Recent Enhancements to the Management of Canada's Foreign Exchange Reserves

Mervin Merkowsky and Eric Wolfe, Funds Management and Banking

- Canada's foreign exchange reserves have grown steadily since the 2007–09 global financial crisis.
- This growth has been accompanied by enhancements to the way in which the reserves are managed that aim to improve the governance structure, portfolio management, risk measurement and risk management.
- This article briefly describes these enhancements, the motivation for implementing them and some of the lessons learned along the way.

Over recent years, Canada's foreign exchange reserves have grown steadily. This growth was accompanied by enhancements to the reserves-management framework. Even though the list of eligible fixed-income assets and credit quality requirements is conservative compared with most other foreign reserves portfolios, having a well-defined decision-making framework in place is important.

Canada's reserves are managed within a well-defined and transparent risk-tolerance framework. However, that framework was silent on the issue of investment and risk preferences. That is, there was no risk-balanced benchmark. Thus, while the portfolio composition was steered by discussions about "what not to invest in," there was little information available to actively guide portfolio managers with respect to "what to invest in." The result was a portfolio that was based largely on the governance committees' revealed preferences. This meant that, while the foreign exchange reserves portfolio was regularly reviewed ex post by the governance committees, ex ante investment direction was limited.

In 2011, both an internal and an external review confirmed that improvements could, and *should*, be made to governance, portfolio management, risk measurement and risk management. Over the past four years, Finance Canada and the Bank of Canada have undertaken an extensive work plan to close the identified gaps (Finance Canada 2012a).

After reviewing the fundamental principles behind managing foreign exchange reserves in Canada, we describe the experience of the 2007–09 global financial crisis and how it informed the review of portfolio-management practices. The enhancements that resulted from that exercise are then discussed. We conclude

The *Bank of Canada Review* is published two times a year. Articles undergo a thorough review process. The views expressed in the articles are those of the authors and do not necessarily reflect the views of the Bank. The contents of the *Review* may be reproduced or quoted, provided that the publication, with its date, is specifically cited as the source.

with some lessons learned that may prove useful for other managers of foreign exchange reserves portfolios.

Fundamentals of Reserves Management in Canada

The Bank acts as the fiscal agent for the federal government and works with Finance Canada to provide advice to the Minister of Finance on the funding and investment of Canada's foreign exchange reserves. Canada's liquid foreign exchange reserves are held in the Exchange Fund Account (EFA). The purpose of the EFA, as specified in the *Currency Act*, is to provide foreign currency liquidity to the government and to promote orderly conditions for the Canadian dollar in the foreign exchange markets, if required. The EFA's purpose is achieved through operational measures specified in the Statement of Investment Policy. There, the EFA's three objectives are established:

(i) To maintain a high standard of liquidity—hold reserves in assets that mature or can be sold on very short notice with minimal market impact and therefore loss of value.

(ii) To preserve capital value—minimize risk of loss of market value by holding a diversified portfolio of high-quality assets (in terms of credit rating and type of issuer), managing liquid assets and liabilities on a matched basis (in terms of currency and duration) and using appropriate practices to mitigate risks.

(iii) To optimize return—achieve the highest possible level of return, while respecting the objectives of liquidity and capital preservation.

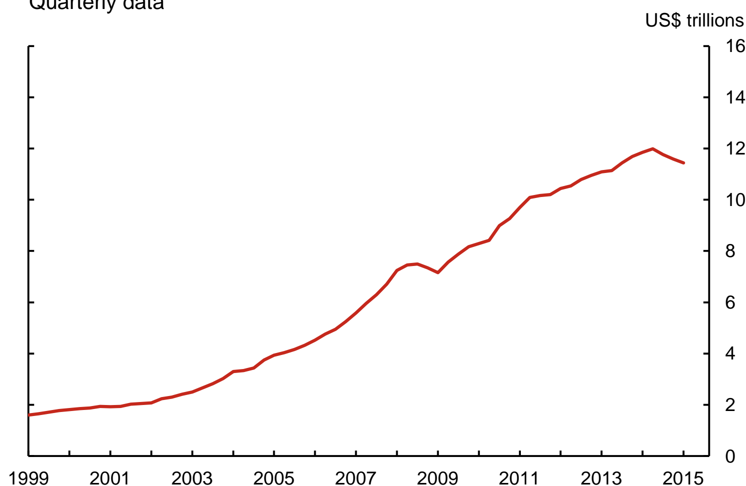
Within this context, the aspects of the EFA listed below are fundamental to the reserves-management approach taken in Canada.

- Foreign exchange reserves assets (and the associated liabilities that fund them) are owned by the federal government and therefore do not appear on the Bank's balance sheet.
- No external managers are employed in the funding and investment of the foreign exchange reserves.
- All reserves are managed in a strict asset-liability-matching (ALM) framework (Finance Canada 2014) that serves to effectively mitigate risk to the interest rate and the foreign exchange. Some credit spread risk is accepted.
- While many reserves managers prefer to hold short-dated assets, the ALM framework allows the federal government to fund and purchase assets with maturities of up to 10.5 years.
- The list of eligible reserves currencies is restricted to U.S. dollars, euros, Japanese yen and U.K. pounds sterling.
- The list of eligible asset classes is similarly narrow and is restricted to fixed-income securities. Structured assets are not eligible.

Recent Developments in Reserves Management

Globally, foreign exchange reserves have been marked by a steady increase in holdings (**Chart 1**). This growth appears to have been driven by several broad policy objectives that, when combined, have led to an increase in the stock of global reserves held for both precautionary and liquidity purposes.

Chart 1: Global foreign exchange reserves
Quarterly data



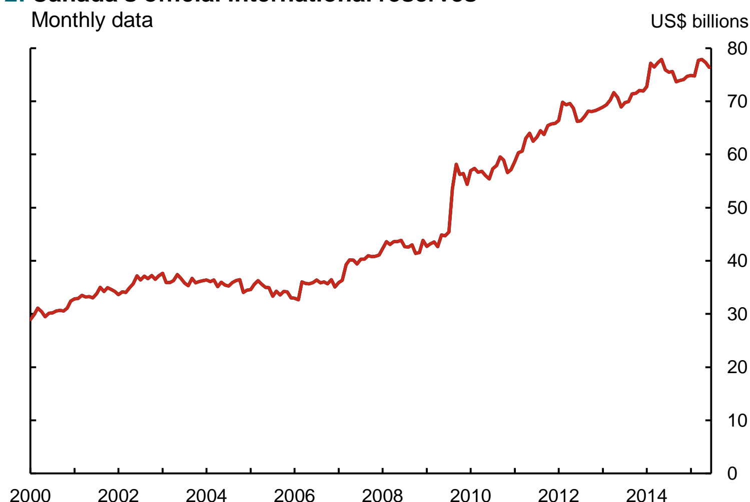
Source: International Monetary Fund Last observation: 2015Q1

Although these broad policy objectives vary across sovereigns, the buildup in foreign exchange reserves traditionally reflected a desire to maintain market confidence in the value and liquidity of the domestic currency. When such confidence is compromised, reserves can be deployed for possible intervention in foreign exchange markets. This type of intervention can be used to target the level of a currency or to manage the volatility and speed of currency adjustments. Market intervention can also be concerted, meaning several sovereigns agree to transact in a coordinated manner. Over the years, the broad policy objectives have come to include a range of issues, such as current account (balance of payments), balance sheet (loss of market access) and the broader domestic economy (the central government and domestic financial institutions). Finally, there is a growing body of evidence showing that reserves accumulation has been the residual outcome of the pursuit of mercantilist policy objectives by some sovereigns: reserves accumulated as a consequence of export-driven growth agendas and the resultant current account surpluses (IMF 2013).

The last time Canada intervened in support of its domestic currency was in 1998. In the case of Canadian reserves being used for concerted intervention, there have only been two recent episodes. The first was to signal support for the euro by purchasing US$97 million of that currency in September 2000, and the second was to help stabilize the Japanese currency market by selling yen equalling US$124 million in March 2011, as agreed by the G7 ministers of finance.

Canada's foreign exchange reserves have also grown since the global financial crisis (**Chart 2**). The Minister of Finance requires that foreign exchange reserves be maintained at 3 per cent, at least, relative to nominal GDP (Finance Canada 2013). The rationale for tying reserves to GDP was to recognize that reserves should grow in relation to the size of the economy. This strategy also has the benefit of being relatively simple to implement and monitor.

Chart 2: Canada's official international reserves



Source: Official International Reserves, Department of Finance Canada

Last observation: September 2015

This reserves growth has been implemented within the context of a prudential liquidity plan, and the EFA is a key component of that plan. The purpose of the plan is to provide the government with liquidity in the event of a temporary market disruption in which the government is unable to raise funds to pay off maturing liabilities (Finance Canada 2012b).

Another feature of the post-crisis period has been the increasing rigour of leading global practices in the governance and management of reserves portfolios (IMF 2013; Borio et al. 2008). The enhancements to the management of Canada's foreign exchange reserves were largely based on these practices.

Increasingly, the governance of foreign exchange reserves portfolios has come into focus. Transparency, accountability and regular reporting are key features of good governance of foreign exchange reserves.

Clear statements of investment objectives and beliefs are also important. This includes a statement of the purpose for holding foreign exchange reserves as well as a statement of the principles around the funding and investment of the reserves.

Finally, there has been a broad-based global response by supervisory and regulatory authorities to the financial crisis. Financial stability concerns have emphasized the importance of systemic resilience in the face of adverse market conditions. Two key consequences of this have been the increased importance placed on internal credit-risk assessments and the collateralization of counterparty exposures.

Aspects of the Management of Canada's Foreign Exchange Reserves That Have Been Enhanced

The Bank and Finance Canada recently conducted a comprehensive and wide-ranging review of how foreign exchange reserves are managed. This review sought to evaluate the management framework of the EFA, identifying gaps between leading global practices and recommending enhancements. These enhancements can be broadly categorized into the following themes: governance, portfolio management, risk measurement and risk management.

Management of foreign exchange reserves has been enhanced in the areas of governance, portfolio management, risk measurement and risk management

Governance

Senior managers from the Bank and Finance Canada participated in an exercise to assess investment beliefs. This exercise served to identify investment and risk preferences that had previously been revealed only in the structure of the resulting asset and liability portfolios.

The investment beliefs exercise identified ways to better specify investment preferences ex ante, including defining a strategic allocation of assets by broad issuer type, term and currency, as well as defining an investment horizon. The objective function of the reserves portfolio was made explicit by assessing the relative importance of each of the three EFA objectives.

This exercise also helped shed light on the concepts of risk tolerance and risk preference. Risk tolerance is both a qualitative and quantitative expression of the maximum amount of financial risk that the government will accept while still being able to achieve the EFA objectives. The concept of risk preference is, however, defined as the amount of risk chosen to balance ("optimize") the three EFA objectives. At no time should risk preferences exceed risk tolerances.

Portfolio management

The strategic investment preferences are operationalized by investing according to a detailed asset allocation that specifies the preferred amount of holdings for each eligible investment by currency and term. The detailed asset allocation is expressed in terms of risk tolerance (maximum and minimum levels) and risk preference (a point within that range). This permits some discretion to portfolio managers. Risk attribution and performance measures are calculated regularly with respect to the actual portfolio relative to the detailed asset allocation.

Consistent with best practices in global asset management, the EFA now formally considers the risk-return trade-off preferences in its investments. The pound sterling was added as an investable currency to diversify the asset portfolio, thus reducing risk related to concentration of investment in a limited number of currencies (Finance Canada 2014).

The funding of the EFA has also responded to the evolution in market conditions. In 2013, the government introduced a medium-term note program as a regular funding instrument (Finance Canada 2014). This program provides another vehicle through which the foreign exchange reserves can be funded and also serves to diversify the funding sources and investor base.

Risk measurement

The ALM framework employed by the EFA has proven to be a very effective means of mitigating interest rate and foreign exchange risk to the government's fiscal position. However, there is still residual market risk that is derived from the credit spread exposures inherent in the assets and the liabilities—and the lack of correlation between the two. Since the EFA is predominately funded with cross-currency swaps, there are non-zero levels of net credit spread risk. It is largely due to this residual risk that the EFA is able to achieve a positive net carrying return.

A more comprehensive measure of market risk has been introduced. This measure—total market value at risk—takes into account all of the risk factors the EFA is exposed to: interest rates, foreign exchange rates and credit spreads. It therefore provides a more comprehensive picture of the risk borne by the EFA, which permits a more thorough assessment of the risk-return trade-off in the portfolio.

In the aftermath of the global financial crisis, the Financial Stability Board raised concerns about the mechanistic reliance market participants had placed on ratings from credit agencies. Best practices have evolved for internal credit opinions in the investment decision process. The Bank has made significant progress in developing and implementing internal credit-assessment abilities, in collaboration with Finance Canada (Wolfe 2014). In the same way that the establishment of investment preferences is through-the-cycle, the internal credit-assessment framework relies on fundamental credit analysis that produces a forward-looking (through-the-cycle) assessment of an entity's capacity and willingness to pay its financial obligations, resulting in an opinion on the relative credit standing or likelihood of default.

The Bank has made significant progress in developing and implementing internal credit-assessment abilities, in collaboration with Finance Canada

Risk management

Implementing two-way Credit Support Annexes as part of the International Swaps and Derivatives Association agreements between the government and private sector counterparties for derivatives transactions has improved credit-risk management for funding the EFA. Like many sovereigns, Canada has established agreements with its counterparties that oblige them to pledge collateral in response to adverse mark-to-market movements. These agreements were called one-way agreements because counterparties had to pledge collateral if they owed the government money on a derivatives contract, while Canada did not have a similar obligation.

The recent evolution in the regulatory environment for banks has seen an increasing emphasis on the accurate pricing of counterparty risk and the management of residual risk through collateralization. As a result of changes in pricing, the government is moving toward two-way agreements with symmetrical treatment of collateral—collateral flows back and forth between the government and the counterparty, depending on the market valuation of the derivatives contract (Rivadeneyra and Dissou 2011).

These agreements will reduce the cost of funding the reserves through cross-currency swaps. They also bring broader benefits. Banks can now reuse the collateral received under these revised agreements for their own needs. This rehypothecation helps to further financial stability and market functioning by supporting continued liquidity in the market for high-quality assets. These objectives, while typically beyond the scope of reserve managers, are nonetheless worthwhile and important.

Canada has established agreements with its counterparties that will further financial stability and market functioning by supporting continued liquidity in the market for high-quality assets

Conclusion

The recent comprehensive review of the EFA portfolio-management framework by the Bank and Finance Canada has yielded several insights. The key risk-management lesson that was relearned is that risk management is a shared responsibility—from the front office through to the middle and back offices. Equally important, it should be recognized that risks cannot be completely eliminated: they can merely be transformed and mitigated.

From a governance perspective, transparency and decision-making accountability are critical. Establishing clear investment preferences has enabled greater clarity around decision-making authority and fostered a more granular approach to risk management and performance attribution.

At the same time, governance structures need to retain a degree of flexibility. In an environment where market conditions evolve and are interconnected in sometimes unexpected ways, portfolio and risk managers need to have a degree of discretion.

Literature Cited

Borio, C., J. Ebbesen, G. Galati and A. Heath. 2008. "FX Reserve Management: Elements of a Framework." BIS Papers No. 38.

Finance Canada. 2012a. *Evaluation of the Asset Allocation Framework of the Exchange Fund Account*.

——. 2012b. *Report on the Management of Canada's Official International Reserves April 1, 2011–March 31, 2012.*

——. 2013. *Jobs, Growth and Long-term Prosperity—Economic Action Plan 2013*. Available at http://www.budget.gc.ca/2013/doc/plan/budget2013-eng.pdf.

——. 2014. *Report on the Management of Canada's Official International Reserves, April 1, 2013–March 31, 2014*.

International Monetary Fund. 2013. *Assessing Reserve Adequacy—Further Considerations.* IMF Policy Paper.

Rivadeneyra, F. and O. Dissou. 2011. "A Model of the EFA Liabilities." Bank of Canada Discussion Paper No. 2011-11.

Wolfe, E. 2014. "Assessing Credit Risk Post-Crisis at a Central Bank." CentralBanking.com. 19 November.