

Monitoring and Assessing Risks in Canada's Shadow Banking Sector

Toni Gravelle, Timothy Grieder and Stéphane Lavoie

Introduction

The global financial crisis illustrated how financial stability can be threatened by shocks and vulnerabilities originating not only within the banking sector, but also in less-regulated parts of the financial system. Vulnerabilities can also arise from activities linking various parts of the system that create complex webs of exposures and interdependencies. Hence, lessons from the crisis have reinforced the importance for authorities, both globally and in Canada, to take a system-wide approach to monitoring and assessing potential vulnerabilities within the global financial system, including in the shadow banking sector. This is of particular importance, given that the ongoing regulatory reform that is critical to reduce the risk that financial excesses will undermine the future stability of the financial system will raise the costs faced by banks and constrain their activities to some degree, creating additional incentives for credit-intermediation activities to move to the shadow banking sector.

Shadow banking is often described as credit intermediation that takes place at least partly outside the traditional banking system. Such intermediation, if appropriately conducted, can provide valuable market-based alternatives to bank funding and support economic activity. It can also be a source of financial innovation and help to enhance the overall efficiency and resilience of the financial system.

International work on shadow banking is focused on addressing the weaknesses exposed by the crisis and guarding against the re-emergence of systemic risks. At the Financial Stability Board (FSB), this work follows two main complementary tracks: (i) an annual monitoring exercise to assess global trends and potential risks in the shadow banking system worldwide and (ii) the development of policy recommendations to strengthen the oversight and regulation

of shadow banking. The policy recommendations being developed follow some general principles, stating that such regulatory measures should be:¹

- *focused*, targeting the externalities and risks that shadow banking creates;
- *proportionate* to the risks to the financial system;
- *forward looking and adaptable* to emerging risks and innovations;
- designed and implemented in an *effective* manner, balancing the need for international consistency against the need to take account of jurisdictional differences; and
- *regularly assessed and reviewed* following implementation, and improved as necessary.

Domestically, the Bank of Canada and other authorities have stepped up their collaborative efforts to monitor the evolution of Canada's shadow banking sector and assess potential risks that may stem from it. In an earlier FSR report, Chapman, Lavoie and Schembri (2011) discuss the main characteristics of the sector, vulnerabilities exposed by the crisis and possible reforms. This report takes a closer look at the structure and evolution of the shadow banking sector in Canada, including its main subsectors. It also introduces a framework to assess risks and identifies areas for monitoring.

¹ This work focuses on five priority areas: mitigating spillovers between the regular and shadow banking systems; reducing the susceptibility of money market funds to "runs"; assessing and mitigating systemic risks posed by shadow banking entities; assessing and aligning incentives associated with securitization; and dampening risks and procyclical incentives associated with repos and securities lending. For an overview of the Financial Stability Board's initial policy recommendations, see FSB (2012a).

Measurement and Risk-Assessment Framework

Measuring the shadow banking sector

There are two broad approaches to measuring the shadow banking sector: an entity-based approach and an activity-based one. The measure of shadow banking used by the FSB (2012b) in its annual monitoring exercise is based on assets held by “other financial institutions” and focuses on non-bank financial entities such as hedge funds, money market funds (MMFs), finance companies and structured investment vehicles. However, an entity-based measure may omit shadow banking activities undertaken by banks that may contribute to systemic risk. It may also lead to a different treatment of economically equivalent activities simply because they are conducted by different types of entities.

In the Canadian context, Chapman, Lavoie and Schembri (2011) measure shadow banking using an activity-based approach, focusing on bank-like intermediation activities conducted primarily through markets. This approach not only encompasses market segments such as repos, securitization and MMFs, it captures economically equivalent functions performed by regulated and unregulated entities. Given the prominent role of banks in most of these market segments in Canada, it also allows for the inclusion of activities that potentially pose systemic risks but are not considered “banking” activities in the traditional sense, even though the intermediation chain often involves a bank. As a result, this approach is broader than the typical regulatory policy discussions regarding shadow banking, which focus on credit intermediation conducted outside the perimeter of regulation, since it also includes activities involving regulated entities and, in some areas, an explicit government guarantee.

While an activity-based approach may be better suited to assess risks, it is still necessary to take into account entities that are engaged in these activities, especially to enable the design of appropriate policy recommendations and regulations. Hence, both the activity- and entity-based approaches provide useful perspectives.

Risk-assessment framework

The framework used in this report to assess activities undertaken in the Canadian shadow banking sector focuses on four risk factors (consistent with the approach developed by the FSB 2011), and on the extent to which the activities exhibit those factors, which are:

- maturity transformation, where short-term liabilities are used to finance longer-term assets;

- liquidity transformation, where the assets being financed are illiquid and cannot be easily converted into cash;
- leverage, which can occur both within individual entities or build up at various stages of the intermediation chain; and
- imperfect credit-risk transfer, where some credit exposures are held off-balance-sheet or implicit support is provided by an entity that could expose this entity to losses.

Although the first three factors are also inherent in ordinary banking, the presence of any of the four can leave shadow banking entities and the markets in which they undertake these activities vulnerable to “runs” (i.e., the sudden disappearance of liquidity). This, in turn, can contribute to the propagation or amplification of shocks to the financial system as a whole and undermine financial stability. This is particularly true if the runs occur on a large scale, or if important interdependencies and linkages are suddenly disrupted. Such risk creation may take place at the level of an individual shadow banking entity, but it can also be part of a complex chain of transactions in which these risks are realized in stages and create multiple forms of feedback between the shadow banking sector and the regulated banking system.

Shadow banking in Canada

Shadow banking activity in Canada grew significantly in the period leading up to the financial crisis, but has since declined modestly (**Chart 1**).^{2,3} Using the activity-based definition, the size of the shadow banking sector in Canada is about 40 per cent of the traditional banking sector, down from an average of about 50 per cent during the decade up to 2008 (**Chart 2**).⁴

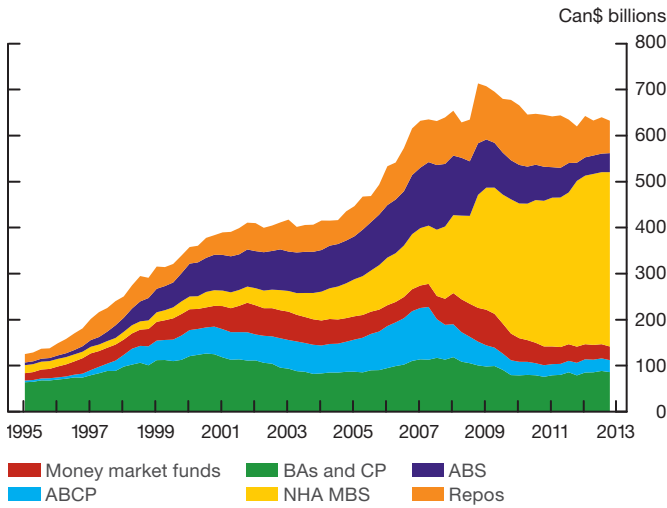
To put the size of the Canadian shadow banking sector in perspective, it was estimated to be roughly 40 per cent of nominal Canadian GDP at the end of 2012, while in the United States, shadow banking was approximately 95 per cent of U.S. GDP at the end of 2011. It is also important to note that the composition

² Our measure is based on the outstanding stock of liabilities generated by shadow banking activities in Canada. For an example of how the activity-based measure has been used elsewhere, see the U.S. case (OFR 2012, Box B).

³ Note that in Chapman, Lavoie and Schembri (2011), the estimated size of the repo component was based on turnover data. In this report, we use outstanding Canadian-dollar repo liabilities at Canadian chartered banks. Thus, although the repo segment is also smaller both in absolute terms and as a share of the total shadow banking sector, its measurement is more consistent with that of other segments of the shadow banking sector. The current estimate is conservative, since it excludes the roughly \$16 billion in repo liabilities at non-bank securities brokers (based on data from the Investment Industry Regulatory Organization of Canada as of the end of 2011).

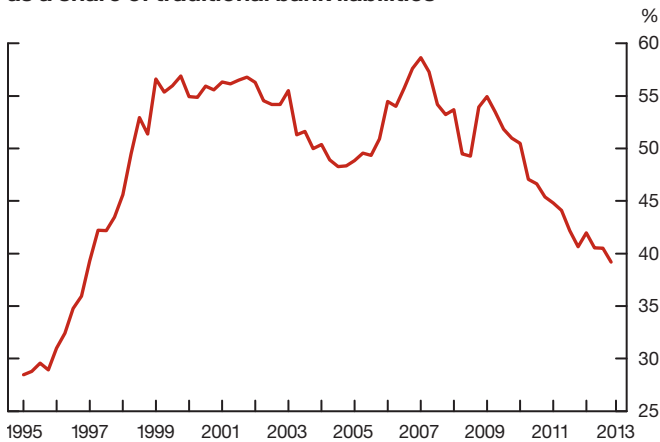
⁴ Our measure of traditional bank liabilities comprises gross deposits (including longer-term Canadian-dollar unsecured debt), subordinated debt and the foreign currency deposits of Canadian residents.

Chart 1: Components of the shadow banking sector in Canada



Sources: Bank of Canada, Canada Mortgage and Housing Corporation, DBRS and Investment Funds Institute of Canada Last observation: 2012Q4

Chart 2: Estimated size of Canada's shadow banking sector as a share of traditional bank liabilities



Sources: Bank of Canada, Canada Mortgage and Housing Corporation, DBRS, Investment Funds Institute of Canada and authors' calculations Last observation: 2012Q4

of shadow banking activities and their level of risk can differ significantly across countries. For example, as will be discussed later in this report, an overall assessment of risks in Canada needs to take into account that our measure of shadow banking includes certain activities undertaken by regulated financial institutions and instruments with an explicit government guarantee, which helps to alleviate potential financial stability concerns.

Using an activity-based measure, the Canadian shadow banking sector can be broken down into five major subsectors (the share of each is expressed as a percentage):

- (i) government-insured mortgage securitization, consisting of National Housing Act Mortgage-Backed Securities (NHA MBS) and Canada Mortgage Bonds (CMB) (almost 60 per cent);⁵
- (ii) private-label securitization,⁶ consisting of asset-backed commercial paper (ABCP) and term asset-backed securities (ABS) (10 per cent);
- (iii) repurchase agreements (repos) (10 per cent);
- (iv) money market funds (MMFs) (5 per cent); and
- (v) bankers' acceptances (BAs) and commercial paper (CP) (15 per cent).⁷

The composition of the shadow banking sector in Canada has changed noticeably since the financial crisis. The considerable decline in private-label securitization, repos and MMFs has been almost fully offset by the large increase in the size of NHA MBS liabilities, which more than doubled between 2007 and 2012.⁸

Structure and evolution of the shadow banking subsectors

This section presents a closer look at the four main subsectors of shadow banking in Canada.⁹ It also identifies areas that warrant ongoing monitoring in terms of their potential to present risk to the financial system.

Government-insured mortgage securitization

There are two major types of securitized debt instruments created from government-insured residential mortgages in Canada: NHA MBS and CMB.¹⁰ We include both as part of our activity-based measure of shadow banking, because they are constructed through a process of liquidity transformation, in which illiquid mortgages are pooled to create tradable and, hence, more-liquid debt securities.

Securitization of government-insured mortgages has grown substantially since 2007 and is currently the largest component of the Canadian shadow banking sector (Table 1). It has also become an important component of overall mortgage funding, and now makes up more

⁵ Chapman, Lavoie and Schembri (2011, Box 1) provide an illustration of NHA MBS and CMB structures.

⁶ Private-label securitization consists of securitized instruments that are not NHA MBS and CMB instruments.

⁷ There is some degree of double counting. For example, MMFs buy ABCP, BAs and CP.

⁸ The stock of ABCP declined as a result of the disappearance of the third-party ABCP market and substantial shrinkage of bank-sponsored programs.

⁹ We do not discuss the BA and CP subsector in detail, given its generally small size and relative stability since the crisis compared with the other subsectors.

¹⁰ As discussed below, government-insured mortgages are included in the pool of assets in some private-label securitizations. However, we define the government-insured securitization subsector of shadow banking to consist of only NHA MBS and CMB securitizations.

Table 1: Growth in securitized insured mortgages

	\$ billions	Share of NHA MBS in shadow banking (%)	Share of NHA MBS in total residential mortgage credit (%)	Share of total mortgage securitization in total residential mortgage credit (%) ^a
2007Q4	157	25	19	21
2012Q4	379	60	33	39

a. Includes outstanding covered bonds and private-label securitizations backed by insured mortgages

Sources: Bank of Canada, Canada Mortgage and Housing Corporation, DBRS and authors' calculations

than one-third (up from one-fifth) of all residential mortgage credit. Issuing debt securities backed by insured mortgages moves mortgage lending away from the traditional banking model where mortgages are funded largely by retail deposits, which represents an increase in the role of shadow banking in mortgage credit.

A major factor in the growth of insured-mortgage securitization is that, compared with other sources, particularly unsecured debt, CMB—and to a lesser extent NHA MBS—represent a very low-cost form of term funding (Table 2).

Table 2: Cost of funding alternative sources of mortgage finance (January 2013, estimate)

Instrument (5-year term)	Difference from 3-month BAs (basis points)	Charges/fees (basis points)	Total difference (basis points)
Canada Mortgage Bonds (CMB)	+1	12	+13
National Housing Act Mortgage-Backed Securities (NHA MBS)	+37	14	+51
Can\$ covered bonds ^a	+42	8	+50
Can\$ deposit note	+72	8	+80

a. Can\$ covered bonds have uninsured mortgages as their underlying assets. Sources: Dealer quotes and authors' calculations

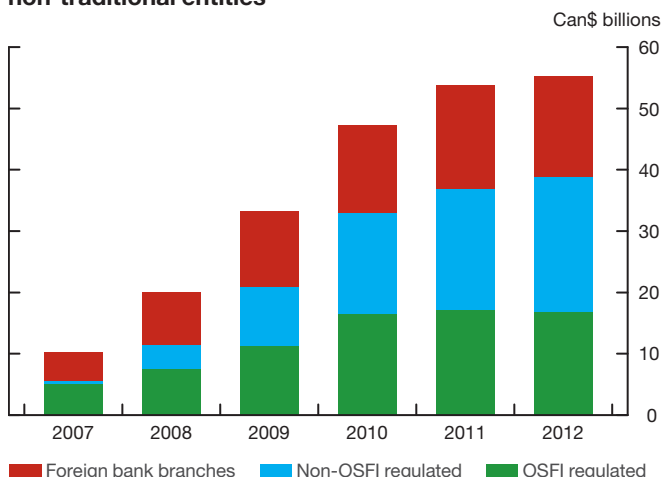
All mortgage lenders that meet the criteria set out by the Canada Mortgage and Housing Corporation (CMHC) have access to the CMB program.¹¹ In addition to supporting the overall growth of residential mortgage credit in Canada, access to low-cost funding from the CMB program has supported the growth of specialized mortgage lenders. The funding-cost advantage offered by the program is of particular value to “non-traditional” suppliers of residential mortgages (i.e., those that do not finance their loans through retail deposits), which typically

¹¹ CMHC criteria include a net worth requirement and a minimum level of financial performance. CMHC also defines the minimum terms of the underlying mortgages that can qualify for insurance.

have access to fewer alternative forms of term funding. As well, the government guarantee provided through the NHA MBS and CMB programs allows these lenders to raise funds at a much lower cost than they could on their own, permitting them to compete with larger, more highly rated mortgage providers. Chart 3 shows that the top nine non-traditional entities have been increasingly active.¹² Specifically, the amount issued by these entities has grown from \$10 billion (or 7 per cent of total NHA MBS) in 2007 to roughly \$55 billion (15 per cent of total NHA MBS) at the end of 2012. As a group, they now make up the fifth-largest issuer of NHA MBS (Chart 4). Four of these issuers are not supervised by Canadian federal authorities.¹³

Until recently, the rise of insured-mortgage securitization was also facilitated by the greater use of portfolio insurance by banks.¹⁴ Banks that insure portfolios of low loan-to-value (LTV) mortgages that were not insured at

Chart 3: NHA MBS outstanding at year-end by nine non-traditional entities



Source: Canada Mortgage and Housing Corporation

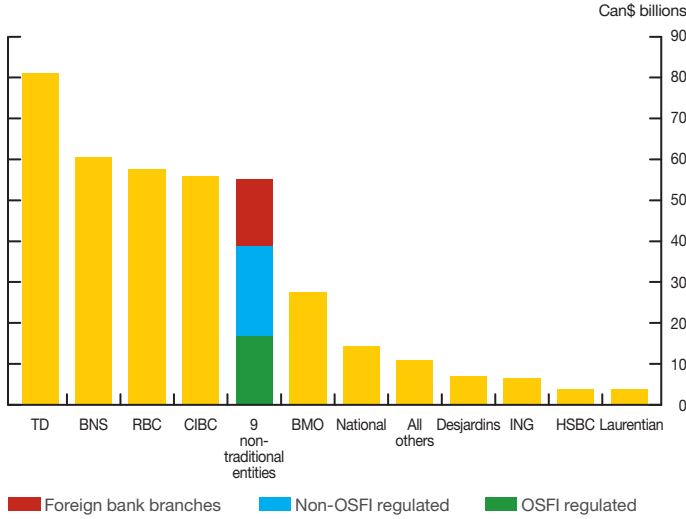
Last observation: December 2012

¹² These entities were chosen based on their reliance on insured-mortgage securitization for funding and the amount of their NHA MBS issuance.

¹³ The nine non-traditional entities included in Chart 3 and Chart 4 can be divided into three subgroups: firms that are not regulated by the Office of the Superintendent of Financial Institutions (OSFI), which include Macquarie Financial, First National Financial, IG Investment Management and MCAP (note that Macquarie's parent is subject to Australian prudential supervision); foreign bank branches, which are supervised by OSFI but not subject to capital or liquidity requirements, given that the parent companies are subject to such requirements from their home regulator on a consolidated basis (Deutsche Bank and Merrill Lynch Canada); and firms that are prudentially regulated by OSFI and subject to capital and liquidity requirements (Equity Trust, Home Trust and Peoples Trust).

¹⁴ Portfolio insurance is mortgage insurance that financial institutions purchase from CMHC or from private mortgage insurers on a pool of mortgages that have low loan-to-value (LTV) ratios. Some of the growth in the use of portfolio insurance has stemmed from financial institutions participating in the Insured Mortgage Purchase Program (IMPP) introduced by the Government of Canada as a temporary measure during the recent financial crisis. Through the IMPP, the government purchased NHA MBS from financial institutions. Institutions thus sought to obtain portfolio insurance so that they could package low LTV mortgages into NHA MBS and then sell them (as well as NHA MBS instruments consisting of mortgages that were insured at origination) through the IMPP.

Chart 4: NHA MBS outstanding



Source: Canada Mortgage and Housing Corporation Last observation: December 2012

origination, and then securitize them, obtain relief from prudential liquidity requirements.¹⁵ In addition to the low funding cost noted above, this relief offers incentives for banks increasingly to fund their mortgage activity through insured-mortgage securitization.¹⁶

During a crisis, various securitized debt instruments can suddenly be subject to a “buyers’ strike” and fire sales, causing funding liquidity stresses for financial intermediaries. This fire-sale dynamic can arise when there is a sudden change in investor perception, owing to the liquidity-transformation risk (noted above) that is present in securitization.¹⁷ In the case of government-insured mortgage securitizations, however, this shadow banking risk is largely mitigated by the explicit government guarantee that is provided for both the securities and the underlying mortgages.

Although insured-mortgage securitization entails little shadow banking risk per se—given the explicit government backing—it may contribute to risks in the financial system more generally. This occurs through three channels. First, growth in the stock of insured mortgages and the associated stock of securitized instruments tends to strengthen the existing linkages between the sovereign, financial institutions and macroeconomic risks generated

¹⁵ For example, NHA MBS and CMB are considered “Level 1 assets” for the purpose of the Basel Liquidity Coverage Ratio (LCR) (Gomes and Wilkins 2013), whereas unsecured (on-balance-sheet) mortgages do not qualify for LCR relief. Although banks that obtain insurance for low LTV mortgages also gain capital relief, it is not necessary for these mortgages to be securitized to gain this relief. Hence, banks seeking capital relief are not, on their own, necessarily an important driver of the growth of NHA MBS issuance.

¹⁶ The federal government announced in its March 2013 budget that it intends to prohibit the use of government-backed insured mortgages as collateral in securitization vehicles that are not sponsored by CMHC.

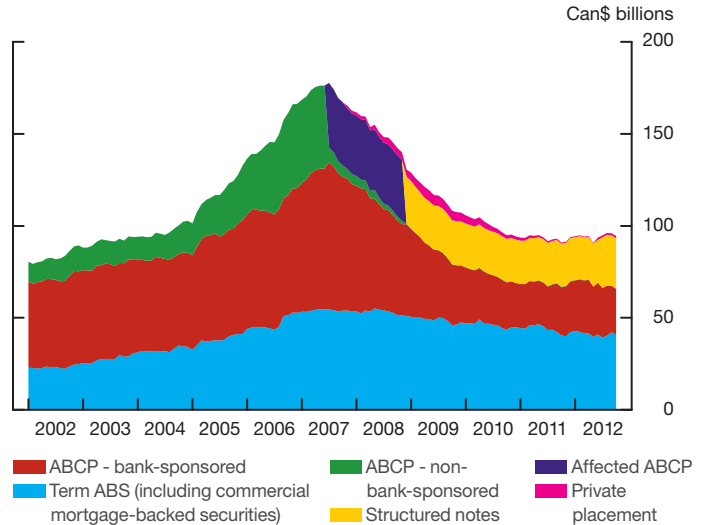
¹⁷ This transformation risk is manifested when investors suddenly view securities that were thought to be “informationally insensitive” or risk-free money equivalents as “informationally sensitive” or risky assets (Gorton and Metrick 2010).

by imbalances in both the housing and household sectors.¹⁸ Second, the prevalence of mortgage securitization increases the complexity and interconnectedness in the Canadian financial system relative to a traditional situation where mortgage lending is predominantly funded by branch-based deposits.¹⁹ Third, the low funding costs may encourage growth in leverage at lightly regulated financial institutions, which can then underpin stronger mortgage credit growth.

Private-label securitization

Private-label term ABS and ABCP are securities whose value and cash flows are backed by a portfolio of underlying assets. They are created through a process of liquidity transformation in which relatively illiquid assets (such as credit card receivables, mortgages, and auto loans and leases) are pooled to create fixed-income securities that can be traded in financial markets. The amount outstanding of private-label securitization in Canada declined from a peak of \$177.6 billion in August 2007 to \$94 billion in November 2012 (Chart 5).

Chart 5: Total private-label securitization outstanding in Canada



Source: DBRS Last observation: November 2012

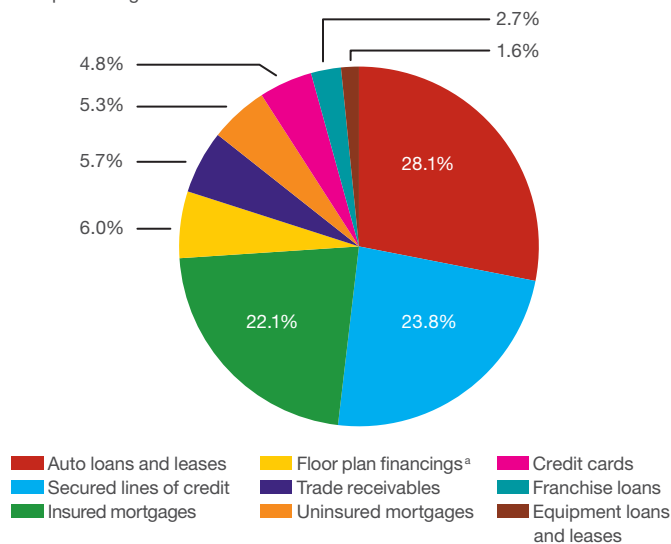
¹⁸ It has been well documented that the existence of implicit or explicit government guarantees for key financial intermediaries creates interdependencies between the credit risk of these intermediaries and that of the sovereign (Gray 2013, Box 2.1; Caruana and Avdjiev 2012; Acharya, Drechsler and Schnabl 2012; and Billio et al. forthcoming).

¹⁹ The complexity and interconnectedness increase because of the participation of several financial institutions that is required during the securitization process. For example, structuring CMB not only calls for government support via CMHC, but also involves major banks supplying bespoke interest rate swaps. There are also interconnections between the non-traditional entities and the banking sector, such as ownership stakes in these entities by regulated banks and trusts and, separately, the fact that the mortgage inventories of some of these entities are funded with lines of credit from banks. An example of cross-ownership is MCAP, in which MCAN (an OSFI-supervised entity) has a minority interest.

Most of the current outstanding private-label securitization is sponsored by the big six Canadian banks and Merrill Lynch Canada. Term ABS outstanding is predominantly backed by credit card receivables, commercial mortgages and auto loans, while ABCP is primarily backed by auto and equipment loans, residential mortgages and secured lines of credit (Chart 6).

Chart 6: Assets underlying ABCP

As a percentage



a. "Floor plan financings" consist of loans provided to affiliated dealerships to finance the acquisition of inventory (usually vehicle, agricultural and construction equipment), which in turn is sold to retail and commercial customers.

Source: DBRS

Last observation: November 2012

Over the past two years, there has been a noticeable increase in the funding of insured residential mortgages in the ABCP market, which can be attributed in part to small originators funding mortgages by means of bank-sponsored ABCP conduits. Mortgages and home-equity lines of credit represent a large portion of the ABCP market's underlying assets, together making up more than 50 per cent as of November 2012. Financing long-term illiquid mortgages by issuing short-term marketable securities creates liquidity risk and maturity-transformation risk that require close monitoring.

Nevertheless, recent regulatory developments should help to mitigate the potential for systemic risk emanating from this sector. The adoption of the new International Financial Reporting Standards should increase transparency because the reporting requirements for off-balance-sheet treatment are stricter. Further, the Basel III capital and liquidity standards will require regulated sponsors to hold additional capital for committed but undrawn lines of liquidity support, including those for ABCP. Finally, as announced in the March 2013 federal budget, the

government intends to prohibit the use of taxpayer-backed insured mortgages as collateral in securitization vehicles that are not sponsored by CMHC.

Repos²⁰

A repurchase agreement, or repo, is a mechanism for borrowing money by temporarily selling securities to a counterparty and agreeing to buy them back at a later date. On the flip side of that transaction, a reverse repo is used to lend money through the temporary purchase of securities. Repos and reverse repos (which will both be called "repos" in this report) are used by banks and securities dealers for general funding purposes, to finance long positions in marketable securities and to facilitate market-making activities (e.g., borrowing securities that are sold short). Repos can also be used as short-term investments to augment returns on cash, or by some participants, including hedge funds and pension funds, as a way to obtain leverage. While serving important purposes, repos almost always entail maturity transformation and leverage, and sometimes also involve liquidity transformation, depending on the type of assets used as collateral.

Trading activity in the Canadian repo market experienced a period of rapid growth starting in the mid-1990s, with total trading volumes tripling between 1994 and 2012. Average daily trading volumes, as reported by government securities distributors (GSDs), were estimated to be between \$48 billion and \$75 billion during the third quarter of 2012.²¹ Trading activity is highly concentrated, with the top five and top ten GSDs acting as parties to 67 per cent and 96 per cent, respectively, of all reported transactions.²² The vast majority of repos use bonds as collateral, almost all of which are issued by the Government of Canada, Crown corporations or provincial governments (Chart 7), suggesting that the degree of liquidity transformation is limited.

The repo market is not a predominant driver of leverage for chartered banks in Canada, since it currently accounts for only 4 per cent of their total Canadian-dollar liabilities (Chart 8) and 8 per cent of their Canadian-dollar wholesale liabilities. Nevertheless, it is a core funding market; hence, any significant disruption to its functioning can have destabilizing implications for participating institutions and for other connected markets.²³ The key potential systemic

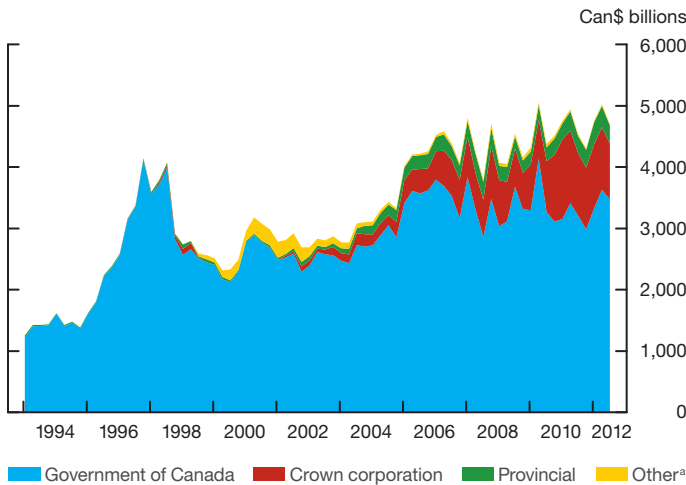
²⁰ Note that this section does not include a discussion of securities-lending activities, in part owing to data limitations. Since securities lending is functionally and economically similar to repos, it ideally should be part of our discussion of shadow banking activities. This is left for a future report.

²¹ Volumes are reported as a range, given the uncertain amount of double counting of transactions between GSDs. The list of GSDs is available at <http://www.bankofcanada.ca/markets/government-securities-auctions/>.

²² Other participants include pension funds, insurance companies, other fund managers, foreign banks and corporate treasurers. Comprehensive data on the relative participation of these groups are not available.

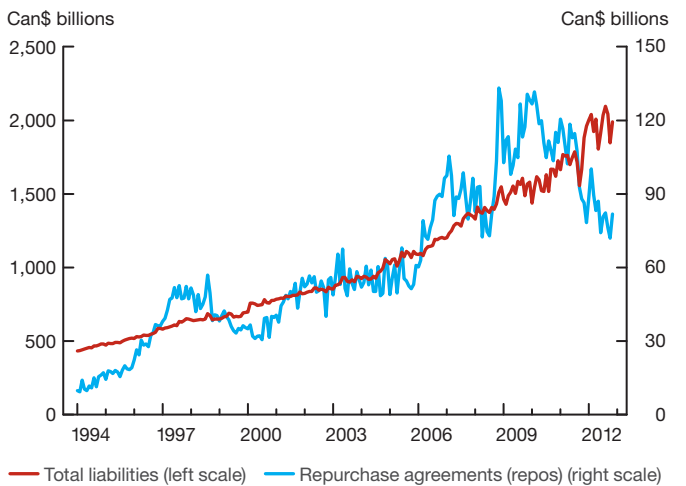
²³ For further details, see Fontaine, Selody and Wilkins (2009).

Chart 7: Repo and reverse repo transactions, by collateral



a. "Other" includes municipal and corporate debt as well as asset-backed securities.
 Source: Bank of Canada Last observation: 2012Q3

Chart 8: Aggregate Canadian-dollar liabilities of domestic banks



Source: Bank of Canada Last observation: November 2012

risk associated with repos is that the funding of assets may become impaired. The maturity breakdown of repos in Canada is substantially skewed toward short maturities (notably, overnight and open repos), which heightens this vulnerability.²⁴ However, the almost exclusive use of government-issued and guaranteed securities as underlying collateral mitigates this concern. Moreover, the expected growth of central clearing through the repo service of the Canadian Derivatives Clearing Corporation should help to further enhance the resilience of the repo market in Canada.²⁵

²⁴ Open repos have an unspecified repurchase date and can be terminated by either party at any time.

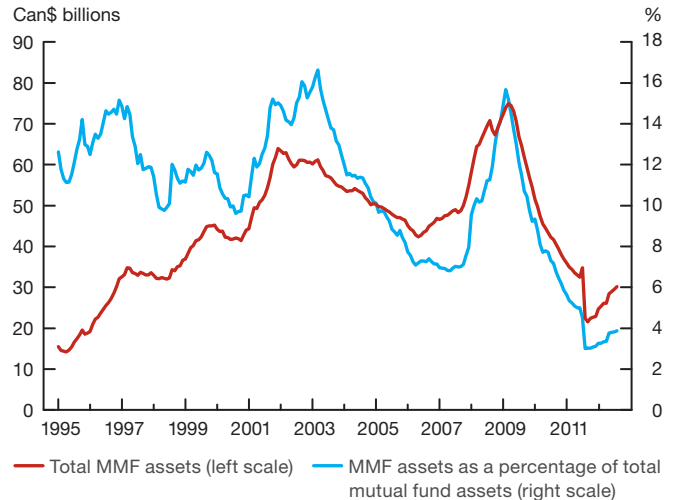
²⁵ For further details, see Côté (2013) and Chatterjee, Embree and Youngman (2012).

Nonetheless, shifts in the composition of the collateral used, or in the maturity breakdown of transactions, need to be monitored over time. In addition, anecdotal evidence suggests that there is an increasing use of repos by some Canadian pension funds as a means to implement leveraged investment strategies. If this practice continued to grow, it could be a source of concern in times of market stress and is thus also an area worth monitoring.

Money market funds

MMFs typically invest in very liquid, short-term, highly rated fixed-income securities. MMFs also lend excess cash through reverse repos. They act as intermediaries between individuals and institutions seeking to augment returns on cash holdings, on the one hand, and on the other, corporations and government entities wishing to issue debt in short-term funding markets to finance their operations. At the end of 2012, Canadian MMFs had approximately \$30 billion of assets under management, well below the peak of \$77.4 billion reached in 2009 (Chart 9). This decline is likely due in part to the low interest rate environment.

Chart 9: Canadian MMFs: Assets under management



Source: Investment Funds Institute of Canada Last observation: August 2012

The Canadian MMF industry is concentrated, with the 15 largest funds managing approximately 75 per cent of the industry's assets under management. These funds are offered through the large banks, as well as by asset-management firms, and primarily hold debt issued or securitized by banks, non-financial commercial paper, provincial and federal government debt, and debt issued by other domestic and foreign financial institutions.²⁶

²⁶ Other large MMFs are offered by Sun Life, Phillips Hager & North, Fidelity Investments Canada, Manulife, Investors Group, MD Physician Services and AGF Management.

Canadian MMFs perform limited liquidity and maturity transformation and typically employ no leverage.²⁷ Although the sector is unlikely to be of systemic importance to the Canadian financial system as a whole, given its small size, certain features of MMFs could nonetheless pose risks.

First, the prevalence of constant net asset value (CNAV) funds, as well as the general absence of a capital cushion, combined with potential uncertainty regarding the ability and willingness of a fund sponsor to provide support in times of stress, increases the risk of runs by investors.²⁸ Second, the lack of timely information associated with Canadian MMFs' holdings resulting from infrequent and delayed reporting (quarterly, with a two-month lag) may accentuate this risk. Finally, a majority of Canadian MMFs are sponsored by Canadian banks and these funds, as noted above, purchase large amounts of debt issued and securitized by Canadian banks. Thus, should investors suddenly withdraw funds from Canadian MMFs, Canadian banks may feel compelled to provide liquidity on short notice to meet investor redemptions, while simultaneously facing short-term funding pressures.

Conclusion

Lessons from the recent financial crisis reinforce the importance of approaching the financial system as a whole, since systemic risks can originate from the various individual parts of the system and from their interconnections. This reality underscores the need for authorities to be vigilant and to closely monitor the evolution of the shadow banking sector to understand the drivers of activity and assess their benefits, as well as their potential risks. The goal of such monitoring should be to help ensure that beneficial market-based credit-intermediation activities can be supported, while activities that pose excessive risks without clear benefits—or that primarily exist for regulatory arbitrage—can be adequately restrained. Clearly, making this determination is difficult, a challenge that is compounded by gaps in the data available to conduct an in-depth, system-wide monitoring of shadow banking, both globally and in Canada.

In this report, we reviewed the main components of the shadow banking sector in Canada to assess the extent of the risks posed by the following four factors—liquidity

transformation, maturity transformation, leverage and credit-risk transfer—and to identify potential vulnerabilities. Overall, the Canadian shadow banking sector as measured by our activity-based definition is smaller relative to both the traditional banking sector and the Canadian economy than its U.S. counterpart. The composition of the sector is also relatively conservative, with a large portion of activities conducted by or involving regulated entities and backed by an explicit government guarantee. This reduces the overall significance of shadow banking concerns.

Nonetheless, this report identified areas that warrant focused monitoring because of their potential to transmit risks to the financial system, including the strong growth in insured-mortgage securitization by specialized mortgage lenders, the increasing use of repos by some pension funds to obtain leverage and the funding of longer-term assets such as residential mortgages with the issuance of short-term ABCP.

The Bank of Canada will continue to refine and expand its monitoring of the Canadian shadow banking sector by, for example, supplementing the activity-based approach with an entity-based approach and evaluating the role of various types of non-bank entities (such as finance companies, hedge funds and pension funds) to complement the analysis of market-based credit-intermediation activities presented in this report. The gaps in the available data that hamper the ability to conduct an in-depth assessment of shadow banking and its potential risks increase the importance of co-operation among various public sector authorities to share information and raise the overall level of knowledge and awareness so that a more complete picture of the overall financial system can be developed. In this regard, the Bank will maintain an ongoing dialogue with other public sector authorities that share an interest in the stability of the Canadian financial system.

²⁷ Regulations require that at least 5 per cent of assets must be convertible into cash within one day, and 15 per cent within a week. As well, MMFs are permitted to borrow no more than 5 per cent of their net assets for the purposes of funding investor redemptions. For more information, see http://www.osc.gov.on.ca/en/SecuritiesLaw_rule_20120210_81-102_noa-mutual-funds.htm and http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/47_2_2000.

²⁸ For example, some MMFs in the United States did experience a run at the peak of the financial crisis, after a prime fund “broke the buck” following the collapse of Lehman Brothers in mid-September 2008. A comprehensive discussion of runs in MMFs (particularly CNAV funds) can be found in Witmer (2012).

References

- Acharya, V., I. Drechsler and P. Schnabl. 2012. "A Tale of Two Overhangs: The Nexus of Financial Sector and Sovereign Credit Risks." Bank of France *Financial Stability Review* (April): 51–56.
- Billio, M., M. Getmansky, D. Gray, A. Lo., R. Merton and L. Pelizzon. "Sovereign, Bank and Insurance Credit Spreads: Connectedness and System Networks." Sloan School of Management Working Paper, Massachusetts Institute of Technology (forthcoming).
- Caruana, J. and S. Avdjiev. 2012. "Sovereign Creditworthiness and Financial Stability: An International Perspective." Bank of France *Financial Stability Review* (April): 71–85.
- Chapman, J., S. Lavoie and L. Schembri. 2011. "Emerging from the Shadows: Market-Based Financing in Canada." Bank of Canada *Financial System Review* (June): 29–38.
- Chatterjee, P., L. Embree and P. Youngman. 2012. "Reducing Systemic Risk: Canada's New Central Counterparty for the Fixed-Income Market." Bank of Canada *Financial System Review* (June): 43–49.
- Côté, A. 2013. "Toward a Stronger Financial Market Infrastructure for Canada: Taking Stock." Remarks to the Association for Financial Professionals of Canada, Montréal, 26 March.
- Financial Stability Board (FSB). 2011. "Shadow Banking: Strengthening Oversight and Regulation." Recommendations of the Financial Stability Board, 27 October.
- Financial Stability Board (FSB). 2012a. "Strengthening Oversight and Regulation of Shadow Banking: An Integrated Overview of Policy Recommendations." FSB Consultative Document, 18 November.
- . 2012b. "Global Shadow Banking Monitoring Report 2012." 18 November.
- Fontaine, J.-S., J. Selody and C. Wilkins. 2009. "Improving the Resilience of Core Funding Markets." Bank of Canada *Financial System Review* (December): 41–46.
- Gomes, T. and C. Wilkins. 2013. "The Basel III Liquidity Standards: An Update." Bank of Canada *Financial System Review* (this issue).
- Gorton, G. and A. Metrick. 2010. "Regulating the Shadow Banking System." *Brookings Papers on Economic Activity* 41 (Fall): 261–312.
- Gray, D. 2013. "Interconnectedness between Sovereigns and Financial Institutions." International Monetary Fund, Global Financial Stability Report (April), Box 2.1.
- Office of Financial Research (OFR). 2012. *Annual Report*.
- Witmer, J. 2012. "Does the Buck Stop Here? A Comparison of Withdrawals from Money Market Mutual Funds with Floating and Constant Share Prices." Bank of Canada Working Paper No. 2012-25.