the significance of the Alberta government's relative underfunding of the Heritage Fund, it is a useful exercise to simulate the fund's growth had it followed the procedures of the Alaskan or Norwegian funds. In addition, such a comparison emphasizes the need for reforms now in order to avoid the future failures that this analysis highlights. We will define the "Alaskan Rule" as the investment of 25 percent of non-renewable natural resource revenues into the fund principal, while the "Norwegian Rule" will be the investment of a full 100 percent of such revenues. We further assume that all fund earnings are spent each year—but no more, so that the principal is never diminished—and (for simplicity) we ignore inflation-proofing.[22] The benefit of our approach is that we can completely sidestep issues of historical rates of return on the three funds, and whether they are being prudently managed in terms of risk exposure. Because all investment earnings are (by assumption in this exercise) spent each year, the balance in the fund only rises because of new contributions from the government, not because of the investment return on the fund itself.

Table 4 and figure 5 contrast the Alberta government's actual investment record with our two hypothetical benchmarks.

Notice that in table 4 and figure 5, we have been generous to the Alberta government's actual performance by including *all* contributions it made to the fund, not simply those classified officially as coming from natural resource deposits. (Refer back to table 1 for specifics.) Even so, the final tallies are striking. During the period under consideration, the government of Alberta made actual contributions of $9.1 billion (in historical dollars), a mere 5.4 percent of the total resource revenues it collected.

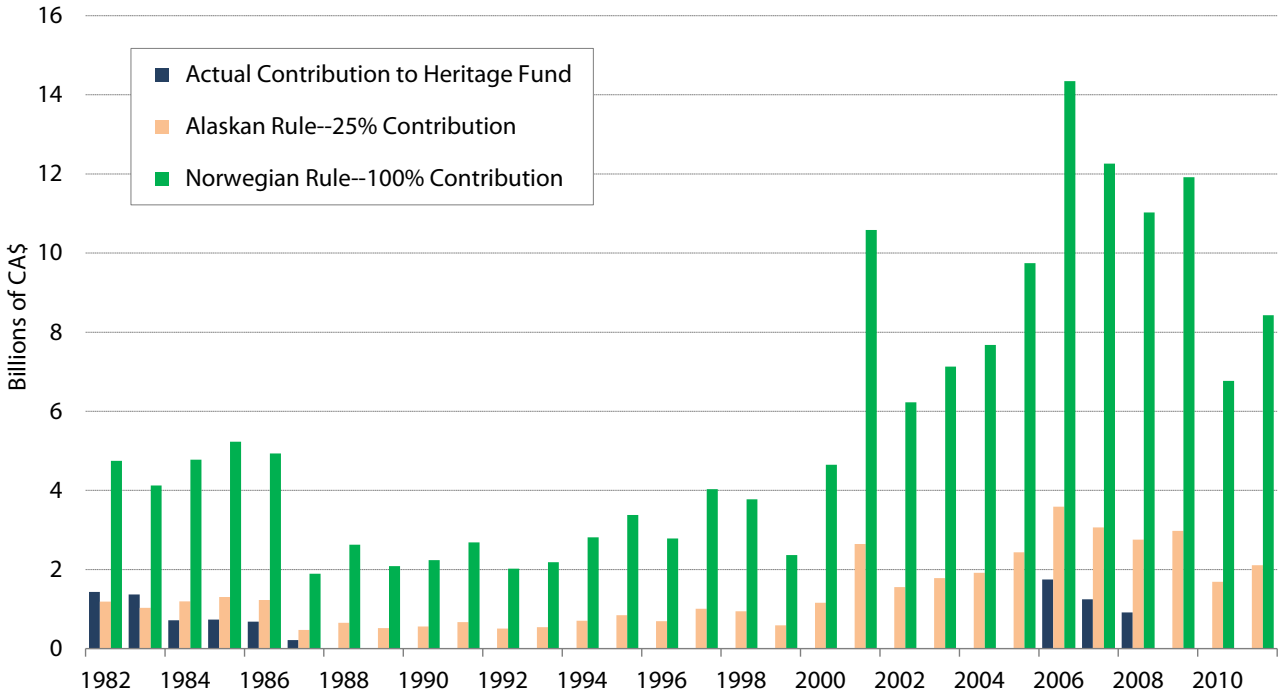
22 The difference in outcome is so drastic even without inflation-proofing that it can safely be omitted for the purpose of this crude comparison. Additionally, it would be difficult to account for inflation-proofing, since in practice the fund managers didn't implement it over the same periods historically, they use different rules even when they are inflation-proofing, and (of course) the inflation rates were different in the three currencies. In short, there would be many (somewhat arbitrary) decisions to make if one wanted to incorporate inflation-proofing in to the analysis. Suffice it to say, the results would be even less favorable to Alberta, which did not engage in inflation-proofing nearly as much as Alaska did.

Table 4: Actual Alberta Fund Deposits versus hypothetical Alaska and Norwegian models, no inflation-proofing, fiscal year 1981–1982 through 2010–2011 (in CA$millions)

Fiscal year (end)	Alberta natural resource revenue	Actual contribution to Heritage Fund	Alaskan rule— 25% contribution	Norwegian rule— 100% contribution	Realistic Norwegian rule— 98.5% contribution 1990-forward
1982	4,748	1,434	1,187	4,748	—
1983	4,122	1,370	1,031	4,122	—
1984	4,779	720	1,195	4,779	—
1985	5,229	736	1,307	5,229	—
1986	4,932	685	1,233	4,932	—
1987	1,892	217	473	1,892	—
1988	2,626	—	657	2,626	—
1989	2,085	—	521	2,085	—
1990	2,240	—	560	2,240	
1991	2,688	—	672	2,688	
1992	2,022	—	506	2,022	
1993	2,183	—	546	2,183	
1994	2,817	—	704	2,817	
1995	3,378	—	845	3,378	
1996	2,786	—	697	2,786	2,744
1997	4,034	—	1,009	4,034	3,973
1998	3,778	—	945	3,778	3,721
1999	2,368	—	592	2,368	2,332
2000	4,650	—	1,163	4,650	4,580
2001	10,586	—	2,647	10,586	10,427
2002	6,227	–	1,557	6,227	6,134
2003	7,130	—	1,783	7,130	7,023
2004	7,676	—	1,919	7,676	7,56
2005	9,744	—	2,436	9,744	9,598
2006	14,347	1,750	3,587	14,347	14,132
2007	12,260	1,250	3,065	12,260	12,076
2008	11,024	918	2,756	11,024	10,859
2009	11,915	—	2,979	11,915	11,736
2010	6,768	—	1,692	6,768	6,666
2011	8,428	—	2,107	8,428	8,302
Total Principal		9,080	42,366	169,462	121,865

Sources: Alberta Heritage Savings Trust Fund, 2011: 19; Alberta Natural Resources Revenues from the Budget "Fiscal Plan" historical sections; Norges Bank Investment Management (various years), Annual Reports; Alaska Permanent Fund Corporation, 2012; and email and phone communication with AFPC personnel.

Figure 5: Actual Alberta Fund deposits versus hypothetical Alaska and Norwegian models, no inflation-proofing, fiscal year 1981–82 through 2010–2011



Source: Table 4 with calculations from the authors.

If Alberta had behaved like Alaska, and contributed 25 percent of non-renewable natural resource revenues,[23] then even if the contributions had only started in fiscal year 1981-82,[24] and even if there had been no provisions for inflation, there would have been cumulative contributions of $42.4 billion through 2011, meaning that this would be the present principal value of the fund (given our assumptions of no inflation-proofing and spending all of the earnings each year) in 2011. For reference, the fund's actual market value according to its FY 2010-11 *Annual Report* was a mere $15.2 billion, while the fund equity (at cost) was $14.2 billion.

23 Recall that this is understating the *actual* contribution percentage in Alaska, because its statutory requirements (for large stretches between the early 1980s and the present) were higher than 25 percent on new oil and gas fields. Thus the figure of 25 percent is a *floor* (mandated by the state constitution) for Alaska.

24 The reason for starting in FY 1981-82, rather than the Alberta Heritage Fund's actual start date, is that the available Alberta Budget Report's fiscal history—showing actual resource revenues—do not go back that far.

Alternatively, if Alberta had behaved more like Norway, by depositing *all* non-renewable resource revenues into the fund principal, the government would have deposited a cumulative $169.5 billion by 2011. Even if we are generous and only insist that the Albertans follow the Norwegians by starting their contributions in 1996, and even if we adjust for the Norwegians' overly optimistic projections of fund earnings (their 4 percent rule versus 2.5 percent actual returns) by imposing a 98.5 percent contribution rate, the result is still $121.9 billion. Needless to say, these hypothetical (and conservative) figures dwarf the actual cumulative contributions to, and current market value of, Alberta's Heritage Fund. What this exercise demonstrates is that the percentage of resource revenues going into the Heritage Fund is a major factor, arguably the most important one, in explaining the relatively poor performance of the Alberta fund compared to its peers.

Conclusion

It is obvious that a greater investment in Alberta's Heritage Fund over the years would have yielded a higher available balance today. Fortunately, the Alaskan and Norwegian experiences also explain what institutional structures are necessary to limit the temptation of legislators to raid the fund.

Norway has an elaborate diffusion of responsibility of its fund through several layers, effectively allowing various agencies to check each other. For example, the dispute over the "spending rule" involves the Norwegian central bank arguing with the finance minister over the appropriate amount of saving (Reuters, 2012, February 17). Their debate takes it for granted that (in the long run) the government should only spend the *return* on the fund, so that its principal (in theory) will equal 100 percent of petroleum revenues earned to that point. All they are disputing is whether the current 4 percent spending rule should be revised downward in light of the fund's actual return of closer to 2.5 percent.

The downside of Norway's structure is a danger of micromanagement from the legislators and the ministry of finance, particularly in urging the fund to invest in projects with environmental or social benefits that are not strictly financial. This type of problem plagued Alberta's Heritage Fund in its early years. However, this possible shortcoming (from a narrow financial perspective) in the Norwegian model is more than offset by their target of placing *all* resource revenues into the fund principal.

Although its target is more modest—the investment of only 25 percent of petroleum revenues into its Permanent Fund—the institutional safeguards in the Alaskan model are even stronger than in Norway. Most obviously, there is an actual constitutional amendment setting up the basic framework and rules protecting the principal. Beyond this, the earnings aren't simply dumped into the General Fund, but instead the bulk of them (after inflation-proofing) are transferred to residents in the state. This sets up a large constituency that is interested in the fund's proper maintenance, and which will resist frivolous government expenditures that reduce the available surplus.

Alberta's policymakers can learn much from the examples of Alaska and Norway. One obvious change in the Alberta fund would be the establishment of an explicit percentage of non-renewable resource revenues to be placed into the Heritage Fund, where they would be off-limits to current spending. Another change would be the creation of realistic institutional safeguards to make these rules effective. If Alberta's policymakers moved even modestly in this direction, future Albertans would be far richer because of the changes.

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