The Canadian Dollar as a Reserve Currency

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- Over the past five years, central banks and monetary authorities have started adding Canadian-dollar assets to their official foreign reserves portfolios.
- According to survey data from the International Monetary Fund, the Canadian dollar accounted for about 1.8 per cent of reported global foreign reserves in the third quarter of 2013.
- Estimates of the total reserve holdings of Canadian-dollar-denominated securities are around US$200 billion.
- Higher levels of official foreign holdings may lower yields in domestic debt markets and therefore reduce the financing costs for the Government of Canada, but they may also decrease market liquidity.

A clear reflection of Canada's relative economic resilience during the global financial crisis of 2007–09 is the growth in the share of foreign exchange reserves that other countries hold in Canadian-dollar securities, particularly those issued by the Government of Canada.

Foreign exchange reserves are assets held by a central bank (or, less frequently, by finance ministries or monetary authorities) as a precaution for contingencies[1] that would call for foreign exchange market intervention[2] or provision of foreign currency liquidity to domestic financial institutions if access to capital markets were temporarily lost or delayed.

The world's official reserves have quadrupled over the past decade, exceeding US$11 trillion as of December 2013 (**Chart 1**).[3] Canada's foreign exchange reserves were increased in connection with the prudential liquidity plan established in 2011, which expanded the federal government's holdings of liquid assets that could be deployed if necessary.[4] Reserves are typically invested in highly rated government bonds and bills, and may also include

1 For a review of Canada's foreign exchange reserves held in the Exchange Fund Account, see Rivadeneyra et al. (2013).

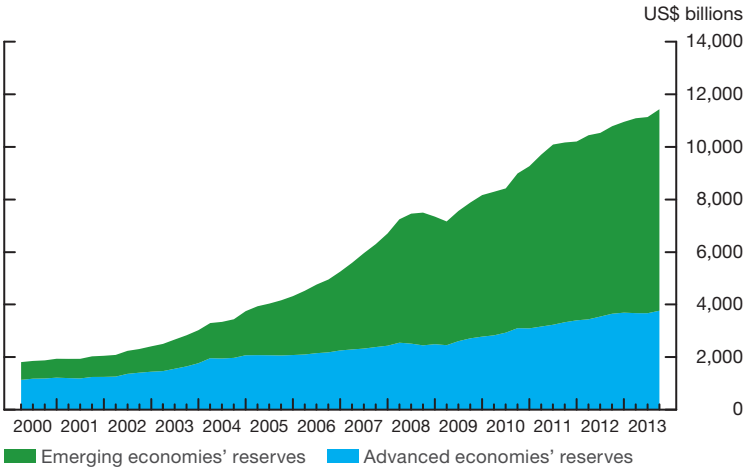
2 Goldberg, Hull and Stein (2013).

3 This accumulation of reserves outpaced traditional measures of adequacy such as nominal GDP, coverage of short-term debt or broad money aggregates. See IMF (2011) for a detailed discussion.

4 A description of the Government of Canada's prudential liquidity plan is available at http://www.budget.gc.ca/2011/plan/anx2-eng.html.

Chart 1: Total official reserves of advanced and emerging economies, in US$ billions

Quarterly data



Source: International Monetary Fund COFER

Last observation: 30 September 2013

other securities issued by government agencies or sub-sovereign levels of government. Some reserves managers have also diversified their holdings to include equities.

An important change in the world's official reserves has been the increased diversification in terms of currency composition. Until recently, global reserves were almost entirely invested in five traditional currencies: the U.S. dollar, the euro, the Japanese yen, the British pound and the Swiss franc. According to data from the Currency Composition of Official Foreign Exchange Reserves (COFER) of the International Monetary Fund (IMF), until 2007 the reported allocations to all "other currencies" rarely exceeded 2 per cent of total reserves. By the end of 2013, however, the other currency allocation had more than tripled, to 6.3 per cent, of which the Canadian dollar represents about 1.8 percentage points. This large change in the currency allocation of foreign reserves portfolios included substantial portfolio investment inflows into Canadian fixed-income securities.

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The Bank of Canada monitors these developments in reserves management for a number of reasons. In its role as the Government of Canada's fiscal agent, the Bank works with the Department of Finance Canada to provide stable, low-cost funding for the government by ensuring well-functioning markets in government securities.[5] Most foreign reserves investments denominated in Canadian dollars are in government bonds. The Bank monitors the impact of this activity on this market. It also assesses the effect of developments in reserves management on financial stability, particularly since the government debt market and the associated market for repurchase and reverse-repurchase agreements are core funding markets.[6] As part of its continual assessment of possible risks to the function of core funding markets and their stability, the Bank keeps track of the potential

5 The Bank provides policy advice to the federal government on the federal debt distribution framework (outlined in the Debt Management Strategy, available at http://www.budget.gc.ca/2014/docs/plan/anx1-eng.html), and it conducts regular auctions of Government of Canada securities. These securities are then transacted in the secondary markets by foreign reserves managers in other countries. Without well-functioning secondary markets for government debt, it would be difficult to achieve the goal of stable, low-cost funding.

6 Core funding markets are systemically important markets that are necessary for generating liquidity within the financial system (Fontaine, Selody and Wilkins 2009).

impact that the activities of foreign reserves managers may have on these markets. Finally, like many other central banks, the Bank of Canada provides safekeeping services (for example, custody, record keeping and settlement of transactions) to official foreign reserves managers that hold Canadian securities. The growth of reserves held in Canadian dollars has led to increased activity in this function.

This article provides an overview of recent trends in foreign exchange reserves and explores their potential implications for Canadian financial markets. The first part discusses the flows of reserves and resulting holdings in detail, while the second part reviews existing evidence of the potential influence of foreign flows on market functioning.

Demand for Canadian-Dollar-Denominated Assets

Estimating official foreign demand

To estimate the total demand that foreign reserves managers have for Canadian-dollar-denominated assets, we use the IMF's COFER data.[7] As noted, the COFER data had been divided into five traditional reserve currencies and included a catch-all category for the remaining "other currencies." The growing importance of the Canadian dollar and Australian dollar, however, led the IMF to begin reporting on these two currencies separately, recognizing them as de facto reserve currencies. This new breakdown in COFER data was first published in June 2013, presenting Canadian-dollar and Australian-dollar reserve holdings for 2012Q4 and 2013Q1.

According to COFER, the official reported holdings of Canadian-dollar-denominated assets stood at US$112.5 billion (Can$115.9 billion) as of 2013Q3, a share of about 1.8 per cent of reported foreign reserves. The holdings in the Australian dollar were quite similar, at 1.7 per cent. **Box 1** discusses the reserve assets invested in the Australian dollar in more detail.

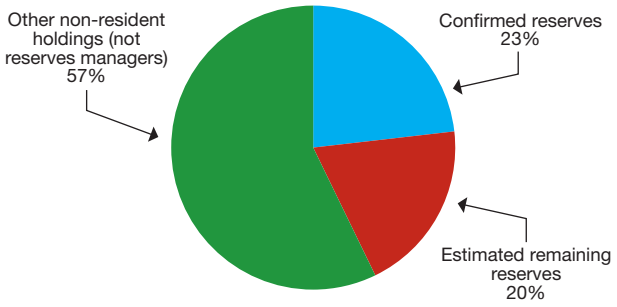
These figures, while substantial, likely represent only a fraction of total holdings of Canadian-dollar-denominated assets in official foreign reserves, since not all of the polled foreign reserves managers responded to the COFER survey. These figures are based on responses of managers representing about US$6 trillion, or 54 per cent, of the total of US$11 trillion in official foreign reserves worldwide. The currency composition—including the Canadian-dollar holdings—of the remaining 46 per cent is not known.

If the proportion invested in Canadian-dollar-denominated assets for non-respondents is similar to that of responding managers, the total Canadian-dollar-denominated holdings would be US$208 billion (Can$214 billion). For robustness, we use a variety of other approaches to estimate the total holdings, with estimates ranging from US$172 billion (Can$178 billion) to US$219 billion (Can$226 billion), with Can$200 billion roughly at the midpoint of the range.

Chart 2 shows the estimated total foreign official holdings of Can$214 billion as a fraction of total non-resident holdings of Canadian general government securities reported by Statistics Canada. We use the Canadian-dollar equivalent to compare with the Statistics Canada figures of total non-resident holdings. Holdings of foreign reserves managers account for an estimated 43 per cent of the total non-resident holdings. Other official foreign investors, such as sovereign wealth funds, could hold some of the remaining 57 per cent of Canadian-dollar-denominated assets; however, official data that can reliably describe these holdings are limited.

7 COFER is based on a survey of 144 foreign reserves managers, typically national central banks, on the currency breakdown of the assets they hold.

Chart 2: Breakdown of non-resident holdings of Canadian general government securities, as of 2013Q3



Note: Canadian general government securities include the debt of federal and local governments as well as government enterprises. Other non-resident investors include private institutions and official institutions other than foreign exchange reserves managers, e.g., sovereign wealth funds.

Sources: Statistics Canada and International Monetary Fund COFER Last observation: 30 September 2013

Box 1

Reserve Assets in the Australian Dollar

The growth in reserve assets invested in Canadian markets occurred at the same time as demand increased for Australian securities. As of 2013Q3, the share of the world's official reserves allocated to the Australian currency was 1.7 per cent, according to data from the Currency Composition of Official Foreign Exchange Reserves (COFER) of the International Monetary Fund (IMF), slightly below the share of the reserves invested in the Canadian dollar (1.8 per cent). The analysis presented in this article indicates that Australian markets started receiving reserves inflows at about the same time as Canadian markets. Media reports and our discussions with reserves managers suggest that the drivers of their demand are similar for both Australia and Canada: the desire to diversify reserve holdings to economies with the highest credit rating, the perceived safety of the two markets and the opportunity to earn somewhat higher yields than found in traditional reserve currencies such as the U.S. dollar.

There are also interesting differences between foreign reserves invested in Australian and Canadian securities. For example, countries that have stronger trade links with Canada have a relatively higher weight in the Canadian currency. Bank of Canada data indicate that, across European reserves managers, the average Canadian dollar weight is 4.7 per cent; in Asia, the average weight is only 2.4 per cent.

In contrast, the average European reserves manager assigns a weight of 3.5 per cent to the Australian dollar, and the average Asian manager allocates as much as 8.3 per cent, in line with the importance of economic ties between Australia and Asian countries.

Moreover, foreign investors (both official reserves managers and other non-resident investors) are relatively more important in Australian government debt markets than in Canadian. Between 2004 and 2011, the foreign share in Australian government debt stock almost doubled, from 35 per cent to 68 per cent.[1] Over that same period, the foreign share in Canadian government debt was relatively stable at between 20 per cent and 30 per cent.

Finally, Australia is not only an issuer of, but also an investor in, non-traditional reserve assets. In 2011, the Reserve Bank of Australia added a 5 per cent allocation to the Canadian currency in its benchmark portfolio; in contrast, Canada does not currently invest its reserves in Australian-dollar assets.

1 See the Australian Office of Financial Management at http://www.aofm.gov.au/statistics/non-resident-holdings/.

Assessing demand over time

The Canadian dollar started to attract increased interest from foreign reserves managers around 2009–10

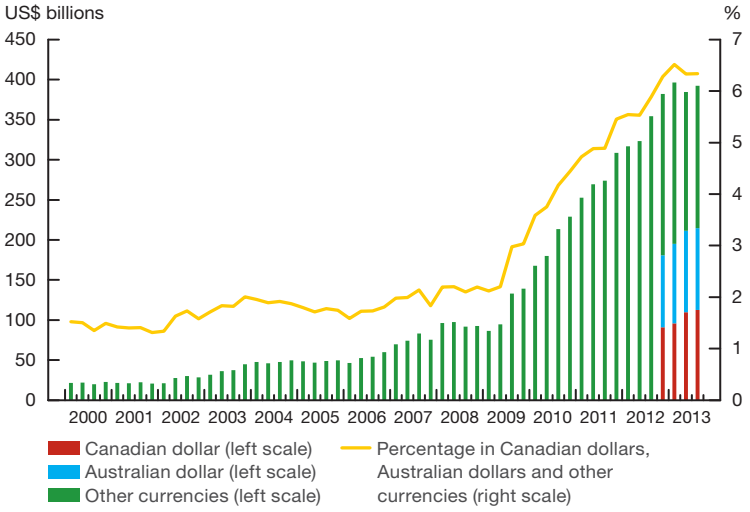
Since COFER provides Canadian-dollar holdings for only the four quarters starting in December 2012, the data do not provide much information on how the demand for Canadian-dollar-denominated assets has evolved over time. However, the data suggest that the Canadian dollar started to attract increased interest from foreign reserves managers around 2009–10. **Chart 3** shows the evolution of COFER's "other currencies," including the Canadian dollar. Until mid-2009, the other currencies were relatively stable, accounting for about 2 per cent of total global reserves. Starting in the second half of 2009, however, they grew substantially, reaching 6.3 per cent of total reserves in 2013.

Anecdotal evidence also suggests that the growth of Canadian-dollar-denominated assets in foreign reserves started during that period. Annual report data and media coverage indicate that several reserves managers, including the central banks of Chile, the Czech Republic, Iceland, Macedonia and Russia, started investing in Canadian assets at that time. **Box 2** presents a case study of the Swiss National Bank to illustrate the evolution of the demand for Canadian-dollar-denominated assets, as well as several possible drivers of flows into the Canadian market.

In addition, according to Statistics Canada data, the overall foreign portfolio investment in Canadian general government bonds and money market instruments more than doubled over the 2007–13 period and, in November 2013, it stood at over Can$493 billion.[8] The increase in the non-resident holdings was in line with the additional issuance of government securities, and therefore the relative importance of non-resident holdings has remained constant: their share of the government debt market has remained at approximately 29 per cent since the 1990s, reflecting a decrease in the relative importance of private foreign investors such as foreign banks or investment-management companies.[9]

Chart 3: The importance of the Canadian dollar and "other currencies" in official foreign reserves

Quarterly data



Note: Before December 2012, the Canadian dollar and the Australian dollar were included in "other currencies."
Source: International Monetary Fund COFER Last observation: 30 September 2013

8 Including securities issued by federal, provincial and municipal governments, and by government business enterprises (Statistics Canada, CANSIM Table 376-0146, available at http://www5.statcan.gc.ca/cansim/pick-choisir?lang=eng&p2=33&id=3760146).

9 See, for example, Arslanalp and Tsuda (2012).

Box 2

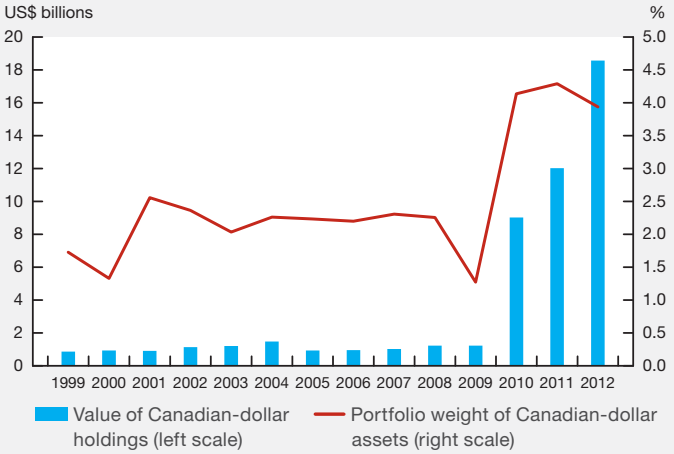
Canadian-Dollar Reserves of the Swiss National Bank

The Swiss National Bank (SNB), representing the fourth-largest official foreign exchange reserve fund in the world, is an interesting example of a foreign central bank that holds Canadian-dollar-denominated assets.[1]

The SNB decided to add Canadian-dollar assets to its foreign reserves in May 1999, considerably earlier than many other reserves managers. **Chart 2-A** shows the weight of Canadian-dollar assets in Swiss foreign reserves starting in 1999, as well as the overall dollar value of the SNB's Canadian-dollar holdings. Its initial target allocation, 2 per cent, corresponded with roughly $1 billion in Canadian-dollar assets. This target remained unchanged until 2009, although the actual weight and dollar holding in Canadian-dollar-denominated assets varied somewhat with changes in the exchange rates and the overall size of the Swiss foreign exchange reserves. In 2010, the target Canadian-dollar weight doubled to 4 per cent, funded by decreasing allocations to the euro, the U.S. dollar and the British pound. A possible motivation for the change was the desire of Swiss authorities to increase the diversification of their reserves, and perhaps improve their portfolio's resilience against economic uncertainty in Europe and the United States.[2]

Changes in the target weight are only one reason for the growth in the SNB's Canadian-dollar investments. Another important determinant is the overall size of the bank's foreign reserves: constant percentage allocations may still lead to pronounced inflows if the size of the reserves changes, which is what happened after the financial crisis of 2007–09. The heightened global economic uncertainty led to a rapid reserves accumulation worldwide. Until 2008, the SNB foreign currency reserves oscillated around CHF50 billion (Can$58 billion as of 31 December 2008), but in 2009 they doubled to almost CHF100 billion (Can$101 billion as of 31 December 2009). While the target Canadian-dollar weight remained at 2 per cent in 2009, the increase in the size of the reserves was initially funded by currencies other than the Canadian dollar, leading to a temporary drop in the actual Canadian-dollar weight (see **Chart 2-A**). The reserves doubled again in 2010, and once more over the 2011–12 period, this time accompanied by a proportional accumulation of Canadian-dollar-denominated assets.

Chart 2-A: Swiss National Bank Canadian-dollar asset holdings



Source: Swiss National Bank annual reports

Last observation: 31 December 2012

The recent growth in Switzerland's foreign reserves illustrates another motive that may underlie flows into and out of Canadian markets: the currency interventions of reserves managers in foreign exchange markets. For the SNB, such interventions were driven by pressures on the Swiss franc–euro exchange rate. Worried by negative developments in the euro area, investors sold the euro and bought the Swiss franc, a traditional "safe haven" currency, leading to a strong appreciation of the currency. The SNB intervened in September 2011 and began to sell the franc, defending the exchange rate of 1.2 euros per franc. The SNB's foreign currency purchases augmented the official foreign reserves and were eventually converted to Canadian dollars, in line with the SNB's target currency allocations, resulting in additional flows into the Canadian markets.

1 The discussion and chart in this box are based on information from the SNB's annual reports, available at http://www.snb.ch.

2 The importance that the Swiss central bank attaches to diversification is further illustrated by its 2012 decision to include the Korean won in its currency allocation, bringing the total number of currencies in its foreign reserves to 10.

Identifying the determinants of demand

To identify the determinants of demand for Canadian-dollar-denominated assets, we consider both the patterns observed in the data and anecdotal evidence from discussions with reserves managers.[10]

Although the details of portfolio strategies and specific holdings are generally not disclosed publicly, most reserves managers share common portfolio-management objectives: preserving capital, maintaining liquidity and, given the required level of risk and liquidity, maximizing expected returns.[11] While there are undoubtedly differences between individual countries, foreign reserves managers are characterized as patient, buy-and-hold investors who may not trade as much as their counterparts in the private sector. Reserves are held for precautionary reasons, as insurance against economic turmoil in the markets. Safety and liquidity are necessary; yield-seeking and speculative behaviour are discouraged.

Foreign reserves managers report that the main reasons for including the Canadian dollar in their portfolios are diversification and safety

Foreign reserves managers report that the main reasons for including the Canadian dollar in their portfolios are diversification and safety. Since reserves are held as insurance, managers want their portfolio to perform well, specifically during times of economic turmoil. Assets that drop in value in times of crisis fit poorly into foreign reserve portfolios, since they are particularly vulnerable precisely at times when reserves managers have the greatest need for funds and liquidity. The recent market stresses in some of the economies of traditional reserve currencies, for example, the euro area, may have led reserves managers to consider non-traditional assets such as the Canadian dollar.

Another perspective on the determinants of demand comes from analyzing the distribution of reserves managers who hold Canadian-dollar-denominated assets. According to COFER data, foreign reserves of advanced economies account for about one-third of the total Canadian-dollar holdings. Emerging economies generally assign a considerably higher weight to the Canadian dollar (2.1 per cent, compared with 1.6 per cent for advanced economies). Given that emerging economies incur higher costs to finance their reserve assets than advanced economies, the historically higher yields that investors earned from Canadian-dollar reserve assets, compared with U.S. government securities or those from core countries in the euro area, will therefore be appealing.

Finally, trade linkages also play a role. Using a small sample of countries for which we have detailed data on Canadian-dollar holdings, we find that countries that have stronger trade links with Canada have a relatively higher weight of the Canadian currency. Papaioannou, Portes and Siourounis (2006) find similar evidence linking the currency composition of a country's reserves to the currencies of its main trading partners and of its own international liabilities.

Possible Impact on Domestic Markets

For the Bank of Canada, understanding the determinants of the flows and the long-term allocation in Canadian-dollar-denominated assets of both private and official foreign investors is crucial for several reasons. As fiscal agent for the federal government responsible for providing advice on the domestic debt program, the Bank needs to understand the long-run demand from the different sectors of the investor base. Potential sudden changes in demand could introduce volatility into the cost of borrowing for

10 In particular, it reflects discussions at the Conference on Foreign Exchange Reserves Management organized by the Bank of Canada in the autumn of 2013.

11 For a discussion of modelling these objectives, see Rivadeneyra et al. (2013). See also IMF (2013).

the federal government. From a financial stability perspective, the Bank monitors the efficiency of financial markets and how their functioning may be affected by these changes in demand.

In this section, we explore the implications of the non-resident flows and the change in the official foreign investor base for average yields of Government of Canada securities, as well as their liquidity and volatility in secondary markets. Inflows from reserves managers may be comparatively stable and, other things being equal, put downward pressure on yields, lowering the funding costs of the government. At the same time, the increasing presence of these large, patient investors might negatively affect the markets' liquidity, making it more difficult for all investors to trade.

A direct effect of increased demand for government securities may be higher bond prices and hence lower yields

A direct effect of increased demand for government securities may be higher bond prices and hence lower yields, since the additional foreign demand is, at least in the short term, independent of the issuance decisions. A large body of literature has explored empirically the effects of foreign inflows into the U.S. Treasury market over the past two decades. Warnock and Warnock (2009) show a negative impact of increased foreign holdings on yields from accumulated net purchases. Bernanke, Reinhart and Sack (2004) measure the short-term effect on yields from Japan's foreign exchange interventions, which typically involve buying U.S. Treasuries, and find a negative but small effect on the 10-year Treasury yield of less than 1 basis point per US$1 billion of purchases. There is additional evidence that, in the context of reserve flows into the U.S. Treasuries market, the effect of foreign holdings on yields tends to be short term. Beltran et al. (2013) estimate that up to two-thirds of this effect can be reversed when domestic investors respond and rebalance their own portfolios, since the downward pressure on yields exerted by non-residents may eventually make the yields less attractive to domestic investors. If domestic investors start selling their holdings, they will push prices downward and yields upward, offsetting some of the impact of foreign investors.

The large-scale asset purchases program that the Federal Reserve conducted in 2009 provides additional evidence of the impact of demand changes. D'Amico and King (2013) find that the cumulative effect of the US$300 billion in purchases of U.S. Treasuries, after controlling for endogeneity, was an average reduction in yields of 30 basis points. In other words, each US$10 billion contributed to a reduction of 1 basis point in the yield curve. Similar to the studies focusing on foreign official flows, D'Amico and King (2013) suggest that an exogenous and permanent reduction in the stock of securities increases prices and consequently reduces yields.

The inflows into the government securities of advanced economies have not been exclusive to Canada and Australia. In fact, in a review of 24 major advanced economies, Arslanalp and Tsuda (2012) find that, between 2004 and 2011, the foreign ownership of government securities increased from 20 per cent to 31 per cent in non-traditional reserve currencies and from 14 per cent to 21 per cent in traditional reserve currencies. In this wider context, Andritzky (2012) finds that a 10 per cent increase in the share of non-resident investors (official and private) in advanced G-20 countries is associated with a decrease in the yields of their respective long-term bonds of between 32 and 43 basis points. Ongoing Bank of Canada research suggests that foreign inflows may have a similar impact on the yields of Government of Canada securities.

A large portion of the rise in foreign ownership of advanced-economy government securities has been due to the increase in the overall size of global reserves. The distinction between the flows from official and private foreign investors is important to understanding the different effects on yields and broadly on financial markets. Although the specific effects are still being debated in the literature, Sierra (2010) finds that official and private flows may have distinct effects. The effect of official foreign net purchases resembles permanent negative supply shocks to the outstanding amount of U.S. Treasury securities available, increasing prices and lowering yields by reducing risk premiums. In contrast, private foreign net purchases appear to correlate positively to an increase in risk premiums.

Similarly, the type of investors has potential effects on the volatility of yields and refinancing risk. Arguably, private foreign investors are relatively more sensitive to external shocks than official reserves managers. Private investors may decide to enter or exit a market quickly and thus represent a relatively less stable source of demand for domestic debt. Growth in official foreign investors may thus be beneficial in lowering the variability of yields. Nevertheless, even official investors may decide to sell their assets at an inopportune time. For example, there is evidence that, during the recent global financial crisis, the procyclical responses of official reserves managers aggravated the funding problems in the U.S. money market and banking sectors (Pihlman and van der Hoorn 2010). Reserves managers may have responded to turbulence in foreign exchange markets by liquidating a portion of their U.S. holdings, which may have depressed prices and possibly worsened market conditions. Indeed, reserves managers are expected to respond to the presence of credit risk in a similar way as private investors. Aizenman and Sun (2009) find varied behaviour from managers regarding the decision to liquidate and use reserves to deal with the crisis.

Foreign reserve flows also have an effect on secondary market liquidity. Bank research indicates that an increased level of foreign reserves managers' holdings of Canadian government securities is an important contributor to changes in the liquidity of that market. One indicator of these changes has been the increased frequency in the use of the securities-lending facility of the Bank of Canada. Securities-lending operations are transactions in which, when specific bond issues are in very high demand in the repo market, the Bank supplies the securities that it holds on its own balance sheet to the market.[12] In 2013, the number of operations the Bank undertook increased substantially to 100, compared with an average of seven in the previous three years.[13] The reasons behind this dramatic increase are complex, but internal analysis indicates that the increase in official foreign holdings is one of the contributing factors. Reserves managers may have less incentive to lend their securities in the repo market, perhaps because they have less appetite than private investors to trade actively, or perhaps they consider potential profits from securities lending insufficient compensation for the provision of liquidity.

There are also indications that the secondary market turnover of securities is negatively related to the level of holdings by foreign reserves managers. The negative impact on liquidity may make it more difficult for investors to trade in the Canadian markets. Lower liquidity may also eventually translate into higher yields, since investors will demand additional compensation for entering illiquid markets.

12 Dreff (2010) discusses the importance of securities lending for market liquidity.

13 The number of securities-lending operations is available on the Bank's website under Banking and Financial Statistics, http://www.bankofcanada.ca/publications/bfs/.

Overall, however, since foreign central bank holdings are not the only factor affecting market liquidity, it is difficult to draw definitive conclusions about the impact of foreign official holdings on market liquidity. It is possible that high foreign central bank holdings coexist or even interact with other factors (for example, the new financial regulation requiring collateral for derivatives trades that are cleared through central counterparties), increasing the demand for government securities.

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Conclusion

The potential impact on Canadian financial markets from increased official foreign holdings, particularly the impact on the functioning of core Canadian funding markets, highlights the importance of the Bank of Canada's work to monitor these developments. Given the prospect for continued future growth of reserves, understanding these effects is even more important. Assuming a constant allocation of global reserves to the Canadian dollar of 1.8 per cent, a 1-percentage-point increase in global reserves implies an additional inflow of about $2 billion to Canadian-dollar-denominated assets.[14] This may be a conservative estimate of the official foreign demand for Canadian assets, since most of the growth in reserves is expected to come from emerging economies, which allocate a higher weight to the Canadian currency than advanced countries.

Overall, the holdings of official foreign investors are likely to remain a salient, and may become an even more important, feature of Canadian government debt markets.

14 The average annual growth rate of global reserves since 2007Q3 has been 10 per cent.

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