Canadian Retirement Savings Plans and the Foreign Property Rule

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INTRODUCTION

Canada’s registered savings plans have played a central role in Canadians’ savings decisions for many years. In addition to the Registered Pension Plans (RPPs) which employers have established for their employees, there is the Registered Retirement Savings Plan (RRSP) which serves as a principal vehicle for the long-term savings of those Canadians not covered by private pension plans. RPPs and RRSPs defer taxes on monies accumulated in registered accounts until such time as the individual withdraws them. Withdrawals are then treated as earned income and taxed at prevailing progressive income tax rates. We take as a given that a desirable objective of tax policy in Canada is to encourage the use of vehicles such as tax-deferred savings plans as a means of achieving a more equitable tax treatment for its citizens and ensuring a healthy income in retirement.1 The purpose of this paper is to examine one aspect of existing plans that deters agents from using them efficiently. This is the so called “Foreign Property Rule” (FPR), a restriction on the amount of foreign property that can be held in a registered savings account without incurring a tax penalty.

Although a clearly stated rationale for the existence of the FPR cannot be found, comments made by the minister of finance on several occasions indicate that there are two principal reasons for
retaining it. First, it encourages Canadians to invest their saving in Canada, and this is supposed to result in more investment and job creation in the country. This argument rests on the belief that removing the FPR would result in a net capital outflow, higher interest rates, an increase in the cost of capital for Canadian firms, and a reduction in real investment in Canada. The second reason given is that, because Canada is a debtor nation, with a large amount of government and corporate debt held by foreigners, the timing is inappropriate for changing the rule. Removing the FPR will increase the gross level of debt held by non-residents and this is viewed as undesirable. Finally, there is the perception that the Registered Savings Plans (RSPs) are a form of “tax expenditure,” and any increase in benefits under them, such as removing the FPR, would constitute an increase in government expenditures to the relatively well off.

In arguing for the removal of the FPR we make the point that if the FPR is to affect investment and employment in Canada it can only do so by altering flows of resources. The FPR is concerned with how stocks are allocated. Its impact on flows will arise only indirectly through its impact on relative prices, and it is not clear that the relative price effects from removing the FPR would discourage either investment or employment in Canada. Central to our evaluation of the effects of the FPR is the view that the principal role of the equity market is as an insurance market where risk is bought and sold. Its lesser role is in the provision of new funds for firms and in transferring control of corporations. Proponents of the FPR tend to view the equity market primarily as a means of raising funds for new investment projects and the FPR as a way of directing more funds into such projects. We argue that the FPR does not achieve this objective any more due to the availability of derivatives. Second, we argue that attempts to limit the amount of gross debt held by non-residents are, at best, misdirected, and at worst, inconsistent with the first ostensible objective of the FPR: to encourage investment and employment. If the government’s concern is about the level of net foreign indebtedness, removing the FPR will have a negligible effect that may increase or decrease this level. Finally, even if RSPs could be regarded as a tax expenditure the FPR actually reduces the amount of government revenue generated from the taxation of retirement savings on a present value basis.

In the next section we provide a brief description of the structure of Canadian registered savings plans and a brief history of the Foreign Property Rule. In the third section we examine the effects of the rule on the balance of payments and the exchange rate to assess the rule’s impact on international capital flows. From this we can obtain some implications for financial markets if the FPR were removed. These are discussed in section four. Section five looks at the tax effects of the FPR, and the final section concludes.

**Registered Savings Plans: A Brief Review**

Canada’s registered savings plans were established in 1957. They consist of a variety of programs that permit tax deferral of wage income. Established primarily as a retirement savings plan, there are two general forms these plans take. The Registered Retirement Savings Plan (RRSP) allows individuals to deduct from current taxable income monies contributed to the plan. Income earned within the plan, as well as contributions, are treated as part of taxable income only on the withdrawal of funds. There are no penalties attached to the withdrawal of monies so consumption needs can be met prior to retirement. Currently, the plan must be closed and monies withdrawn by age 69, but these funds can be rolled over into either an annuity or a Registered Retirement Income Fund (RRIF) with no tax penalty. Funds in an annuity or RRIF have the same tax deferral properties as an RRSP.

The other type of plan includes Registered Pension Plans (RPPs), “locked in RRSPs,” and Life Income Funds (LIFs) that are virtually identical to the
first type except that funds cannot be withdrawn before retirement. This second type of fund is used principally by the employer in providing retirement benefits to workers in either a defined benefit or a money purchase (defined contribution) plan. The contribution limits — currently 18 percent of wage income up to a limit of $13,500 per year — are integrated over the two types of plans: roughly speaking, an additional dollar allocated to an RRP reduces by one dollar the amount that can be contributed to one’s RRSP.

RRSPs and RPPs have been subject to foreign investment restrictions of one form or another from the beginning. Prior to 1971 no more than 10 percent of the income on an RRSP or an RPP could be derived from foreign sources. It was alleged that this had the effect of encouraging investors to increase their foreign content by buying foreign stocks, since most of the return on equity consists of capital gains rather than dividends. Indeed, the effective foreign content could be as high as 25 percent or more if dividends constitute only 40 percent of the total return on equity (see Conway 1970). With the June 1971 revisions to the Income Tax Act the Foreign Property Rule was rewritten to be more effective in limiting foreign content. It stipulated that no more than 10 percent of the book value of the assets in an RRSP/RPP could consist of foreign securities or foreign real property. Otherwise, an effectively prohibitive tax of 1 percent per month would be charged on the book value of foreign holdings in excess of the FPR limit. The definition of foreign securities consists of cash, bonds, and equities issued by firms or other organizations not domiciled in Canada. In response to concerns that the FPR prevented retirement savings from being adequately diversified, the foreign property limit was increased from 10 percent to 20 percent in stages of two percentage points per year beginning in 1990.

At the time the FPR was introduced there were no financial futures markets. These began in 1972 with financial futures in currencies being offered by the International Money Market (IMM) of the Chicago Mercantile Exchange, a leading commodity futures exchange in the United States. Subsequently, futures markets developed for a wide array of financial assets, including major stock indices around the world. Most notably, the S&P 500 future was established in 1982. Futures on stock market indices in at least nine other foreign countries are currently operating and are economically viable. They are roughly as representative of their markets as is the S&P 500 contract for the United States. In a ruling by Revenue Canada in 1990, non-Canadian financial futures were deemed to be foreign property with a zero cost base — in effect, they have no weight as foreign securities in the context of the 20 percent limit on foreign security holdings. Since the time of that decision, foreign equity futures markets have played an increasing role in retirement portfolios.

The reason Revenue Canada ruled that futures contracts did not, in practice, constitute foreign assets in pension portfolios is that the contracts are not assets but rather are promises to purchase or sell assets at some future date. Adding force to the argument is the fact that one can terminate a futures contract at any time prior to expiration, so RSPs need never hold the underlying security. The futures contract only replicates movements in foreign assets but is not itself a foreign asset. Indeed, the assets listed on the manager’s books will be short-term Canadian issued bills. The market value of a fund holding financial futures will be identical to the Canadian funds held in the portfolio since the value of the futures contract is zero at the close of each day, because of the daily “marking to market.”

The FPR and the Balance of Payments

While Revenue Canada’s interpretation was based on whether or not futures contracts were assets in the meaning of the Pension Benefits Act, the economic interpretation is that the futures markets allow an agent to separate the characteristics of a store of value and of risk that arise from holding a risky
asset. That is, the decision on the type and degree of risk an agent may choose to be exposed to can be completely independent of the type of asset held. Furthermore, the impact of any decision on asset holdings can also be broken down into its components of a transfer of a risk-free asset and the transfer of risk itself. This distinction serves as a useful starting point in assessing the impact of removing the FPR on the exchange rate and the balance of payments. To the extent that there are any effects, there is the possibility of some net capital outflow from Canada.

**Hedged Purchase of Foreign Securities**

Consider the following experiment. Suppose the manager of a Canadian fund wishes to purchase a share of the index of the US equity market and wishes to hedge that position into Canadian dollars. Given the existing portfolio the manager wishes to make this purchase by reducing the fund’s exposure to cash in the form of short-term Canadian pay securities. Table 1 shows the results of the two ways this can be done, where a + denotes a purchase and a – denotes a sale and the column on the far right represents the net impact of the action on the relevant market.

The first method, the “derivatives option” denoted by Case I, involves the purchase of an S&P futures contract using the cash as 100 percent margin. The futures contract commits the holder to buy the equity underlying the S&P index on a specific future date at an agreed upon price in US dollars. The price depends upon the current value of the S&P index, the current US pay bill rate, and the expected dividend on the S&P equity paid prior to the expiration date of the futures contract. The initial purchase has a balance-of-payments impact only insofar as the seller of the futures contract (the “US agent”) wishes to rebalance his or her portfolio with transactions involving Canadian securities. If the futures contract subsequently increases in value the manager converts the proceeds into Canadian dollars (marked to market) and purchases more Canadian pay securities. If the contract decreases in value some of the bills are sold and converted to US dollars to cover any losses. The expected appreciation of the futures contract is hedged into Canadian dollars by purchasing Canadian dollar futures. The cash flows resulting from the daily marking to market act the same as an export of services on current account. Indeed, the transaction is fundamentally identical to a Canadian insurer issuing a policy to a US resident, and the insurer hedging the policy premiums and expected claims payments into Canadian dollars. The insurance contract itself does not have any significant impact on any economic magnitudes, and the stream of premiums to the insurer and claims

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payments to the insuree correspond to the cash flow from the futures contract. If the policy premiums and expected claims payments are converted into Canadian dollars using futures contracts, the insurance policy is fully hedged.

The second method to effect the same portfolio choice, the “direct option” denoted by Case II, is to buy the underlying equity represented by the S&P 500 by first exchanging short-term Canadian pay securities for US dollars, and then hedging the principal plus expected return on the investment by purchasing Canadian dollar futures. This equilibrium will be identical to that of the first method of purchasing risk. To see this, note first that, to keep the experiment the same, the American sellers of securities will find themselves with a US pay bill instead of equity. So long as the “no arbitrage” condition holds in S&P futures, this is equivalent to owning the equity and selling a futures contract on the equity as in Case I. On the Canadian side of the exchange there will be, in principle, two agents affected. The original purchaser (the “Canadian agent”) will hold the equity and a Canadian dollar futures contract and will have sold Canadian pay bills. The “no arbitrage” condition in S&P futures and covered interest rate parity together ensure that this is equivalent to purchasing S&P futures and retaining Canadian pay bills as collateral as in Case I. The second actor can be viewed as an intermediary who will have sold a US pay bill to purchase the Canadian pay bill and will have sold a Canadian dollar future to maintain the same exchange rate exposure. Thus, market forces will be the same no matter which method of purchasing S&P risk is chosen. Moreover, this second policy choice — one that is currently constrained by the FPR — will also be qualitatively the same as the sale of an insurance policy to an American: there is no immediate net capital flow, and the balance of payments effects over time are the same as would follow a successful export of such an insurance policy.

A hedged investment in S&P risk yields the Canadian agent a rate of return equal to the rate of return on the S&P index plus the expected rate of appreciation of the US dollar vis-à-vis the Canadian dollar, plus terms of higher order. It does not guarantee the Canadian agent the same rate of return as the American agent would earn on an investment in the S&P index when measured in Canadian dollars. This is because the American agent’s investment is unhedged and the actual exchange rate change will typically differ from what it is expected to be. However, the hedged investment does offer the Canadian agent the same expected rate of return as the US agent earns when measured in Canadian dollars. A hedged investment is a bet that the Canadian dollar will be stronger than the market consensus as reflected in the price of Canadian dollar futures.

### Unhedged Purchase of Foreign Securities

In the next experiment, suppose the same portfolio choice as before except that the manager wishes to hold an unhedged position in S&P risk. Again, there are two ways, shown in Table 2, to obtain this position. In the case of the derivatives option (Case I), the Canadian agent purchases S&P futures holding Canadian pay bills as 100 percent margin, and simultaneously sells Canadian dollar futures. If the futures contract subsequently increases in value the proceeds are converted into Canadian dollars at the prevailing exchange rate and added to the margin account. If the futures contract decreases in value, the manager sells some of their Canadian pay securities to cover the losses. The margin account always contains sufficient Canadian funds to buy the futures contract at the prevailing exchange rate. By buying S&P futures and simultaneously selling Canadian dollar futures the manager is able to replicate the rate of return that he or she would earn from a direct purchase of the S&P index. This policy choice is not constrained by the FPR because non-Canadian financial futures carry no weight as foreign securities. Moreover, it does not immediately show up on the capital account because no international asset transactions have taken place. Nonetheless, there will be a notional net capital outflow and some downward pressure on the exchange rate because some other agent must be induced to take a long position in Canadian dollar futures.
If, instead, the manager makes a direct purchase of the S&P equity (Case II), then no currency future is required of the principals. However, the financial intermediary who sold the agent the US dollars to purchase the equity must sell Canadian dollar futures to remain unaffected. This, too, will imply a notional net capital outflow and downward pressure on the Canadian dollar relative to a hedged purchase because some other agent must cover the futures position of the financial intermediary. Thus, whether the asset acquired is S&P equity itself or a futures contract to purchase the equity is immaterial to the exchange rate pressure; what matters is whether the intent of the manager is to obtain a hedged or an unhedged position. However, whether the asset acquired is S&P equity itself or a futures contract to purchase the equity is absolutely crucial insofar as the FPR is concerned, since the former is constrained by the FPR but the latter is not.

In the case of an unhedged purchase of S&P risk, the Canadian agent’s rate of return will be equal to the rate of return on the S&P index plus the actual rate of appreciation of the US dollar vis-à-vis the Canadian dollar, plus terms of higher order. The Canadian agent’s rate of return will therefore be the same as the rate of return that the US agent earns on an investment in the S&P index when measured in Canadian dollars. Thus, by simultaneously purchasing S&P futures and US dollar futures a Canadian fund manager can replicate the rate of return that a US investor earns on a direct investment in S&P equity, without increasing the amount of foreign property in the portfolio. An unhedged investment is a bet that the Canadian dollar will be weaker than the market consensus as reflected in the price of Canadian dollar futures. Thus, if the Canadian dollar’s performance vis-à-vis the US dollar is weaker than expected, an unhedged investment in S&P risk will yield a higher rate of return than a hedged investment. The hedged and unhedged investments in S&P risk have the same expected rates of return.

Finally, for completeness, consider the experiment of a fund manager who decides to alter the fund portfolio out of some Canadian equities (or bonds) into a hedged position in US equities and/or bonds. As in the first experiment, it is immaterial whether this is done through the futures markets or in the underlying securities; and because the currency denomination is unchanged, there are no material balance-of-payments consequences from such a decision. The only change is that there will be an

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excess supply of Canadian equity and an excess demand for Canadian short-term securities. All else being equal, the effect might be viewed as generating downward pressure on Canadian equity prices and, perhaps, on short-term interest rates. It will not have an effect on total credit in Canada: Canadian capital markets are not “deprived” of capital resources.

Implications for the FPR
The above experiments bear on the relevance of the FPR in at least two ways. First, with respect to a large part of foreign equity markets, the foreign property rule has effectively been emasculated by the ruling on the foreign content of futures markets: given the broad coverage of the existing stock index futures, more than half the value of non-Canadian equity is already accessible to agents in retirement savings plans with no foreign content implications. 24 This is not to say, however, that the FPR cannot seriously limit investor choice in Canada. First, it requires some level of sophistication in derivative securities as well as sufficient capital in a fund to be willing and/or able to undertake these types of investments; second, it restricts the type of portfolio strategy that can be undertaken to one that is largely passive; and third, it still leaves a sizeable section of the world market inaccessible to this type of derivative investment. 25

The second point is that any balance-of-payments consequences of a decision to increase the foreign exposure of an RSP arise from the manager’s decision whether or not to hedge the investment portfolio. It does not arise from the form in which the foreign exposure is undertaken. The economic effects of a hedged (unhedged) derivative investment will be identical to a hedged (unhedged) position in the underlying cash market. Furthermore, a hedged position does not have any impact on the total availability of funds in Canada, although it may alter the relative demands between Canadian bonds and equity. An unhedged position will exert some exchange rate pressure that may manifest itself as a net capital outflow. However, whether the unhedged position is the result of a purchase of foreign currency denominated securities or is a futures market sale of Canadian dollars “backed” by a completely Canadian securities portfolio is irrelevant to the exchange rate pressure or the degree of capital outflow. Since the FPR does not prevent holders of RSPs from taking unhedged positions, it does not prevent a net capital outflow and therefore it does not ensure that the pool of Canadian savings remains in Canada to finance investment there.

The FPR and Financial Markets
Suppose the government were to remove the limit on foreign property for funds in tax-deferred saving plans, and individuals took advantage of this new-found freedom to convert some of their Canadian security holdings into foreign securities. What would be the consequences for Canadian financial markets? Presumably, the direct demand for Canadian equity and bonds in registered plans would fall as agents reallocated funds to foreign markets: either markets not previously accessible using derivatives, or markets where derivatives are no longer required to gain access. Additionally, there would likely be some net movement into foreign currency denominated assets, but not to the same extent as the move to foreign property because of the hedging options discussed in the previous section. While the change in total financial assets available to Canadian markets would be negligible from our analysis of the effects on the balance of payments, there would likely be some change in relative prices and this might ultimately affect Canadian economic activity.

Measuring the Quantitative Impact of the FPR
To assess the effect of removing the FPR on relative prices we first need some method to determine the order of magnitude of the portfolio shifts that might occur. For this we require some counterfactual. One possibility follows from the Capital Asset Pricing Model (CAPM): if Canada constitutes 2.5 percent of the world equity market then, in
equilibrium, Canadians should hold roughly 2.5 percent of their equity in Canadian securities and 97.5 percent of their equity abroad, with 97.5 percent of Canadian equity being held by non-residents (see Solnik 1974). Appealing as the logic of this view is, it does not appear to be the outcome in any country that has the freedom to choose the country in which to make its equity purchases. Take Britain as an example; despite the absence of foreign investment restrictions since 1979, UK residents owned 82 percent of the equity of UK-domiciled firms in 1989, but the UK only accounted for 11 percent of the world equity market. Apparently the diversification gains do not compensate for the additional costs of obtaining information in foreign countries. Since Canada accounts for only 2.5 percent of the world equity market, Canadians would likely hold proportionately less of their equity market than the British hold of theirs, but the proportion would be nowhere near as low as 2.5 percent.

As yet there are no good theoretical explanations of this “home-country bias” in portfolio behaviour, although, (definitionally) we can say that the diversification gains from investing in foreign markets do not appear to outweigh the information costs of doing so. An alternative way to derive an estimate of the portfolio shift that would occur if the FPR were removed is to compare the foreign-domestic asset mix of funds held inside and outside RSP programs. This can be done by comparing the foreign-domestic asset mix of those funds that are held in RRSPs and those funds that are not, where the weights represent the proportions held in each category. How do we estimate the foreign-domestic asset mix of those mutual fund assets that are tax-sheltered in RRSPs? A reasonable first approximation is to assume that it is equal to that of pension funds since both enjoy the same tax-deferred status and both are constrained by the FPR. The overall foreign-content ratio of pension funds at year-end 1995 (including foreign stock index futures) was 20 percent at market value according to the Pension Investment Association of Canada’s (PIAC) annual survey, and virtually all of this was in equities (19.5 percent in foreign equities and only 0.5 percent in foreign bonds). Alternatively, InterSec Research of London, UK, the most comprehensive data source for pension funds worldwide, estimates that the overall foreign-content ratio of Canadian pension funds was 18 percent in 1996, but this does not take into account foreign stock index futures contracts (as reported in Ernst and Young 1997). Because we are interested in estimating the amount of foreign exposure that individuals would choose to have in their RSPs in the absence of the FPR, we shall assume that the effective

With respect to institutional factors, until quite recently at least some public sector pension funds have been required by their sponsors to invest a minimum proportion of their assets in government bonds of one form or another; or, in the case of the Caisse de dépôt, having a ceiling on the proportion of assets that can be held in equities. It is possible that such restrictions have had an indirect effect on the proportion of foreign assets that a fund holds. Insofar as taxes are concerned, the dividend tax credit and the US withholding tax each have differential effects on assets that are tax-sheltered as opposed to assets that are not. However, we shall ignore all these factors in our initial calculation and attribute any difference between the aggregate foreign-domestic asset mix of pension funds versus mutual funds solely to the workings of the FPR.
foreign content of pension funds and tax-sheltered mutual funds is currently 20 percent.\footnote{35}

According to data obtained from the Investment Funds Institute of Canada (IFIC) the proportion of foreign assets held by all mutual funds combined was 26 percent (at market value) as of year-end 1996, and virtually all of this was in equities (24.3 percent in foreign equities and only 1.7 percent in foreign bonds).\footnote{36} Also, according to IFIC the proportion of mutual fund assets that are tax-sheltered in RRSPs is currently approximately 50 percent. This implies that the proportion of foreign assets (including foreign stock index futures) that would be held by mutual funds in aggregate, or by pension funds in aggregate, in the absence of the FPR is 32 percent.\footnote{37}

Thus, a first approximation to the change in the portfolio mix that would occur if the FPR were removed is that the effective foreign content would increase from 20 percent to 32 percent for pension funds and from 26 percent to 32 percent for mutual funds. Using the market value of pension funds and mutual funds as of mid-1997 (approximately $420 billion for pension funds and $280 billion for mutual funds), this amounts to an increase in foreign content of $50 billion by pension funds and $17 billion by mutual funds, for a total increase of $67 billion.\footnote{38}

We view this estimate as an \textit{upper bound} on the likely shift into foreign assets for a number of reasons discussed in detail in our background working paper (Burgess and Fried 1998). Perhaps the most important reason is that we have assumed that the foreign content of mutual funds currently held outside RRSPs with the FPR in place represents what individuals would hold if the FPR were removed. But individuals probably \textit{overinvest in foreign assets} in their non-tax-sheltered accounts to compensate for any FPR-induced underinvestment in foreign assets in their RRSPs. What matters to the individual is his or her \textit{total} portfolio allocation, and given the restriction on RSP allocations it becomes more advantageous to hold one’s foreign allocation outside an RSP. Indeed, in the limit, the removal of the FPR would generate no net increase in individuals’ total foreign holdings as agents simply transfer their non-sheltered foreign assets into tax-sheltered accounts. Therefore, the foreign content that individuals would actually hold in their RRSPs if the FPR were removed will be less than the proportion that they currently hold in unsheltered accounts.

What does our upper bound estimate of the portfolio shift into foreign assets imply about the degree of home-country bias in equity portfolios that would remain in the absence of the FPR? If the foreign content of mutual funds and pension funds were to increase to 32 percent with no change in the proportion of bonds, then the implied ratio of foreign to total equity would be 50 percent for mutual funds and 62 percent for pension funds. However, investors would want to consume at least part of the efficiency gain, and perhaps all of it, in increased expected return rather than in reduced risk, so they would sell Canadian bonds as well as Canadian equities to increase their foreign content.\footnote{39} This means that the 32 percent foreign-content ratio would be achieved with somewhat lower ratios of foreign to domestic equities than the above figures. The implication is that a substantial “home-country bias” in equity portfolios would remain even if the FPR were removed completely.

Suppose that investors were to increase the foreign content of their RSPs and RPPs to 32 percent by selling Canadian bonds to finance 40 percent of the increase and selling Canadian equities to finance the remaining 60 percent.\footnote{40} What would be the impact on investment returns? Over the period 1970-96 the annual rate of return on equities averaged 13.98 percent and the annual rate of return on bonds averaged 10.47 percent so the equity premium averaged 3.51 percent per annum.\footnote{41} These rates of return are nominal, not real, and Canada’s inflation rate averaged 5.8 percent over this period, well above what it is expected to be for the foreseeable future. Also, the equity premium is much lower than
the 6 percent premium reported by Mehra and Prescott (1985), but it is in line with the more recent evidence of Blanchard (1993). Looking ahead to a period of substantially lower inflation, suppose that the expected rate of return on equities, both Canadian and foreign, is 10.5 percent and the expected rate of return on Canadian bonds is 7 percent, so the implied equity premium is 3.5 percent. Then the expected rate of return on the FPR-constrained portfolio (consisting of 52 percent equities and 48 percent bonds with 20 percent foreign content) is 8.82 percent, whereas the expected rate of return on an unconstrained portfolio with the same level of risk but with 32 percent foreign content (consisting of 57 percent equities and 43 percent bonds) is 9 percent, an increase of 18 basis points per annum.42

If removing the FPR enabled individuals to earn an additional expected return of 18 basis points per annum on their RSP contributions with no increase in risk, how much would this add to the expected value of their RSPs after, say, a 30-year period? Suppose that one’s annual RSP contribution is $5,000. Then after 30 years the expected value of one’s RSP would be $717,000 under the FPR constraint, whereas it would be $743,000 without the constraint. Removing the FPR to allow investors to earn a higher expected return with no increase in risk would therefore increase the expected value of their RSP at retirement by 3.6 percent. Put differently, the annual contribution to an RSP with an expected value of $752,000 upon retirement would be $4,826 rather than $5,000, which is a cost saving of 3.5 percent. To put the cost of the FPR in even greater perspective, the pool of RSP funds as of 1997 was valued at $560 billion and the loss of 18 basis points of expected return on these funds amounts to $1 billion of foregone expected income per annum. The FPR can be seen as a regulatory tax that collects no revenue but costs Canadians $1 billion of expected income per year, and is growing.

Price Effects of the FPR

If Canadians were to shift $67 billion of their portfolios into foreign assets (primarily foreign equities), what effect would this have on Canadian equity prices? Several considerations suggest that the impact would be small. First, the increase in foreign equity holdings would come only partly at the expense of Canadian equities. If investors consumed the efficiency gains entirely in increased expected return, then only about 60 percent of the increase in foreign equity holdings would come at the expense of Canadian equities. If the direct demand for Canadian equities were to fall by, say, $40 billion, this would amount to less than 6 percent of stock market capitalization of the TSE at year-end 1996. But, and this is the second point, removing the FPR is not likely to cause an immediate capital flight from Canadian equities; previous experience suggests that when new investment opportunities open up for pension funds and mutual funds their managers tend to adjust the asset mix gradually over time as market conditions permit by changing the proportions in which new investment funds are allocated rather than by immediately changing the composition of existing assets.43 Third, even if there were an immediate portfolio shift from Canadian to foreign equities, it is not as if the Canadian and world equity markets are completely segmented or that evaluation techniques in Canada differ from those in the rest of the world.44 The effects on asset prices should be viewed in a general equilibrium context. Small changes in valuations in Canada may well generate sufficient investor interest to keep equity prices at or near their current values. Many Canadian securities are interlisted in US markets. Indeed, of the TSE 300 securities, a number are not only interlisted but are included in the S&P 500 index. If institutional factors do cause some segmentation, and prices in Canadian markets fell significantly, firms having non-interlisted securities would be inclined to add foreign listings to aid their existing shareholders.45

Finally, arguments can be made to suggest that Canadian equity prices will rise if the FPR is abolished. One such argument is that the FPR tends to concentrate ownership, thus reducing liquidity, and provides a perception of some agents with inside information.46 Outsiders will therefore withhold
funds until there is a sufficient discount in price to compensate them for the expected losses that would be incurred from trading in an illiquid market or against these “insiders.” Removal of the FPR may broaden the market sufficiently that this premium is ultimately reduced. A second argument is provided in the recent work by Bartolini and Drazen (1997). They indicate that when nations remove or reduce controls on capital outflows there is often an inflow of capital instead of the anticipated outflow. They argue that the reason for this is that the removal acts as a signal about future government policies of taxation of capital, with the liberalization acting as a favourable signal.

To the extent that the move to foreign equity is hedged we have shown, in the third section, that total available credit in Canada is unaffected. We also noted that bonds may well decrease in investors’ tax-deferred portfolios because foreign securities provide an alternative mechanism to reduce risk. Who, then, is supplying the funds to purchase the assets sold by the tax-sheltered plans? Ultimately, the replacement funds will come from non-residents: gross Canadian debt owed to non-residents will increase to match the increase in gross foreign debt owed to Canadians — the initial purchase of foreign securities in RSPs. But the net foreign-debt position of Canadians will remain unchanged, and it is that net-debt position that is relevant for any economic magnitude of interest. Furthermore, the ultimate borrowers and lenders need not notice any difference in where their funds are coming from. Canadian borrowers who wish to borrow in Canadian dollars will still obtain their funds from intermediaries or in the open market where intermediaries will purchase the securities with money borrowed abroad. Foreign asset-holders who sold securities to Canadian pension and mutual funds will still have the opportunity to purchase assets in their own currency that are being supplied by Canadian intermediaries, either directly or indirectly through their own intermediaries who themselves purchased the foreign currency Canadian pay securities. In addition, intermediaries will not be exposed to any additional foreign exchange risk than they were prior to the action of the tax-sheltered funds. They will simply be covering those foreign exchange positions initially generated by those actions, as described in Table 1, Case II. Finally, given covered interest parity, the cost of the hedged borrowing abroad by intermediaries will be the same as the cost of funds obtained in Canada, so that the cost of funds to the ultimate Canadian borrowers will be unaffected by the nationality of the agents supplying those funds.

**WHO BENEFFITS FROM THE FPR?**

If there are no economic arguments against the removal of the FPR, why is it being retained? There is a political argument that has been made against tax-deferred savings plans in general, and this has probably discouraged the government from moving to eliminate the Foreign Property Rule. In particular, the government has treated tax-deferred savings plans as a tax expenditure. Since only those with above average incomes take full advantage of RRSPs, an argument has been made that, on the basis of distribution, registered savings plans are “inequitable” and anything that enhances their value exacerbates this inequality and reduces the tax revenue available to “more worthy” causes.

There are a number of problems with this argument. First of all, the level of tax expenditures has been wildly overestimated by the government. The Canadian Institute of Actuaries’ Task Force on Retirement Savings (1995) suggests that the government estimate overstates the tax expenditure by roughly 200 percent. Second, the tax deferral applies to both RRSPs and private pension plans offered by firms. In terms of the latter, there is less of a bias toward the upper-middle class than is the case with RRSPs, mitigating much of the redistribution argument. Third, given the clawbacks on the OAS payments, there is little or no tax advantage to using RRSPs as a savings vehicle for old age for many of those earning below the average industrial wage. As a consequence, given the existing contribution
limits there is a limited amount of additional monies that would be placed in tax-deferred programs even if removing the FPR was attractive.49

Furthermore, removing the FPR could actually increase the present value of government tax revenue rather than reduce it. The rule currently acts as a payroll tax that does not generate any revenue for the government. To see this, note first that RSPs apply only to labour income. Thus any limit placed on the return to the pension portfolio is, in effect, a tax on the “benefits” portion of the worker’s total pay package.50 In its absence, firms would be willing to offer workers greater employment and/or the worker would receive a higher net wage. As was pointed out in the fourth section, in the aggregate this amount is not insignificant. The FPR represents an aggregate cost of approximately $1 billion per year. In effect it has the same disincentive effects on employment as the Employment Insurance (EI) plan surplus, but it does not generate any of the revenue to the government. Certainly, allowing individuals to choose more efficient portfolios without the government losing any revenue seems at least as desirable as cutting a portion of the EI surplus with a subsequent revenue loss. Finally, if the FPR was removed the increase in effective income to workers would ultimately generate tax revenue to the government when they begin drawing on their pensions.

CONCLUDING REMARKS

The Foreign Property Rule was initially established to direct resources into Canada’s stocks and bonds markets in order to ensure an adequate supply of funding for investment and job creation in Canada. Financial markets — both in Canada and abroad — may have been underdeveloped and inefficient when the FPR was introduced, and the government may therefore have had a useful role to play in helping to guide the flow of saving into productive investment opportunities, but the situation has changed dramatically since then. Financial instruments such as financial futures contracts have developed that allow institutions to hold assets issued in one jurisdiction with all the risk characteristics of another: a pension fund manager can use Canadian-issued assets as collateral to buy risk in the Japanese equity market and hedge it into US dollars (or deutsch marks) if he or she chooses. Financial markets have also become more integrated internationally so that, for a large portion of the Canadian equity market, asset substitution is quite high. As a result, large changes in asset holdings by one group of investors has little, if any, effect on prices. What matters for the availability of credit to Canadian borrowers is not whether Canadian pension saving stays in Canada, but rather whether agents are willing to have their assets — issued by any jurisdiction — denominated, or hedged, in Canadian dollars. That willingness is influenced more by the political climate in Canada than by regulations requiring that Canadians hold their long-term savings in Canadian bonds and equity. In short, the FPR does not promote investment and job creation in Canada. Rather, it re-allocates funds among Canadian companies helping some to the disadvantage of others. Indeed, the FPR may actually detract from achieving these objectives; by lowering the expected rate of return on pension funds, it increases the cost to firms of providing any given benefits package. In effect, the FPR acts as a payroll tax on workers, disadvantaging those workers with uncertain and/or variable incomes the most.

The House of Commons finance committee has recently reviewed the FPR and has recommended an increase in the ceiling on foreign property in RSPs to 30 percent by increments of 2 percent per annum over the next five years.51 This move is in the right direction, but it is our belief that it is much too modest a plan. It does not take full advantage of the potential gains for savers. Instead, we would argue that the FPR should be removed completely as quickly as possible for at least three reasons.

First of all, although we estimate that aggregate foreign exposure in the absence of the FPR would not likely exceed the 30 percent ceiling proposed
by the Commons finance committee, this does not mean that individual investors would be minimally affected by the 30 percent limit. Not all investors will take full advantage of the increased ability to hold foreign risk; some will wish to hold more than the finance committee’s allowance, and others less. For those wanting to hold more, derivative investments can be used, but that still limits their portfolios both in terms of the mix and the coverage that can be undertaken, and it penalizes small investors who cannot afford the cost of transacting in derivatives. Since there are virtually no gains to other Canadians from limiting the choices of these individuals and institutions, no purpose is achieved by the finance committee’s restrictions.

Second, the FPR does not accomplish its objective of increasing investment and employment in Canada. Rather, it distorts the allocation of credit among Canadian firms. Given that it does not provide the benefits desired and, in addition, imposes bureaucratic costs on households, investment managers, and the government, there would be an unambiguous gain from the complete removal of the entire apparatus. Simplifying the lives of Canadian savers and allowing them to make choices not based on arbitrary accounting rules such as book values is, in our opinion, an eminently desirable objective.

Finally, the complete removal of the FPR will act as a signalling device that Canadian policymakers are more willing to treat international investment on a level playing field, and it will remove a perception that Canada is so defensive about its investment prospects that it must devise schemes in an effort to keep an adequate pool of saving available to finance them. The work by Bartolini and Drazen (1997) suggests that removing restrictions on capital outflows may well lead to a capital inflow. It would appear that not only has the development of financial markets made the Foreign Property Rule increasingly irrelevant in keeping Canadians from employing their assets abroad, but it also serves as a deterrent in attracting funds from abroad. In effect, the removal of the FPR will lead to the results that the imposition of the FPR was meant to accomplish!

NOTES

We would like to thank, without implicating, Martin Lally, Louise Koza and Ron Wirick for helpful comments and assistance on earlier drafts, and Jim Franks of Frank Russell Canada and Robert Leckey of IFIC for help with data and background material.

1 Contributions to RPPs and RRSPs in 1995 were $19.7 billion and $23.0 billion respectively. Total personal saving, including contractual saving, was $41 billion in 1995. Note that not all contributions to registered savings plans are financed from personal saving: individuals can borrow to contribute to RRSPs. Total pension income of Canadians in 1996 was $76 billion, consisting of $22 billion from OAS/GIS, $22 billion from C/QPP, and $32 billion from RSPs. (The Seniors Benefit: Securing the Future, Federal Budget, 6 March 1996, p. 20). Useful sources of information on Canada’s retirement income programs are Statistics Canada (1996, 1997).

2 The capitalization of the TSE 300 was $607 billion at year-end 1996, and the index accounted for 84 percent of the value of stocks listed (Frank Russell Canada). Net issues of common and preferred stocks by Canadian firms was $20.4 billion in 1996 (Bank of Canada Review 1997, Table F8). Therefore, the value of new issues as a proportion of market capitalization was only 2.8 percent.

3 There are also (province-specific) limits to the size of the withdrawals after retirement, as well as additional limitations on when and how the monies can be allocated when the account is closed. RRIFs specify a minimum amount that must be withdrawn each year, and they must be wound up by age 90. Prior to that age an annuity can be purchased to maintain the tax status of the funds, or it can be cashed out and taxes paid.

4 Liabilities of certain international bodies such as the World Bank are exempt from the FPR because the debt is guaranteed by world governments and Canada is a member country.

5 As early as 1979 the Economic Council of Canada had recommended that “as balance of payments and other circumstances permit, the Government of Canada amend the Income Tax Act to permit an increase in the proportion
of the assets of Canadian pension funds that can be held in the form of foreign securities” (Economic Council of Canada 1979, p. 105).

6The S&P 500 represents a value-weighted average of 500 of the largest companies traded on US equity markets. Depending on market conditions, the value of these firms represent between 65 percent and 90 percent of the value of all equities traded on the US equity markets. There are a number of Canadian firms and depository receipts of firms from other parts of the world traded in US markets, and some of these are also included in the S&P index itself. The S&P index has become one of the most representative indices of price behaviour on US stock exchanges.

7These countries are Australia, France, Germany, Hong Kong, Italy, Japan, Netherlands, Switzerland, and the United Kingdom.

8For instance, the Ontario Teachers’ Pension Plan had a foreign exposure of 31.5 percent at year-end 1995, with three-quarters of that foreign exposure consisting of index investments using derivatives. The University of Western Ontario Pension Plan’s Equity Fund is targeted to have a 70 percent exposure to foreign markets but only holds 15 percent foreign property. The remaining 55 percent of that exposure is “invested” in Canadian issued short-term bills used to back equity futures contracts in ten foreign markets.

9US pay bills issued by Canadian institutions may be used for an unhedged portfolio, while Canadian pay bills will be used for a hedged portfolio.

10This refers to the process of computing any daily gains or losses in the value of the futures contract and adding or subtracting them from the investor’s margin account.

11Let $S_0$ be the current US dollar price of a share of the S&P index, let $R_u$ be the US T bill rate to expiration of the futures contract, and let $D$ be the expected dividend on the share of S&P equity paid prior to expiration. Then, from the arbitrage activities of US program traders, the price of a futures contract on a share of the S&P index is $F_0 = S_0(1 + R_u) - D$. Any other price would imply that arbitrages could make risk-free profits without putting up any assets. Let $S_T$ be the US dollar price of a share of the S&P index on the expiration date. Clearly, $S_T = S_0(1 + g)$ where $g$ represents the rate of increase in the value of the share. Also, the value of the S&P futures contract at expiration will be equal to the value of an S&P share at that date so that $F_T = S_T$. The rate of return on a share of the S&P index is then $R_s \equiv (S_T - S_0 + D)/S_0 = g + d$, where $d = D/S_0$ is the expected dividend rate. The rate of return on an investment of $S_0$ in S&P futures contracts fully backed by US T bills is $R_f = (F_T - F_0)/S_0 = g + d - R_u$. Therefore $R_f = R_s - R_u$.

12The US agent now faces less risk and may therefore wish to alter the asset portfolio. We assume that any rebalancing does not involve transactions in Canadian securities. Rebalancing will, in principle, still have an impact in the US market. However, we shall assume throughout the paper that the Canadian action is small relative to the rest of the world so there is no change in “world” prices.

13See the Appendix for a more formal description of these two portfolio strategies and their equivalence. For expository purposes, Table 1 does not include the possible hedging of the anticipated appreciation of the S&P spot and futures contracts over their lifetime because they involve the same transactions in both cases and they are, in any case, small relative to the other transactions. Qualitatively, however, it would mean in both cases an increase in the demand for Canadian pay bills by the financial intermediary, causing a short term capital inflow. This effect would be reversed over the life of the contract.

14These are gross capital flows, however, the purchase of S&P equity will be recorded as a long-term portfolio capital outflow (debit), while the intermediary’s sale of US pay bills will be recorded as an offsetting short term capital inflow (credit).

15See the Appendix for proof. According to uncovered interest parity the expected rate of appreciation of the US dollar relative to the Canadian dollar will be equal to the spread between the Canadian and US short-term interest rates. If the Canadian short-term interest rate is lower than the US rate a hedged investment in S&P risk will yield the Canadian investor a lower rate of return than the rate of return on the S&P index. However, such a comparison is misleading since the two rates of return are denominated in different currencies. Differences in inflation rates must be taken into account.

16The latter transaction ensures that the assets held in the margin account earn the US pay bill rate denominated in US dollars rather than the Canadian pay bill rate denominated in Canadian dollars.
17 See the Appendix for a formal proof. In effect, the agent described in Table 1, Case I simply sells a sufficient number of Canadian dollar futures contracts.

18 The agent that takes a long position in Canadian dollar futures will want to restore his/her initial foreign exchange exposure by purchasing US dollar securities, which will give rise to a short-term capital outflow.

19 In effect, the agent described in Table 1, Case II simply closes (i.e., sells) the long position in Canadian dollar futures.

20 Note that this policy choice will be measured as a capital outflow, that is, a debit to long-term portfolio capital (acquisition of US equity).

21 See the Appendix for proof.

22 Suppose that the Canadian short-term interest rate is 3 percent and the US short term interest rate is 4 percent. According to uncovered interest parity, the Canadian dollar is expected to appreciate by 1 percent in US dollars. If the current spot price is US$0.68 then the price of a Canadian dollar future is US$0.6866. Now suppose the S&P index appreciates by 10 percent, and the Canadian dollar appreciates by 1 percent as expected. Since the US short-term interest rate is 4 percent the price of a S&P future increases by 6 percent in US dollars. The rate of return on a direct purchase of S&P equity is 10 percent in US dollars, but 8.94 percent in Canadian dollars. The rate of return on an investment in S&P futures holding US short-term securities as 100 percent margin is 10 percent in US dollars, but 8.94 percent in Canadian dollars. The rate of return on an investment in S&P futures holding Canadian short-term securities as 100 percent margin is also 8.94 percent in Canadian dollars, the sum of 3 percent on the margin account plus 5.94 percent on the S&P futures contract when expressed in Canadian dollars. Finally, the rate of return on an investment in S&P futures holding Canadian short-term securities as 100 percent margin, but also hedging the return on the margin account into US dollars through a purchase of US dollar futures, is also 8.94 percent. This consists of 4 percent on the margin account when expressed in US dollars (a 3 percent yield on Canadian short-term securities in Canadian dollars plus a 1 percent return on the futures contract to sell Canadian dollars at 1 percent more than their initial value) plus 6 percent on the futures contract in US dollars, which all converted into Canadian dollars is 8.94 percent. If the exchange rate does not appreciate as expected, say it remains unchanged, then a hedged purchase of S&P risk, no matter whether it is a direct purchase of the S&P index or a purchase of S&P futures holding Canadian short term securities as 100 percent margin, will earn 8.94 percent. However, an unhedged purchase of S&P risk, whether it is a direct purchase of the S&P index or a purchase of S&P futures holding Canadian short-term securities as 100 percent margin and simultaneously selling Canadian dollar futures, will earn 10 percent.

23 See the Appendix for proof.

24 At the end of 1996, the S&P index contained 70 percent of US stock market capitalization, and the MSCI EAFE index contained around 60 percent of non-North American stock market capitalization. Also, the US and EAFE each comprise somewhere between 40 percent and 45 percent of world stock market capitalization (Frank Russell Canada). Therefore, using derivatives, a Canadian investor has access to between 50 and 60 percent of foreign equity markets.

25 Further, it would appear that using derivatives for long-term investment is more expensive than investing in the cash equity markets themselves. This is revealed by the fact that traders not subject to rules like the FPR choose to purchase indices directly in the equity markets rather than use the derivative markets.

26 In 1989, US citizens owned 94 percent of the equity of US-domiciled firms while the US accounted for 40 percent of world equities, and Japan owned 98 percent of its own equity while accounting for almost 40 percent of world equities. See French and Poterba (1991). More recent data, which is qualitatively similar to the above, is reported in Tesar and Werner (1992).

27 One reason why the home-country bias may be more apparent than real is that the shares of home-based multinationals are classified as fully domestic even though they automatically provide some degree of international diversification.

28 Time horizons for mutual fund investors may be shorter than for pension fund investors since the ability to withdraw funds from an RRSP at any time means that the motive for holding an RRSP can be to shift taxes between periods rather than to provide for one’s retirement.

29 The Caisse de dépôt has had a 40 percent ceiling on
the proportion of equities that can be held, up from 30 percent in 1992. Recent legislation introduced by the PQ government would eliminate the ceiling.

30 Weitz (1992) provides a good discussion of the various institutional factors that have influenced the investment patterns of pension funds in Canada. Although the foreign-content ratio of public sector pension funds has been significantly lower than that for private sector plans in the past, both public and private pension funds had the same foreign-content ratio of 16.6 percent at book value at year-end 1997 according to Statistics Canada’s Quarterly Survey, Fourth Quarter 1997a.

31 The dividend tax credit creates an incentive to hold Canadian equities in non-sheltered accounts, whereas the US withholding tax creates an incentive to hold foreign securities (bonds or dividend paying equities) in non-sheltered accounts. These two provisions are to some extent offsetting in their impact on the foreign-domestic asset mix of funds held inside and outside RRSPs.

32 Let the proportion of foreign assets held by individuals in mutual funds that are not tax-sheltered in RRSPs be denoted by \(x\), and the proportion of foreign assets held by individuals in mutual funds that are tax-sheltered in RRSPs be denoted by \(y\). Let \(a\) represent the proportion of mutual fund assets held by individuals in tax-sheltered accounts, so \(1 - a\) is the proportion that is not tax-sheltered. Finally, assume that the proportion of foreign assets that would be held by individuals in mutual funds is equal to the proportion that individuals currently hold in mutual funds that are not tax-sheltered in RRSPs. Then \(ax + (1 - a)y = z\), where \(z\) represents the proportion of foreign assets that are held in mutual funds whether they be tax-sheltered or not.

33 This might be an understatement since, unlike pension funds whose foreign content cannot exceed 20 percent (at book value), the foreign content of mutual funds held in a RRSP can exceed 20 percent if the foreign content of the non-mutual fund component is below 20 percent.

34 According to Statistics Canada, the proportion of foreign assets held by pension funds as of the fourth quarter of 1997 was 16.4 percent of which 92 percent was in stocks and pooled funds (mostly equities) and 6 percent in bonds. However, the survey measures assets at book value and it underestimates foreign exposure because it treats foreign stock index futures contracts as domestic investments on the grounds that they are fully backed by holdings of Canadian T-bills (Statistics Canada 1997b).

35 It should be emphasized that the 20 percent estimate applies to aggregate pension fund assets. According to the PIAC survey referred to above, 41 percent of pension funds exceed the 20 percent level (either by using derivatives or because market value can deviate from book value), and 59 percent are below the 20 percent figure. The foreign property of the average RRSP is only 9 percent according to a survey by the Bank of Nova Scotia and reported in The Globe and Mail on 12 December 1997, and mutual funds constitute about 50 percent of the average RRSP portfolio. Our estimate of 20 percent foreign content for mutual funds held in RRSPs is consistent with this evidence if the non-mutual fund component (consisting primarily of GICs and Canada savings bonds) has a foreign content of close to zero.

36 This estimate makes some adjustment for the foreign content of those funds that are classified as 100 percent Canadian. These funds can have a foreign content ratio of 20 percent of book value without affecting their status as 100 percent Canadian. Investors can therefore achieve a maximum foreign content ratio of 36 percent of book value by holding 80 percent of their assets in a Canadian fund that maintains a 20 percent foreign-content ratio and holding 20 percent in an international fund with 100 percent foreign content. The effective foreign content can be further increased by using derivatives.

37 Substituting \(z = .20\), \(y = .26\), and \(a = .5\) in the weighted average formula derived in note 32 above gives \(x = .32\). This estimate is broadly consistent with the experience of other countries. According to InterSec, the foreign content of UK pension funds (approximately three times the size of Canada’s) was 26 percent at year-end 1996 despite no foreign-investment restrictions since 1979. The foreign content of the Netherlands’ private sector pension funds (approximately equal in size to Canada’s and also subject to no foreign investment restrictions) was 27 percent. Both the UK and the Netherlands have a tax treatment of pension funds similar to Canada’s. Contributions and asset returns are tax free, while benefits are taxed. See Ernst and Young (1997).

38 The total stock of Canadian short-term and long-term debt instruments and corporate stocks was $1,656 billion (at book value) at year-end 1996 according to the Conference Board of Canada (1998). If $67 billion were with-
drawn from the Canadian securities markets to buy foreign securities this would amount to a 4 percent reduction in the direct demand for these securities.

39 The FPR constrains investors to choose portfolios inside the efficient frontier, which means that investors bear excessive risk and also accept lower than necessary expected return. Removing the FPR would enable investors to achieve the same expected return with a lower risk, or an increase in expected return with the same risk, or some combination of the two. Despite past history, it is reasonable to assume that the expected rates of return on Canadian and foreign equities are equal, and greater than the expected rate of return on bonds. Then only if investors wanted to consume the entire efficiency gain from removing the FPR in reduced risk would they sell only Canadian equities to buy foreign equities. The more investors prefer increased expected return over reduced risk, the more will they sell Canadian bonds rather than Canadian equities to increase their foreign content. The experience of other countries is informative here. After foreign investment restrictions were removed in the UK, pension funds increased their foreign content by reducing their holdings of domestic bonds rather than stocks. The same response occurred in the Netherlands and Japan. See Davis (1996, pp. 262-70).

40 If the composition of the RSP portfolio were to change from 48 percent bonds and 52 percent equities with 20 percent foreign content (consisting of 10 percent US equities and 10 percent NNA equities) to 43 percent bonds and 57 percent equities with 32 percent foreign content (consisting of 20 percent US equities and 12 percent NNA equities) then the riskiness of the portfolio as measured by the standard deviation of return would remain unchanged. The correlation matrix and standard deviations of returns on Canadian bonds, Canadian equities, and foreign equities used in this calculation are derived from quarterly data on the returns on the Scotia Universe Bond Index, the TSE 300, the hedged S&P 500 and the hedged MSCI EAFE index over the period 1976-96.

41 The return on equities is defined as the return on a portfolio of equities consisting of 40 percent Canadian equities (as measured by the return on the TSE 300), 30 percent of US equities (as measured by the hedged return on the S&P 500) and 30 percent non-North American equities (as measured by the hedged return on the MSCI EAFE index). The return on bonds is defined as a weighted average of the return on the Scotia Universe Bond Index and the return on T-bills, with weights of 0.7 and 0.3 respectively. We are indebted to Jim Franks of Frank Russell Canada for supplying us with these data.

42 Our estimate is in line with Ambachtsheer (1995), who used hypothetical data on expected returns, variances and covariances for domestic bonds and domestic and foreign equities to arrive at an estimate of a gain of 20 basis points per annum in expected return from increasing the FPR limit from 20 to 30 percent. Ernst and Young (1997) use historical data on domestic and foreign equity returns to estimate that the expected return on a 100 percent equity portfolio held in an RSP could have increased by between 26 and 48 basis points (depending upon the time period) if the FPR limit had been 30 percent instead of 20 percent. Earlier work by Pink (1989) indicates that, over the period 1974-85, RRSP ineligible mutual funds obtained a monthly return six basis points above RRSP eligible funds.

43 This is consistent with the response of pension funds and mutual funds to the increase in the FPR from 10 to 20 percent over the period 1990-94. According to Statistics Canada, the foreign content of pension funds increased gradually from 5.6 to 12.9 percent over this period, and subsequently to 15.3 percent at year-end 1996. (These estimates are at book value and do not include futures contracts.) At no time was the foreign-content level near the FPR limit for pension funds as a whole, which is not to say that it was not a binding constraint for many individual fund managers.

44 Mittoo (1992), following up on a previous study by Jorion and Schwartz (1986), used both the CAPM and Arbitrage Pricing Theory and found that over the period 1982-86 she could not reject the hypothesis that the prices of the stocks included in the TSE 35 index — whether the stocks were interlisted or not — behaved as if they were integrated with the S&P index.

45 It should also be noted that because non-interlisted shares compete with interlisted ones in the Canadian market, any “subsidy” from the FPR is likely to be quite small.

46 The FPR also undermines the ability of the Canadian equity market to serve as a corporate control monitoring device by limiting tax-sheltered investors’ ability to sell. This may plausibly worsen corporate governance in Canada.
points out that FPR currently forces Canadian equity markets to be too highly concentrated, with some large mutual funds having too large a presence in small stocks. Hence, eliminating FPR might well make the Canadian equity market more attractive (i.e., competitive) to foreign investors by allowing the large Canadian players to go abroad, increasing the float.

The adjustments made in that study include an adjustment for differences in pre- and post-retirement marginal tax rates, allowance for a behavioural response and use of a neutral benchmark. It did not take into account the decrease in expenditures on income-tested programs.

The Association of Canadian Pension Management (1997) argues that if those under the age of 25 and over 65 are excluded, as well as those with incomes under $20,000, then the participation rate in RRSPs and RPPs in 1995 was 77 percent.

This is true whatever the form of the pension plan. If the funds are held in an RRSP or a defined contribution plan the individual is directly constrained on the amount of foreign assets the individual can hold and this acts as a tax paid by the worker directly. If the funds are in a defined benefit plan, the portfolio decisions of the plan sponsor — the company is constrained and, as a result, it is more costly to provide the contracted benefits.

Ambachtsheer (1995) also recommended a gradual increase in the ceiling to 30 percent, but he proposed that when the 30 percent level was reached the FPR be removed completely.

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APPENDIX

We first show that, with the No Arbitrage Condition in S&P futures and Covered Interest Rate Parity, the use of S&P futures or hedged cash purchases of the S&P index will provide the same returns.

Define

\[ R_f = \text{rate of return on the S&P futures contract}, \]
\[ R_s = \text{rate of return on the S&P spot market contract}, \]
\[ R_c(R_u) = \text{Canadian (US) short term interest rate}, \]
\[ E_0 = \text{US $ price of Canadian dollars at } t = 0, \]
\[ E_{\tau} = \text{US $ price of Canadian dollars at } t = \tau > 0, \text{ and} \]
\[ \mu_i = \tilde{R}_i - \hat{R}_i = \text{the unanticipated rate of return on contract } i, i = s,f, \]

where tildes describe random variables and circumflexes identify expected values conditional on information at \( t = 0 \).

The No Arbitrage Condition says that the rate of return on the S&P futures contract is equal to the total rate of return on the S&P index minus the US short-term interest rate (see note 11):

\[ (1) \quad \tilde{R}_f + R_u = \tilde{R}_s. \]

Note that it also implies that the unanticipated rates of return on the spot and futures contracts are equal so that \( \tilde{\mu}_f = \tilde{\mu}_s = \tilde{\mu} \).

The Covered Interest Parity Condition is:

\[ (2) \quad E_0 (1 + R_u) / E_{\tau} = 1 + R_c. \]

The hedged purchase of S&P risk using futures contracts (Case I of Table 1) consists of holding an S&P future with a 100 percent margin in Canadian pay short-term securities plus a hedged position for the expected appreciation of the futures contract. The rate of return on this contract is then:

\[ (3) \quad R_c + \tilde{R}_f E_0 / E_{\tau} + \tilde{\mu} E_0 / E_{\tau} = \tilde{\phi}_h. \]

The hedged cash purchase of S&P risk (Case II of Table 1) consists of buying the S&P index in the spot market and hedging the principal plus expected appreciation (and dividends) in the contract. Its rate of return is thus:

\[ (4) \quad (1 + \tilde{R}_s) E_0 / E_{\tau} + \tilde{\mu} E_0 / E_{\tau} = 1 \]
\[ = \tilde{R}_f E_0 / E_{\tau} + (R_c + 1 - E_0 / E_{\tau}) + \tilde{\mu} E_0 / E_{\tau} - (1 - E_0 / E_{\tau}) \text{ (from (1))} \]
\[ = \tilde{\phi}_h. \]
Note that, since $\tilde{R}_s = \tilde{R}_u + \tilde{\mu}$, the rate of return on the hedged purchase of S&P risk can be rewritten in the form:

\begin{equation}
\phi_{\bar{h}} = (1 + \tilde{R}_s)E_0 / \tilde{E}_t + \tilde{\mu}(E_0 / \tilde{E}_t - E_0 / \tilde{E}_t) - 1
\end{equation}

$$
= \tilde{R}_s + E_0 / \tilde{E}_t - 1 + \tilde{R}_s(E_0 / \tilde{E}_t - 1) + \tilde{\mu}(E_0 / \tilde{E}_t - E_0 / \tilde{E}_t)
$$

Since the last two terms are of second-order magnitude, the rate of return on the hedged purchase of S&P risk is well approximated by the rate of return on the S&P index plus the expected rate of appreciation of the US dollar vis-à-vis the Canadian dollar.

This establishes that equivalent positions can be undertaken in the futures and spot S&P markets. In practice, marking to market in the futures market can significantly reduce the exchange rate “basis risk” of $\tilde{\mu}E_0 / \tilde{E}_t$. For S&P futures (Case I of Table 1), all gains from the futures contract are converted to Canadian pay bills daily. Exchange rate changes causing changes in the US$ value of bills used as collateral requires the holder to purchase/sell additional futures contracts of equal value on a daily basis. For the S&P spot contract, changes in the value of the S&P securities requires a matching change in the outstanding Canadian $ futures contracts. Daily profits/losses in the Canadian $ futures are used to purchase/sell S&P securities in the spot market. As a result, the basis risk is restricted to daily shocks but is not cumulative over the life of the contract.

Next we show that an investor can replicate the rate of return on an unhedged direct cash purchase of S&P equity without increasing the foreign content of the portfolio by purchasing S&P futures with a 100 percent margin in Canadian pay short-term securities, and simultaneously selling Canadian dollar futures.

The unhedged cash purchase of S&P risk (Case II of Table 2) consists of buying the S&P index in the spot market. The rate of return is thus:

\begin{equation}
(5) \quad (1 + \tilde{R}_s)E_0 / \tilde{E}_t - 1 \equiv \phi_{\bar{u}h}
\end{equation}

This can be rewritten in the form:

$$
\phi_{\bar{u}h} = \tilde{R}_s + E_0 / \tilde{E}_t - 1 + \tilde{R}_s(E_0 / \tilde{E}_t - 1)
$$

Thus, the rate of return on the unhedged cash purchase of S&P risk is equal to the rate of return on the S&P index, plus the rate of appreciation of the US dollar vis-à-vis the Canadian dollar, plus their product. Since the latter term is of second-order magnitude, the rate of return on the hedged purchase of S&P risk is well approximated by the rate of return on the S&P index plus the actual rate of appreciation of the US dollar.

The unhedged purchase of S&P risk using futures contracts (Case I of Table 2) consists of holding S&P futures contracts fully backed by US pay short-term securities. In order not to violate the FPR, the manager holds Canadian pay short-term securities in the margin account and sells Canadian dollar futures. The rate of return on this contract is:

\begin{equation}
(6) \quad (1 + \tilde{R}_s)\tilde{E}_t / \tilde{E}_t + \tilde{R}_sE_0 / \tilde{E}_t - 1
\end{equation}

$$
= (1 + \tilde{R}_s)E_0 / \tilde{E}_t + \tilde{R}_sE_0 / \tilde{E}_t - 1 \quad \text{(from (2))}
$$

$$
= (1 + \tilde{R}_s)E_0 / \tilde{E}_t - 1 \quad \text{(from (1))}
$$

$$
= \phi_{\bar{u}h} \quad \text{(from (5))}
$$
Subtracting equation (5) from equation (4) we see that:

(7) \[ \phi_h - \phi_{uh} = (1 + \hat{R})(E_0 / \hat{E}_\tau - E_0 / \hat{E}_\tau) \]

Thus, the rate of return on the hedged purchase of S&P risk exceeds the rate of return on the unhedged purchase of S&P risk whenever \( \hat{E}_\tau > \hat{E}_\tau \), that is, whenever the US dollar price of the Canadian dollar at time \( \tau \) exceeds its expected value at time 0. Moreover, the difference between the rates of return on the hedged and unhedged purchases of S&P risk is well approximated by the difference between the expected and actual rates of appreciation of the US dollar vis-à-vis the Canadian dollar. Finally, since the expected value of \( \hat{E}_\tau \) is equal to \( \hat{E}_\tau \), it follows from (7) that the expected rates of return on the hedged and unhedged investments in S&P risk are equal.