



THE HIDDEN COST OF OPERATIONS: FOREIGN EXCHANGE RISK MANAGEMENT IN THE CANADIAN DEPARTMENT OF NATIONAL DEFENCE

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The Canadian Department of National Defence (DND) is a public institution charged with defending Canada, defending North America and contributing to international security. It is because of these latter tasks that DND is required to undertake activities outside of Canada, and, in so doing, incur financial risk in the form of exposure to foreign currency exchange rate fluctuations. Furthermore, given Canada's relatively small defence industrial base, the Department also sustains foreign exchange risk in the acquisition of the equipment and supplies needed to conduct military and security operations. As a consequence, the failure to mitigate this risk results in DND incurring hidden costs in the execution of the Defence Services Program (DSP)¹ and this compromises the stewardship of scarce defence resources.

In recent years, DND has recognized that risk management is an essential component of effective decision-making and good management practices.² It was even proposed by the Chief of Review Services in 2000 that, in the field of risk management, DND needs to examine those risks that it is not 'world class' at managing, and then assess the economics of transferring such risks to those better able to manage them. In particular, according to Bodnar et al, the transference of financial risk is common practice in multinational corporations (MNCs) through the

use of various financial and non-financial hedging techniques. Notwithstanding that current Government of Canada financial regulations permit the use of financial derivatives,³ and despite the widespread adoption of hedging by the private sector, there has been limited application of proven financial hedging techniques by the Government of Canada.

Similarly, the use of hedging techniques has also been adopted by institutions within other governments. Among the first to adopt this financial risk perspective has been the United Kingdom's Ministry of Defence,⁴ and the New Zealand Defence Forces,⁵ who implemented a foreign currency exposure risk management policy using foreign currency hedging practices. Even though these governments have implemented private sector hedging practices, within the Canadian public sector and DND there is a common misconception that hedging is tantamount to speculation. As a result, risk management has emphasized event and technical risk (i.e., environmental, health and

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The first 18 of 60 Mercedes-Benz G-Wagons at Kabul's airport in March 2004. Part of the Light Utility Vehicle Wheeled acquisition, the total project cost is \$C 306 million, and it represents greater than 90 percent exposure to the Euro.

safety issues) surrounding the conduct of military operations or the acquisition of equipment, and it has not considered the risk associated with foreign currency fluctuations. Consequently, the interpretation of financial risk within the Department has been relatively limited, concentrating on accounting and budgetary transactional issues. Therefore, the objectives of this article are to introduce the concept of foreign exchange risk management, to present a new framework for the management of foreign exchange risk, and to propose an implementation strategy for the Department of National Defence .

In Section I we will develop further the motivation for hedging within DND. Section II will describe the existing DND budget process in order to explore the potential to apply proven financial hedging techniques to the management of foreign exchange risk. In Section III, we will outline a hypothetical financial hedging strategy for reducing the risk associated with foreign currency fluctuations, and Section IV will consist of our findings and recommendations.

I – The Motivation for Hedging

The hedging of foreign exchange risk refers to techniques undertaken by a firm in order to mitigate the impact of adverse exchange rate fluctuations on the value of the firm. More specifically, private sector firms use financial hedging as protection against unexpected exchange rate movements in order to minimize the impact of foreign exchange rate fluctuations on future cash flows. This, in turn, reduces cash flow uncertainties, improves financial decision-making, and facilitates cash conservation and planning for capital needs.⁶ Similar to the private sector, many of these benefits could equally accrue to DND. In this regard, the paramount rationale for financial hedging is that it can reduce the adverse impact of foreign exchange rate volatility on DND's foreign

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currency expenditures. By increasing the certainty of cash flows, hedging supports budgetary planning and capital allocation decisions through the continuous management of forecasted transactions. Hedging foreign currency exposure would be beneficial to DND, considering Canada's relatively small defence industrial base that requires DND to source much of its materiel and service needs from outside Canada. As a consequence, the Department is exposed to a sizeable foreign exchange risk in the acquisition of the equipment and the supplies and services needed to conduct military and security operations. Since 1994, the magnitude of DND's foreign exchange exposure has increased – due to sustained periods of extensive overseas operations, and increased levels of foreign procurement. Specifically, for the period April 1994 to October 2002, DND incurred foreign currency exposure of \$6.5B Canadian dollars on \$101.2B in expenditures, representing an average of 6.4 percent annually in support of the Defence Services Program (DSP).

The existence of economies of scale is another reason to consider foreign currency hedging, considering DND's foreign currency exposure is of sufficient magnitude to take advantage of the benefits of financial hedging instruments. For example, DND's foreign currency exposure over the period 1994 to 2001⁷ went from \$519M to \$1.19B, which would be sufficient to generate the economies of scale necessary to maximize the benefit of financial hedging.⁸

In addition to the magnitude, the timing of the exposure is another critical aspect of financial hedging. Fully 89 percent⁹ of DND's annual foreign expenditures – which include capital acquisition expenditures, grants and contributions made to foreign agencies and alliance obligations, and the cost of foreign operations – are known with a lesser degree of uncertainty in terms of magnitude and timing.

Before presenting the new framework for foreign currency risk management, it is necessary to understand how foreign currency exposure is considered during the DND budgetary process.

II – The Existing DND Budget Process and Foreign Exchange Exposure

To better understand the utility and application of financial hedging to mitigate the effects of foreign exchange risk, it is first necessary to explore the current DND budgeting and expenditure processes in relation to foreign currency rate fluctuations. The budget planning process commences in March-June of the preceding year, and, using the forecasted foreign exchange rates prepared by the DND Director Budget (DB) for selected foreign currencies, anticipated foreign currency budgetary requirements are converted into Canadian dollars. Adjustments to budget amounts are possible up until government approval, and then, during the fiscal year, budgets may

be adjusted through supplemental estimates. Managers are expected to use this internal forecasted rate to assess the impact of foreign currency fluctuations on their plans and operations when determining initial budget allocations and conducting budget reviews. By so doing, managers are able to develop contingency reserves to mitigate the effects of adverse currency movements, and, if required, to request additional funds.

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We have demonstrated that the motivation to hedge exists in DND and have shown how the Department currently handles foreign exchange exposure within its current budgetary process. The next section will discuss a new framework for foreign exchange risk management.

From this budgetary cycle, foreign exchange exposure manifests itself in two forms. The first is in the variance between exchange rates applied at the time of budgeting, compared to the rates when the obligations are liquidated. These differences are generally absorbed in the local budgets being used to procure the goods or services. The second form relates to the variance in exchange rates applied at the time obligations are liquidated and the exchange rate applied by counter parties. A corporate gain or loss on exchange account is used to capture the differences in the liquidated and counter party rates when a payment instrument is used for a foreign currency obligation.

III – New Framework for Foreign Exchange Risk Management

As noted by Lewent and Kearney, and also Brown at References, a prerequisite for implementing a foreign exchange risk management strategy requires that firms have the ability to generate exchange rate forecasts that can be used to develop a hedging strategy, and to select the most appropriate financial instruments to fulfill that strategy. The Department does not use its forecasted foreign currency exchange rates as a benchmark for evaluating a foreign exchange risk management program. Rather, it is used only for budgetary planning purposes. Consequently, DND must maintain contingency reserves as a measure to mitigate foreign currency fluctuations.



The Improved Point Defence Missile (Evolved Sea Sparrow Missile), which will be fitted to the *Halifax* Class Frigates. The total project cost is \$C513 million, and it represents greater than 95 percent exposure to the US dollar.

For example, capital acquisition projects, which are often susceptible to currency fluctuations, are mandated to maintain a contingency reserve ranging from 5-to-15 percent of the project's estimated cost as a risk mitigation measure.¹⁰ These funds represent opportunity costs to the department, as they are not available for more productive or essential activities. In effect, foreign exchange exposure is ultimately passed through to the Canadian taxpayer, or it is simply absorbed within the Department and results in a diminished defence capability, thereby further exacerbating an already tenuous situation of declining real defence purchasing power.

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The nature of the DND foreign exchange exposure comes from the fact that we must pay much of our foreign obligations in a foreign currency. To do this, we essentially convert the foreign currency expenditures into Canadian dollars at the time the obligation is liquidated, and, in so doing, subject ourselves to currency fluctuations. One financial instrument to reduce this fluctuation is the forward contract. A forward contract is a private contract negotiated in the present that gives the contract holder both the right and full legal obligation to conduct transactions at a specific future time involving a specific quantity and type of asset at a predetermined price. For example, DND could agree today to purchase a certain amount of a foreign currency with a financial institution for delivery on a specific future date at a specific exchange rate. The contract may be customized for almost any amount and maturity date, and does not require a capital outlay. Generally, private firms enter into contracts to eliminate the impact of any unfavourable exchange rate changes. The forward contract is the simplest hedging instrument, and it is the most commonly used one in the private sector.

Our proposed framework for hedging foreign currency risk uses forward currency contracts for several reasons. First, the forward currency market represents the world's largest foreign exchange derivatives market, thereby contributing to the instrument's liquidity. Second, these instruments provide conventional maturities, i.e., 30, 60, 90, 180 day and one year,¹¹ that better match the DND budgeting and expenditure cycle. Third, these instruments do not require the upfront payment of a premium or the maintenance of a margin account, thereby precluding the need for substantial cash outlays. Finally, the use of forward contracts would also have the effect of eliminating the differences between the budgeted and actual expenditure, thus offering a greater degree of stability in the planning, budgeting and liquidating of foreign currency obligations by isolating the effect of foreign exchange exposures.

DND could effectively use forward contracts to reduce its exposure to currency fluctuations involving probable anticipated, but not tightly committed, transactions, and those transactions with firm foreign currency commitments. To do so would require the implementation of a framework that first identifies, then assesses controls and monitors the risk. A key component of this framework would be a policy describing the Department's foreign exchange risk mitigation strategy that articulates the risk tolerance levels for foreign currency fluctuations, and prescribes a hedging strategy for mitigating those risks deemed outside

the tolerance levels. The hedging strategy would specify the limits on the types, notional value as a percent of exposure, and the timing of forward contract (or other derivative instruments) positions, as well as the exact procedures to be followed by all individuals involved with hedging foreign exchange transactions. The policy would also outline the separate responsibilities for executing hedging transactions, and for accounting and control activities. Senior management oversight would be provided in the form of a multidisciplinary financial risk management committee (FRMC) comprised of senior departmental comptrollers. This committee would meet to review hedging strategy performance, prepare quarterly reports to senior management, and would be accountable directly to the most senior levels of the department, the Program Management Board (PMB).

The actual execution of the hedging strategy could be done by a small group of experienced individuals organized into a financial risk management unit (FRMU) and responsible for accomplishing the hedging strategy approved by the FRMC. The FRMU would be responsible for determining currency forecasts, as well as the overall value at risk to the Department as a result of foreign currency exposure. The group's activities would also include liaising with the Bank of Canada's (BoC) Risk Management Unit, as well as the Receiver General of Canada (RG) and Public Works and Government Services Canada (PWGSC) to ensure the seamless execution of hedging transactions.

As depicted in Figure 1, the practice of implementing a hedge would centre around the determination of a currency forecast, often referred to as the internal hedge rate, as the basis for internal planning and evaluation. This indicator would then be used by resource managers to prepare a forecast of anticipated foreign currency expenditures/revenues by activity/program, which would, in turn, be identified in the annual business plans. From these business plans, the FRMU would then organize the forecasts by month for the various foreign currency exposures. Based on the forecasted exposure and other macro-economic factors, a hedging strategy (i.e., timing, duration, percentage, currency, and so on) would be devised and submitted to the FRMC for approval. When a particular hedging strategy is approved, the FRMU would execute the trades in conjunction with

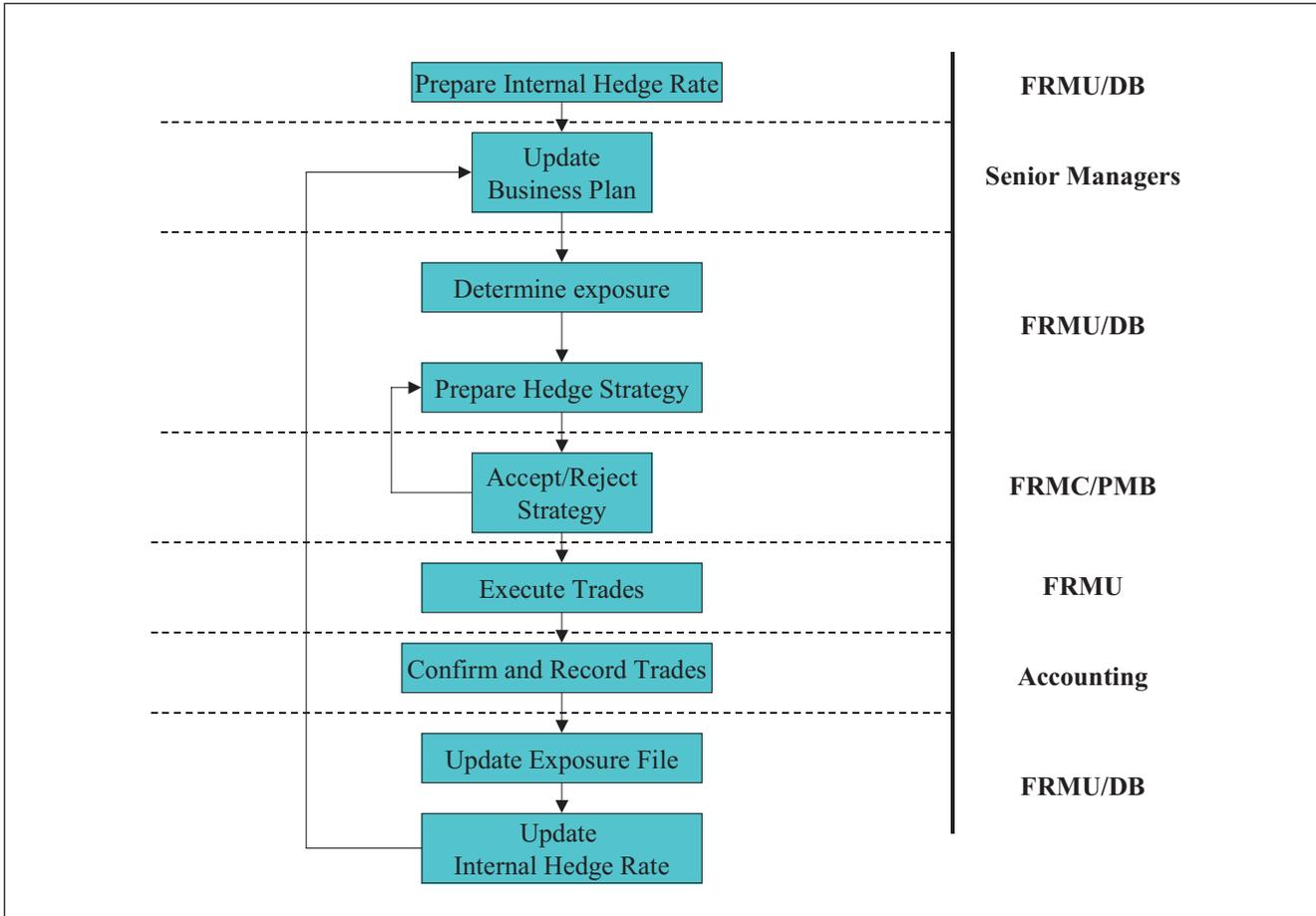


Figure 1

a financial institution. In reality, this process would be quite dynamic and would require continual oversight and monitoring to ensure adherence to financial regulations and to see that the practice of hedging does not inadvertently increase DND’s foreign currency exposure. It should be noted that a key benefit of this process would be greatly improved senior management visibility into the Department’s monthly cash flows and would result in more informed financial decision-making.

IV – Conclusion

This article has examined the financial risk associated with DND’s foreign exchange exposure and has proposed implementing the practice of foreign currency hedging by using forward contracts to mitigate the risks associated with foreign currency exposure. We then suggested a financial risk management framework that describes how the practice of hedging might look if it were implemented in DND, to include the high-level structure and procedures. There are some interesting possibilities for future research within DND and the wider Canadian public sector. For example, it would be worthwhile to apply and quantify the impact of using forward contracts and other financial derivatives, such as options,

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when applied within the context of selective hedging strategies on the DND budget.¹²

Implementing the practice of hedging to reduce the risk associated with foreign currency exposure could be accomplished under the auspices of the Government of Canada’s Management Accountability Framework and Modern Comptrollership¹³ modernization initiatives, and could thereby contribute to the DND’s culture of management and leadership excellence. Similarly, other Canadian Government departments, as well as other nations, could benefit from the application of a private sector foreign exchange risk management framework.

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NOTES

1. The DSP represents all the activities that the DND is mandated to deliver.
2. According to the Treasury Board (2003) the principle of integrated risk management is a key component of both Modern Comptrollership and the Management Accountability Framework.
3. Canada, *Financial Administration Act*, 2003.
4. The United Kingdom Ministry of Defence enters into forward contracts annually with the Bank of England to cover the majority of its foreign exchange requirements for the upcoming year. (UK MOD, *Annual Report and Accounts 2002/2003*).
5. The New Zealand Defence Forces uses forward currency contracts as part of its normal operations. It enters into foreign currency contracts to hedge short-term foreign currency transactions. (New Zealand, *Departmental Forecast Report for the year ending 30 June 2004*).
6. For elaboration, see Lewent and Kearney, Froot et al., Bodnar et al., Joseph, Allayannis and Ofek, and Brown at References.
7. Source: DND Accounting System.
8. For elaboration, see Main and Géczy et al. at References
9. Sixty-six percent of the total foreign expenditures are derived from the capital acquisition and national procurement budgets, another 12 percent is associated with grants and contributions made to foreign agencies and alliance obligations, while 11 percent is related to the cost of operating in foreign locations.
10. Defence Management System, Chapter 9 Part 2, Contingency Cost Allowance, 2002.
11. Forward contracts greater than one year were excluded as the accuracy of the exposure forecast deteriorates and the risk of the exposure not materializing increases (Brown, 2001).
12. See Morley and Simpson at References for amplification.
13. Modern comptrollership is a shift from a primarily financial focus to a broader perspective involving the sound management of all resources through informed, effective decision-making. This new focus is to be achieved by shifting the managerial emphasis from controls and compliance to results and values. (Canada, Treasury Board, 2001).