Quantifying the Tax Benefits of Borrowing in Foreign Currencies

Lynnette D. Purda*

PRÉCIS
Les nouveaux changements dans les règles fiscales et leur interprétation ont renouvelé l’intérêt pour les emprunts faits à l’étranger. Cet article examine la parité des taux d’intérêts après impôt et illustre les avantages des emprunts en monnaies étrangères en calculant le taux de rendement interne. Il expose la théorie financière qui est à la base des emprunts en monnaies étrangères, ainsi que la méthode utilisée pour évaluer le coût de ces transactions. Se référant à une décision récente de la Cour suprême du Canada, l’article montre que les emprunts en devises faibles peuvent réduire significativement le coût après impôt de la dette. Cette réduction peut cependant être limitée par les effets des dispositions annoncées dans le budget fédéral de février 2000 concernant le traitement fiscal des emprunts en monnaies faibles. Sous le nouveau régime proposé, le coût des emprunts en monnaies étrangères n’est que légèrement plus faible que le coût des emprunts en monnaie nationale. L’article conclut en examinant les différences à l’échelle internationale dans la taxation des gains en capital qui influencent le coût de la dette.

ABSTRACT
New developments in tax rules and their interpretation have led to a renewed interest in borrowing abroad. This article examines the interest-rate parity relationship on an after-tax basis and illustrates the benefits of borrowing in foreign currencies by calculating the internal rate of return. It presents the financial theory underlying foreign-currency borrowings as well as a method for evaluating the cost of these transactions. Referring to a recent decision of the Supreme Court of Canada, the article shows that borrowing in weak currencies can significantly reduce the after-tax cost of debt. This reduction may be limited, however, by the impact of the February 2000 federal budget proposal on the tax treatment of weak-currency borrowings. Under the proposed regime, the cost of

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foreign borrowing is only moderately lower than the cost of domestic borrowing. The article concludes with a review of international differences in capital gains taxation that have an impact on the cost of debt. **Keywords:** Capital gains; corporate taxes; debt financing; foreign currency.

**INTRODUCTION**

The inflationary environment and high interest rates of the late 1970s and early 1980s prompted research into ways of reducing firms’ overall cost of borrowing. Work by de Faro and Jucker,1 Levi,2 and Shapiro3 analyzed the interaction between currency movements, interest rates, and taxes with the goal of examining foreign borrowing as a possible means of lowering the cost of debt. Some of the issues raised by these authors are being revisited today, even in the current environment of low interest rates.

There are several explanations for this re-examination: the greater use of contracts designed to hedge future interest rates and currency movements, recent court decisions, and changing tax rules in both Canada and the United States. In this article we examine all of these factors by studying the effects of taxation on the interest-rate parity condition and the cost of borrowing abroad. We demonstrate that, given favourable tax treatment of capital gains, a firm can significantly lower its cost of debt by borrowing in a weak currency. To illustrate this result, we examine Shell Canada’s New Zealand (NZ) dollar loan transaction and the Supreme Court of Canada decision that flowed from it. Although the legal and policy implications of the transaction have already received a great deal of attention,4 it is used here simply to demonstrate a method for quantifying the benefits of borrowing abroad and to highlight the financial theory underlying international debt.

An analysis of the foreign benefits of borrowing by either multinational or domestic corporations must begin with a review of the theoretical relationships between interest rates and foreign currencies. We therefore start by re-examining the interest-rate parity condition on both a pre-tax and an after-tax basis, and confirm that the parity condition cannot hold in both instances. Next, we consider the motivations underlying the renewed interest in foreign-currency borrowings. Recent clarifications of the tax rules in both Canada and the United States, we hypothesize, may have served to increase the instances of tax-motivated borrowings. To illustrate the internal rate of return as a method for quantifying the tax benefits of foreign-currency borrowings, we examine Shell Canada’s NZ dollar loan transaction under two alternative scenarios. The first assumes the current tax treatment for weak-currency borrowings, while the second assumes the regime proposed by the February 2000 federal budget. We find that significant alterations in the cost of debt are due to variations in the tax treatment of capital gains and losses. We conclude with a review of international differences in capital gains taxation.
INTEREST-RATE PARITY

Pre-Tax Case

Although both domestic and multinational firms may have incentives to borrow abroad, the prospect of undertaking these transactions may appear daunting at first. Not only is there a new yield curve to analyze, with potentially very different nominal interest rates, there are also future foreign exchange movements to contemplate. Fortunately, interest-rate parity (IRP) simplifies the analysis by providing the link between movements in interest rates and foreign currencies.

Interest-rate parity is the logical extension of the “law of one price” to capital funds. The law of one price posits that the same basket of goods should sell for the same exchange-adjusted price in different countries. If it does not, the possibility of arbitrage exists. Individuals could profit from buying goods in the country where they are cheapest and selling them in countries where they are more expensive. Extending this notion, interest-rate parity states that the exchange-adjusted price of borrowing money—the effective interest rate—should also be equal across all countries. This implies that the cost of debt between nations is equated by movements in the foreign exchange rate over time.

To illustrate the IRP concept in the absence of taxes, consider a US firm that is deciding whether to borrow domestically in the US market or internationally in the Canadian market. Assume that the Canadian dollar is expected to depreciate in the future. For simplicity’s sake, we begin by examining a single-period loan with a face value of one US dollar. We denote the Canadian interest rate as \( r_c \) and the corresponding US rate as \( r_{us} \). The exchange rate at the beginning of the period is \( S_0 \), which is expressed in terms of the number of Canadian dollars per US dollar. The rate that is expected to apply at the end of the period, when the loan must be repaid, is \( E(S_1) \). Following the work of de Faro and Jucker, we can calculate the effective cost of borrowing for both the US and the Canadian dollar loans. The effective cost of the Canadian dollar loan will include the impact of the depreciation of the Canadian dollar on the cost of debt.

If the firm borrows domestically in the US market, the cost of the loan is easily found. The firm receives one dollar at the beginning of the period and must repay \( 1 + r_{us} \) at the end. This payment results in an effective cost of debt of \( r_{us} \). For the Canadian dollar loan, the firm initially receives an amount of \( S_0 \), which is equivalent to one US dollar. At the end of the period, the required interest and principal payment, in US dollars, is equivalent to \( [S_0 / E(S_1)](1 + r_c) \). The effective cost of this loan in US dollars will be the rate \( r_e \), such that

\[
1 + r_e = \frac{S_0}{E(S_1)}(1 + r_c). \tag{1}
\]

To simplify this expression and determine the effective cost of the loan, we denote the depreciation of the Canadian dollar as \( d \) and define it as

\[
d = \frac{E(S_1)}{S_0} - 1. \tag{2}
\]
Note that $d$ will be positive when the Canadian dollar depreciates and negative when it appreciates.

Solving for $r_e$ in equation 1 and including the newly defined variable, $d$, we find an expression for the effective cost of borrowing that includes the nominal Canadian interest rate and the depreciation of the Canadian dollar. These two components—the foreign interest rate and the movement in the exchange rate—comprise the cost of foreign borrowing. The expression for this cost, $r_e$, is

$$r_e = \frac{r_c - d}{1 + d}.$$  \hspace{1cm} (3)

With an estimation of the value of $d$, we can easily compare the effective costs of the Canadian and US dollar loans. For example, if $(r_c - d)/(1 + d) < r_{US}$, the firm should borrow in the Canadian rather than the US market.

Interest-rate parity, however, states that the cost of the loans should be the same regardless of where the borrowing takes place. This implies that $1 + r_{US} = [S_0/E(S_1)](1 + r_c)$ or, equivalently,

$$\frac{1 + r_c}{1 + r_{US}} = \frac{E(S_1)}{S_0}. \hspace{1cm} (4a)$$

Formally, interest-rate parity relates the difference between the current spot exchange rate, $S_0$, and the forward rate, $F$ (rather than the expected spot rate $E(S_1)$), to the ratio of nominal interest rates. The form of this relationship is identical to the form of the relationship derived above if we replace $E(S_1)$ with $F$. This replacement implies that the forward rate is equivalent to the expected future spot rate. Dufey and Giddy,\textsuperscript{5} who review the evidence on the equivalence of these two terms, suggest that a forward risk premium may exist such that the forward rate either under- or overestimates the expected future spot rate. There is no evidence, however, that the risk premium is consistently either positive or negative, or that it is large enough to be meaningful. Therefore, we will use the terms interchangeably and assume that $F = E(S_1)$.

Replacing the expected future spot rate in equation 4a with the forward rate provides the formal definition of interest-rate parity:

$$\frac{1 + r_c}{1 + r_{US}} = \frac{F}{S_0}. \hspace{1cm} (4b)$$

We can verify that this condition is equivalent to the results derived in equation 3 by solving for the US interest rate. Noting that $F/S_0$ is equivalent to $1 + d$ and solving for $r_{US}$, we find that $r_{US} = (r_c - d)/(1 + d)$. Therefore, the effective cost of Canadian debt, $(r_c - d)/(1 + d)$, is in fact equivalent to $r_{US}$, the cost of the US dollar loan. Under the IRP condition, the firm is indifferent to the source of its debt.

Whether interest-rate parity holds in reality is an empirical question that depends on the market being studied. In the eurocurrency market, which has few
government regulations and taxes, the evidence tends to support interest-rate parity. Early research by Frenkel and Levich concluded that there is little possibility of arbitrage arising from deviations from the IRP relation. This result is intuitively appealing since covered interest arbitrage is often used to explain why the IRP condition should hold.

Covered interest arbitrage is the process of moving funds between securities denominated in various currencies in order to profit from different effective rates of interest. The transactions are “covered” in the sense that hedging in the forward markets is taken into account. If there are arbitrage profits to be made, the demand for various securities (and, correspondingly, their prices) will increase until the securities no longer provide abnormal returns. Instead, the securities will provide a return in line with the effective rates provided by equivalent securities denominated in different currencies. By seeking to find covered interest arbitrage opportunities, then, we ensure that the IRP condition holds.

When rates are compared across domestic debt markets rather than in the eurocurrency market, interest-rate parity does not hold as precisely. The IRP condition is weakened by government regulations and taxes that may prevent parties from easily converting their funds from one currency to another or from entering into hedges in the forward market. Dufey and Giddy analyze the impact of government regulations on interest-rate parity by looking at domestic bank reserve requirements. They suggest that these regulations result in differences in the effective cost of borrowing in local markets and the eurocurrency market. If a domestic bank is required to hold a greater proportion of its funds in reserve accounts, thereby limiting the revenue it can produce with the funds, it will adjust its borrowing and lending rates to take this extra cost into account. This adjustment may prevent interest-rate parity from holding exactly.

**After-Tax Case**

Since financial executives have long known the tax benefits of borrowing, the cost of debt is represented better by an after-tax cost than by a pre-tax amount. If the IRP condition equates the pre-tax cost of borrowing around the globe regardless of location and currency, what is the effect of taxes on interest-rate parity? Unfortunately, there is no uniform answer: the tax treatment of interest and foreign exchange gains and losses varies significantly from country to country. Nevertheless, Levi and Shapiro attempted to arrive at some general conclusions.

Levi observed that if firms from one country find that securities of a particular currency dominate all other alternatives on a pre-tax basis, firms from all countries will find that this option dominates before taxes. If that is the case, why do some firms borrow from several locations simultaneously, and why do firms from certain countries flock toward similar sources of funds? The answer is found in differences in tax regulations. Given the two components of foreign borrowing costs—foreign interest rates and exchange movements—Levi demonstrated that international differences in the taxation of foreign exchange gains and losses can
significantly alter the IRP relationship. For example, Levi showed that, given the Canadian and US tax environments in the late 1970s, Canadian firms may have preferred to route funds to the United States for investment, even though Canadian interest rates were higher than US rates. This occurred because the US dollar was at a premium and the resulting foreign exchange gains from investing in US securities were taxed more leniently than was investment income earned in Canada.

Similarly, Shapiro explicitly demonstrated that the IRP condition cannot hold simultaneously on both a pre-tax and an after-tax basis if the security under consideration lasts longer than a single period. This can be seen from the effective borrowing costs derived in the previous section. Starting with the single-period case and proceeding to a multiperiod loan, we can extend our comparison of US and Canadian dollar loan transactions to confirm Shapiro’s results.

To confirm that interest-rate parity holds on an after-tax basis in the single-period case, we begin by deriving the after-tax payments for the US and Canadian dollar loans. At the end of the period, a one-dollar US loan requires after-tax payments of principal and interest of \( 1 + r_{us}(1 - T) \), where \( T \) is the corporate tax rate applicable in the United States. Similarly, we can derive the after-tax payments associated with the Canadian loan by assuming that the same corporate tax rate, \( T \), applies and that the capital gain arising on the depreciation of the Canadian dollar is also taxed at this rate. The repayment required at the end of the period is then

\[
\frac{S_0}{F} + \frac{S_0}{F} \left[ r_c(1 - T) \right] + T \left( 1 - \frac{S_0}{F} \right) = \frac{1}{1 + d} \left[ 1 + r_c(1 - T) \right] + \frac{T d}{1 + d},
\]  

(5)

The last term in the equation, \( T d / (1 + d) \), represents the additional tax payments resulting from the foreign exchange gain. In many countries, the rate at which this gain is taxed is less than the rate applied to ordinary earnings. For interest-rate parity to hold on an after-tax basis, however, we must assume that the gain is taxed as ordinary income and that both transactions are taxed at the same rate, \( T \). When we make these assumptions, we find that the effective cost of the Canadian loan, which is represented by the payments in equation 5, is equivalent to the cost of the US loan and does not depend on the tax rate, \( T \). To see this, equate the payments required for each loan and solve for the nominal US rate, again following the insights of Shapiro:

\[
1 + r_{us}(1 - T) = \frac{1}{1 + d} \left[ 1 + r_c(1 - T) \right] + \frac{T d}{1 + d},
\]

(6)

\[
\frac{r_{us}(1 - T)}{1 + d} = \frac{(r_c - d)(1 - T)}{1 + d}.
\]

When we simplify equation 6 by dividing through by \( (1 - T) \), we find that the US rate, \( r_{us} \), is again equivalent to the effective rate for the Canadian dollar loan—that is, \( (r_c - d)/(1 + d) \). The tax rate, \( T \), is eliminated from the expression, indicating that the IRP condition is unchanged even in the presence of taxes.
Therefore, in the case of a single-period obligation with equal tax rates on both domestic and foreign loans, a firm is indifferent to the location in which it undertakes borrowing, even on an after-tax basis.

The effective rates found above are equivalent to the loans’ internal rates of return (IRR). The IRR of a loan is the discount rate at which the net present value of the transaction is equal to zero. When many cash flows are associated with the loan, as in the case of a transaction spanning many periods, finding the IRR is the most straightforward way of arriving at an all-in cost of borrowing. For a multi-period one-dollar US loan, the IRR is the value of \( k \) found in equation 7. This equation sums the loan payments for each period \( i \) in an \( N \)-period loan. The value found for \( k \) represents the after-tax cost of debt associated with the transaction:

\[
0 = -1 + \sum_{i=1}^{N} \frac{r_u (1 - T)}{(1 + k)^i} + \frac{1}{(1 + k)^N}.
\] (7)

To solve for the after-tax cost of debt (in US dollars) for a multiperiod Canadian dollar loan, we make the simplifying assumption that the Canadian dollar depreciates by the same amount in each period, \( i \). In other words, \( E(S_1)/S_0 = 1 + d \), and \( E(S_2)/E(S_1) = 1 + d \). This implies that \( E(S_2)/S_0 = (1 + d)^2 \) such that the depreciation of the dollar over two periods is simply the single-period depreciation squared. Likewise, for any period \( i \), \( E(S_i)/S_0 = (1 + d)^i \). With this assumption, finding the effective after-tax cost of the Canadian dollar loan is equivalent to solving for \( r \) in the following equation:

\[
0 = -1 + \sum_{i=1}^{N} \frac{r_c (1 - T)}{(1 + d)^i} \left( \frac{1}{(1 + r)^i} + \frac{T}{(1 + r)^N} \right).
\] (8)

The summation in this equation is the present value of the total after-tax interest payments over the course of the loan, measured in US dollars. The next term is the present value of the principal repayment, also in US dollars. The numerator of this term will be less than one because we are assuming that \( d \) is positive, or that the loan is repaid with less than the original amount received. The final term in the equation is the capital gains tax that arises when the loan is repaid. It is primarily this term that prevents the internal rates of return on the US and Canadian dollar loans from being the same.

If \( k \) and \( r \) were equivalent, the effective costs of the transactions would be equal and the firm would be indifferent whether it borrows in Canada or the United States. Shapiro demonstrated that for the multiperiod, after-tax case, an equivalent cost of borrowing cannot be found at which \( k = r \). This occurs because the capital gains tax is deferred until period \( N \), when the principal is repaid. Since the foreign exchange gain is not recognized until this time, the present value of the tax payment declines and serves to reduce the cost of the Canadian dollar loan below that of the US dollar loan. In general, the cost of borrowing domestically in

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the United States will be higher when it is anticipated that the foreign currency will depreciate, and lower when it is anticipated that the foreign currency will appreciate.

Since the deferral of taxes on capital gains is the primary mechanism by which the effective costs of the two loans are altered, it should be noted how these costs change with changes in the time period of the loan. For a foreign loan in a weak currency that results in a capital gain, the cost of the loan will continue to fall with increases in $N$, the time to maturity, and the difference between the effective costs of the two loans will widen. If, however, a loan is undertaken in a strong currency that is expected to generate a capital loss, the cost of the transaction will increase with increases in $N$. Delaying the recognition of a capital loss and the ability of this loss to reduce current taxes increases the after-tax cost of the loan.

The impact of tax deferral on the cost of borrowing can also be seen by a counterexample. If movements in the foreign exchange rate were taxed at rate $T$ on an accrual basis as opposed to on realization, the IRP condition would hold on both a pre-tax and an after-tax basis. The effective costs of the two loans would remain the same even after taxes were taken into account. In other words, the internal rates of return would be identical and $k$ would be equal to $r$.

At this point, some simplifications in the foregoing analysis should be noted. For example, we have assumed that the applicable corporate tax rate, $T$, is the same for loans in either jurisdiction. We have also assumed that foreign exchange gains are treated as capital gains and taxed at the full corporate rate. Altering these assumptions would increase the discrepancies between the costs of borrowing in the two countries.

As will be explicitly illustrated in our analysis of Shell Canada’s transaction, the results above encourage borrowing in a weak currency. The falling value of the weak currency allows the firm to repay the loan with fewer funds than it initially received. This foreign exchange gain, combined with the lenient taxation and deferral of capital gains, allows the borrower to reduce its after-tax cost of debt.

**FOREIGN-CURRENCY BORROWING**

**Motivation for Renewed Interest**

Interest in foreign-currency borrowings has been renewed of late in large part because their tax consequences have been clarified. In Canada, for example, the recent ruling of the Supreme Court regarding Shell’s NZ dollar transaction clarified the interpretation of foreign exchange gains and the definition of interest. The court confirmed a company’s ability to generate tax advantages by borrowing abroad, claiming that “it is not the courts’ role to prevent taxpayers from relying on the sophisticated structure of their transactions.”

The Tax Court expressed a similar sentiment in its decision regarding Canadian Pacific Ltd.’s Australian dollar debentures. The issue in that case was whether weak-currency borrowings fell under the category of “avoidance transactions” as defined by the general anti-avoidance rule (GAAR). To be classified as an
avoidance transaction, a transaction must be entered into with the primary motivation of obtaining a tax benefit. The court ruled that Canadian Pacific’s weak-currency borrowing was undertaken primarily to raise capital rather than to reduce taxes, though admittedly the capital was raised in the most tax-advantaged way. Bowman J, in *Jabs Construction Limited v. The Queen*, clearly stated the Tax Court’s opinion on the issue whether strategic tax planning, such as weak-currency borrowing, falls within the reach of GAAR:

Section 245 (GAAR) is an extreme sanction. It should not be used routinely every time the Minister gets upset just because a taxpayer structures a transaction in a tax effective way, or does not structure it in a manner that maximizes the tax.  

Canadians are not alone in recognizing the potential benefits of foreign-currency borrowing, nor is Canada the only country to detail the rules and interpretations relating to these transactions. Bourne Wahl noted that the 1986 US Tax Reform Act clarified the treatment of exchange gains and losses on foreign assets, particularly with respect to the timing of the recognition of these currency movements. The United States taxes foreign exchange gains at the same rate as it does interest income. Therefore, if an anticipated gain is taxed on an accrual basis, taxes will not affect the borrowing decision. If instead a gain is taxed on realization, the effective after-tax cost of debt falls below the statutory rate as a result of the deferral of tax payments.

It is interesting to note that hedged transactions arranged by US corporations are taxed on an accrual basis and therefore do not receive the benefit of deferral. This difference in tax treatment greatly reduces the incentive to borrow in depreciating currencies when hedges are employed. For transactions taxed on realization, however, the motivation remains to borrow in weak currencies and invest in strong ones.

Another reason for renewed interest in foreign-currency borrowings is the increased use of hedging instruments. As we have seen, the overall cost of foreign debt is dependent on differences in foreign exchange and interest rates as indicated by interest-rate parity. The use of forward contracts can guarantee the rate of a currency’s depreciation or appreciation to ensure that the IRP condition holds on a pre-tax basis. The ease with which companies can now enter into these hedging arrangements enhances their ability to create foreign borrowing opportunities.

Familiarity with hedging instruments, changing rules, and recent court decisions have made firms aware of the benefits of foreign-currency borrowings. Although these benefits are derived primarily from the tax treatment of foreign exchange gains and the failure of interest-rate parity to hold on an after-tax basis, there are differences among the precise mechanisms that allow each debt transaction to produce a lower cost of debt. To provide some insight into these mechanisms and the court’s interpretation of their components, we will analyze the Shell Canada NZ dollar loan transaction and, in the process, demonstrate how to quantify the benefits of foreign-currency borrowings.
Shell Canada Transaction
In 1988, Shell Canada required approximately US $100 million for general business purposes. To raise these funds, the firm borrowed the equivalent amount in New Zealand dollars, NZ $150 million, for a five-year period at the NZ market rate of interest of 15.4 percent. Shell’s semi-annual interest payments were thus NZ $11.55 million. The corresponding US rate at the time was 9.1 percent, which indicated, in accordance with interest-rate parity, that the New Zealand dollar was expected to depreciate from its value of NZ $1.5 per US $1. When it entered into the transaction, Shell Canada also entered into a series of forward contracts to guarantee the future value of the exchange rate for all interest payments and the eventual principal repayment. The exchange rates agreed to in the contracts were set in accordance with interest-rate parity, thereby allowing Shell to effectively reduce the pre-tax cost of borrowing in New Zealand to the equivalent US rate.

Table 1 illustrates the equivalence of an NZ dollar loan, converted to US dollars (as in the Shell transaction), and a pure US dollar loan before taking taxes into account. It shows the semi-annual pre-tax payments over the course of the five-year loan made under both transactions. Finding the internal rate of return of the loans, as defined in the previous section, provides an all-in cost of borrowing for each transaction. The two transactions do in fact have the same overall cost on a pre-tax basis. This cost is calculated as 9.1 percent, the US market rate of interest.

The NZ dollar loan required higher interest payments in accordance with the higher NZ rate of 15.4 percent (or 7.7 percent semi-annually) compared with the US rate of 9.1 percent (or 4.55 percent semi-annually). The extent to which the NZ interest payments exceeded the pure US payments decreased each period as a result of the weakening of the New Zealand dollar. Fewer US dollars were required to fulfill the NZ dollar interest payments as time progressed.

Examining the principal repayment highlights the depreciation of the New Zealand currency. It was possible to repay the original US $100 million with a much smaller amount. Although the exact amount depended on the precise forward rates agreed to, we estimate a repayment amount of US $74.32 million based on currency depreciation at a rate consistent with interest-rate parity. Combining this figure with the last interest payment results in an expenditure of US $80.03 million in the final period. Comparing these figures with the original loan amount of US $100 million demonstrates that it is the savings in repayment of the principal that equate the two costs of borrowing despite the higher NZ interest rates.

By examining the cash flows associated with the pre-tax case, we can see how weak-currency borrowing provides tax benefits. The first advantage arises from the higher interest payments and the resulting increase in annual tax shields. The present value of this benefit over the entire term of the loan can be calculated as

\[
P V \text{ interest tax shield} = \sum_{i=1}^{10} \frac{I_{nt_i} \times T}{(1 + r_{us})^j},
\]
where

\[ \text{Int}_t = \text{Interest payments in US dollars}, \]
\[ T = \text{Corporate tax rate}, \]
\[ r_{US} = \text{US semi-annual interest rate}. \]

If we assume that the corporate tax rate was 40 percent, we can compare the present value of the tax shields arising from the two transactions. We use the US interest rate to discount the tax shields since this is the cost of borrowing for each of the loans. Any benefit associated with these transactions is therefore discounted at the same rate.

The present value of the tax shields generated by the pure US dollar loan was $14.37 million. Borrowing in New Zealand while entering into US dollar forward contracts provided tax shields of $20.95 million. Taxes payable over the course of the five-year loan could be reduced by over $6 million while financing was secured at the same overall cost of borrowing.

The second tax advantage apparent from the transaction’s cash flows arose from the significant foreign exchange gain realized on repayment of the principal. At the conclusion of the transaction, Shell Canada reported a US $21 million gain.12 Because the debentures were classified as a capital asset, this gain was treated as a capital gain. As a result, taxes were not paid until realization and the applicable tax rate was lower than the standard corporate rate. At the time of the Shell transaction, capital gains were taxed at a rate of 75 percent. Subsequent changes to the Canadian tax law reduced this rate to 66\(\frac{2}{3}\) percent and eventually to 50 percent.

By how much do these two tax advantages—increased tax shields and capital gains treatment—reduce the overall cost of borrowing for the firm? For the sake of comparison, first note the after-tax cost of straight borrowing (that is, without

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a currency conversion) in the two countries at the time. Assuming a corporate tax rate of 40 percent, the after-tax cost of a pure US dollar debt transaction would have been 5.46 percent. We find this rate by multiplying the pre-tax rate by 1 minus the tax rate \((9.1 \times (1 - 0.4))\). The equivalent after-tax cost at the NZ market rate was 9.24 percent \((15.4 \times (1 - 0.4))\).

Establishing the after-tax cost of borrowing in New Zealand and simultaneously entering into US dollar forward rate agreements requires knowledge not only of the overall corporate tax rate but also of the treatment of the foreign exchange gain. If we treat 75 percent of capital gains as being taxable and solve for the IRR in this case, we can confirm Shapiro’s insight that interest-rate parity does not hold on an after-tax basis. If interest-rate parity were to continue holding, we would find that the overall cost of the transaction is equivalent to borrowing directly in the United States at an after-tax rate of 5.46 percent. Instead, we find that the cost of borrowing falls to 4.69 percent.

Figure 1 compares a pure US dollar transaction and the NZ dollar arrangement, assuming that capital gains are taxed at 75 percent on maturity. Despite the fact that Shell’s interest payments were always higher for the NZ dollar transaction (even after converting the payments to US dollars), the significant gain at the time of repayment reduced the cost of borrowing to less than the equivalent US after-tax rate. Even if the gain had been fully taxed at the corporate rate of 40 percent, some benefit would have remained: the internal rate of return would have been 5.19 percent, still below the comparable US after-tax rate of 5.46 percent.

Table 2 shows the overall cost of borrowing under the NZ dollar debt transaction assuming different tax treatments of the foreign exchange gain. If the gain had been tax-free, for example, the after-tax cost of debt would have been only 3.12 percent. All of these scenarios hinge, of course, on the assumption that the firm is continually paying income taxes that can be reduced through interest deductions.

Table 2 also shows the opposite situation: borrowing in a strong currency. Not surprisingly, if borrowing in a weak currency was advantageous for Shell, borrowing in a strong currency would have been detrimental. Although the interest rate would have been lower if the firm had borrowed in an appreciating currency, the exchange rate at which it made the payments was increasing. In light of this movement, Shell would have realized a loss on repayment of the principal, causing it to repay the loan using more than the original amount that it received. How harmful this loss would have been depends on its tax treatment. If Shell had realized capital gains in the same year, the Canadian tax law would have permitted the use of losses to reduce the tax payments related to the gains.

At the time of the Shell transaction, when capital gains were taxed at 75 percent, the ability to deduct a capital loss that arose from borrowing in the United States while entering into NZ dollar forwards would have reduced the after-tax cost of borrowing from 11.65 percent to 10.20 percent. Although the treatment of capital losses may in some instances lessen the disadvantages of borrowing in a currency that is expected to appreciate, the reduction in the case
It should be noted that the analysis thus far has dealt with firms that are in a taxable position. It is worthwhile to consider the consequences for a firm that undertakes foreign borrowing when it does not currently pay tax.

A strong-currency borrowing for a firm that is not paying tax provides the firm with a lower nominal interest rate. The resulting lower interest payments may be extremely timely if the firm is not taxable as a result of recent losses. Unfortunately, the foreign exchange rates at which interest payments are made become more harmful to the firm as the currency appreciates. Foreign exchange losses will result.

If the firm expects to become taxable in the future, foreign exchange losses on interest payments and principal may eventually provide some benefit. The losses will accumulate and carry over to a time when the firm may be taxable. Eventually, the carryforwards can be used to reduce the firm’s capital gains tax. Meanwhile, during the years when the firm is not taxable, it benefits from a lower nominal interest rate as a direct consequence of interest-rate parity.
What are the implications of a weak-currency borrowing for a firm that is not currently paying tax? First, the firm would be required to pay interest at a higher rate at a time when it may already be suffering financially. As a result, the firm would accumulate additional non-capital losses at a time when it is not well equipped to handle them. A second implication, however, is that these losses produce a tax benefit. Thus, although higher interest payments initially appear detrimental, non-capital losses, like the foreign exchange losses incurred under a strong-currency borrowing, can be carried forward to reduce future taxes. In fact, non-capital losses provide greater tax benefits than foreign exchange losses, because they are deductible at the full tax rate rather than at the reduced capital gains rate. Therefore, the advantages of borrowing in a weak currency may persist even for a firm that is not currently paying tax if it expects to become taxable in the future.

Supreme Court Ruling
The Shell Canada transaction was challenged by the minister of national revenue on two counts. First, the minister did not think that interest payments calculated in accordance with the NZ market rate of 15.4 percent should have been deducted for tax purposes. Instead, he claimed that since the transaction was in essence equivalent to a US dollar loan, the US rate of 9.1 percent provided the appropriate level of tax deductions. As we have already seen, deductions at 15.4 percent provide additional tax shields. Second, the minister did not agree that the foreign exchange gain on the repayment of the principal amount was a capital gain. The minister had reassessed the claimed gain as being on income account. As table 2 illustrates,
taxing the gain at the rate associated with regular income would have raised the cost of borrowing to 5.19 percent. The increase in the cost would have been even greater if the gain had been taxed on an accrual basis rather than on realization.

The Supreme Court did not agree with the minister’s objections. The court condoned the attempts of firms to lower their overall cost of capital by structuring transactions in depreciating currencies. With regard to the deduction of interest payments, the court held that since the terms of the transaction required Shell to pay NZ$11.55 million semi-annually, in accordance with the NZ market rate, the payments qualified as interest and were therefore tax-deductible. The fact that the payments were tied to US forward contracts in no way undermined their classification as interest. With regard to the capital gain treatment, the court determined that the nature of a foreign exchange gain depends on the classification of the asset from which the gain arises. Since a five-year debenture is classified as a capital asset, there is no reason that a gain on this asset should not be treated as a capital gain.

The fundamental sentiment expressed by the Supreme Court in this case was that the court “has never held that the economic realities of a situation can be used to re-characterize a taxpayer’s bona fide legal relationships.” In other words, although the transaction was in many ways equivalent to a US dollar loan, the legal debt contracts with New Zealand lenders defined the tax treatment of interest and principal.

The February 2000 Federal Budget Proposal

Faced with the Shell Canada ruling clarifying a taxpayer’s legal right to structure a transaction in a tax-effective manner, the federal government sought to define the tax implications of weak-currency borrowings. A proposal in the February 2000 budget addressed the tax treatment of these transactions. The proposal suggests that foreign borrowings of the type undertaken by Shell Canada and Canadian Pacific should be treated as equivalent to debt denominated in the currency in which the firm earns its income. Three rules would be implemented to achieve this aim:

1) interest expenses that reduce tax payments would be limited to the amount payable on a loan undertaken in the firm’s operating currency;
2) interest payments in excess of this limit would be deducted from the foreign exchange loss or gain realized on repayment of the principal; and
3) foreign exchange gains and losses that are realized on repayment of the principal or that arise from associated hedge transactions would be taxed as income.

We can illustrate the consequences of the budget proposal by once again referring to the Shell Canada transaction and the internal rate of return methodology. The after-tax cash flows that serve as the inputs to the IRR calculation would
change in two ways under the proposal. First, the allowable interest deductions
would be reduced; second, the foreign exchange gain realized on repayment of
the principal would be taxed as income rather than as a capital gain.

Table 3 illustrates the first of these changes by comparing the interest deduc-
tions allowed currently and those allowed under the proposal. We assume that
Shell Canada has legitimate reasons for using US dollars to undertake some of its
business operations so that the prevailing US market interest rate determines the
allowable interest deductions. This avoids the unnecessary complication of con-
verting from New Zealand dollars to US dollars and again to Canadian dollars.

In its NZ dollar loan transaction, Shell Canada paid over US$65 million in
interest, but under the budget proposal only US$45 million would be deductible
for tax purposes. The proposed regime would equate the allowable deductions to
the amount incurred under an equivalent US loan, resulting in a decrease of over
US$6 million in tax shields.

The non-deductible interest payments would have a second impact under the
budget proposal. Disallowed interest payments incurred over the course of the
loan would be deducted from the foreign exchange gain realized on repayment of
the principal. Recall that the estimated amount of the repayment in US dollars
was $74.32 million, well below the initial $100 million loan. The sum of the non-
deductible interest payments would be deducted from the foreign exchange gain
and the difference would be taxed as income.

Table 4 presents the after-tax cash flows of the transaction that result under the
budget proposal. Note that the allowed interest deduction of US$4.55 million
is limited to generating tax savings of US$1.82 million per period ($4.55 mil-
ion multiplied by the assumed corporate tax rate of 40 percent). In other words,
the difference between the pre-tax and after-tax interest payments is always
$1.82 million.

On the basis of these new cash flows, the after-tax internal rate of return under
the proposed rules is 5.43 percent. This represents the effective cost of the trans-
action. Recall that if Shell Canada had borrowed directly in the United States, its
cost of debt would have been 9.1 percent on a pre-tax basis and 5.46 percent on
an after-tax basis (9.1 × (1 − 0.4)). By borrowing in New Zealand dollars and
converting to US dollars, the cost was reduced to 4.69 percent under the tax rules
of the time. Under the proposed rules, the after-tax cost of Shell’s NZ dollar
transaction would have been 5.43 percent. Although this cost is slightly less than
the cost of directly borrowing in the United States, the difference is only 3 basis
points. In essence, the proposed rules would meet the government’s aim of taxing
weak-currency borrowings according to their economic interpretation rather than
their legal classification.

**EMPIRICAL EVIDENCE**

Shell Canada’s debt transaction and the similar arrangement undertaken by
Canadian Pacific provide anecdotal evidence that firms are taking advantage of
discrepancies in interest rates and taxation across national boundaries. Some recent empirical evidence suggests that these practices may not be isolated incidents. Instead, they may represent typical strategies of multinational and domestic firms. Therefore, although the motivation for weak-currency borrowings may have diminished as a result of the February 2000 federal budget proposal, there remain other ways in which firms can take advantage of international differences in interest and foreign exchange rates and tax regimes.

Jog and Tang\textsuperscript{16} analyzed the debt levels of Canadian-based domestic and foreign-controlled firms. They found that the increase in the Canadian tax rate
relative to the US rate, which occurred in the mid-1980s, resulted in a significant increase in the amount of Canadian debt held by foreign-controlled firms. Since the majority of these firms were US-owned, it appears that they were taking advantage of the greater tax shields generated by the higher Canadian tax rate. Previous work by Hogg and Mintz\textsuperscript{17} found similar evidence in a small sample of Canadian-based US subsidiaries.

Although these two studies focused exclusively on the interaction of debt and differential tax rules for Canadian and US firms, the opportunities to reduce the overall cost of capital are in no way limited by geographic location. This is particularly true for multinational firms which, through their foreign-based affiliates, can easily shift debt from one country to another. For these firms it is important to become familiar with the characteristics of various tax jurisdictions.

\textbf{INTERNATIONAL TREATMENT OF CAPITAL GAINS}

The benefit of holding debt in weak currencies increases as capital gains treatment becomes more preferential. Therefore, it is important to know which countries provide this treatment. Fay and Hardin\textsuperscript{18} compare capital gains taxation across 120 countries. They find that 55 percent of the countries surveyed treat capital gains as ordinary income while 20 percent do not tax these gains at all. A closer look at the second group gives an indication of where capital gains are treated most favourably. Thirteen percent of countries in both Europe and the Asia-Pacific region, 27 percent of countries in the Americas, and 28 percent of countries in Africa and the Middle and Near East do not tax capital gains. Fay and Hardin observe:

\begin{quote}
\begin{quote}
in general, the more developed countries tend to tax capital gains at the normal corporate rates while most of the less developed nations either have no capital gains tax or special capital gains tax rates (usually lower than the ordinary corporate rates).\textsuperscript{19}
\end{quote}
\end{quote}

Countries without capital gains taxation include more than just the obvious tax havens. As one would expect, Bahamas, Channel Islands, Cayman Islands, and the Isle of Man, all well-known tax havens, exempt capital gains from taxation. However, Hong Kong, New Zealand, Singapore, and South Africa also allow capital gains to be recognized tax-free. Other nations such as Ireland, Mexico, and Russia take an intermediate approach by taxing capital gains but calculating the gains as the difference between the final price and an inflation-adjusted initial cost. Until very recently, Australia also used this method. As of September 30, 1999, however, indexed cost bases are frozen for assets purchased on or before September 21, 1999; indexation is not permitted for assets purchased after this date. The Australian government justified this change by claiming a desire to bring Australia’s capital gains tax in line with that of other countries.
CONCLUSION
Recent clarifications of the tax treatment surrounding foreign debt transactions have led to a renewed interest in borrowing abroad. This article has reviewed the financial theory underlying these transactions and used the internal rate of return to quantify their benefits. In general, we have seen that the failure of interest-rate parity to hold on both a pre-tax and an after-tax basis allows firms to structure tax-motivated international transactions with lower effective costs than those of domestic borrowings. The increased use of hedging instruments assists firms in structuring these transactions.

The Shell Canada NZ dollar loan demonstrates the magnitude of the cost-reducing benefit that can be achieved by borrowing in foreign currencies. According to the Supreme Court decision in the case, structuring a debt transaction to achieve these cost reductions is within a taxpayer’s legal rights. This view was confirmed by the Tax Court’s decision on Canadian Pacific’s debt financing. The February 2000 federal budget proposal greatly reduces, but does not entirely eliminate, the benefit of borrowing in weak currencies. The changing rules, however, will likely serve as an incentive for firms to continue developing innovative transactions in search of ways of lowering their overall cost of capital. It is a search that may continue to take them abroad.

Notes
4 See, for example, Tim Edgar, “Lessons from the Saga of Weak-Currency Borrowings” (2000), vol. 48, no. 1 Canadian Tax Journal 1-34.
7 Supra note 2.
8 Supra note 3.
9 Shell Canada Limited v. The Queen et al., 99 DTC 5669, at paragraph 45 (SCC).
10 Canadian Pacific Limited v. The Queen, 2000 DTC 2428, at paragraph 17 (TCC), quoting Jabs Construction Limited v. The Queen, 99 DTC 729, at paragraph 48 (TCC).
The foreign exchange gain estimated here is slightly greater than the amount reported because the exact forward exchange rates used in the transaction were unavailable. The forward rates used here are those consistent with interest-rate parity assuming that the New Zealand dollar depreciates at a constant rate each period.

I thank the reviewers for pointing out the benefits of weak-currency borrowings for firms that are currently not paying taxes.

Shell, supra note 7, at paragraph 39.

This proposal was introduced in the House of Commons as Bill C-22, An Act To Amend the Income Tax Act, the Income Tax Application Rules, Certain Acts Related to the Income Tax Act, the Canada Pension Plan, the Customs Act, the Excise Tax Act, the Modernization of Benefits and Obligations Act and Another Act Related to the Excise Tax Act, first reading March 21, 2001.


Ibid., at 347.