

Emerging from the Shadows: Market-Based Financing in Canada

James Chapman, Stéphane Lavoie and Lawrence Schembri*

INTRODUCTION

The global financial crisis has brought market-based financing (MBF) out of the shadows and into the lime-light. MBF refers to credit-intermediation activities similar to those performed by banks. Like bank intermediation, these activities involve maturity or liquidity transformation, possibly with some degree of leverage, but they are conducted primarily via markets rather than within financial institutions (although in many instances a bank is involved at some point in the intermediation chain). The MBF sector is often referred to as the “parallel,” “shadow” or “unregulated” banking sector, because MBF intermediation activities are subject to a different regulatory framework, and typically are not prudentially regulated and supervised to the same extent as the traditional intermediation activities performed by banks (Financial Stability Board 2011a).¹ For the purpose of this article, we define MBF to include intermediation activities that are closer in nature to traditional bank intermediation and to exclude conventional corporate debt or equity financing, since those activities do not incorporate significant maturity or liquidity transformation. The MBF sector is defined to encompass bank-like intermediation activities, as well as the related markets and their participants.

The MBF sector can bring significant economic benefits to the overall financial system and to the economy. It contributes to efficient funding and the transfer of credit risk. It also provides competition to the traditional banking sector and can diversify credit sources available in the economy, possibly allowing creditworthy borrowers to

obtain credit that they might not have been able to obtain otherwise. Thus, if the associated risks—including both credit risk and liquidity risk—are properly managed, MBF can be a welfare-enhancing financial innovation. But the MBF sector involves a wide range of activities with different levels of benefits and risk. At the riskier end of the continuum are highly complex, opaque and levered securities, such as some of the non-bank-sponsored asset-backed commercial paper (ABCP) that existed before the crisis. In contrast, government-guaranteed mortgage-backed securities (MBS), such as the National Housing Act (NHA) MBS program operated by the Canada Mortgage and Housing Corporation (CMHC), while considered part of the MBF sector based on the above definition, lie at the less-risky end of the range because of their lack of embedded leverage and the government guarantees that eliminate credit risk.

Because parts of the MBF sector played a significant role in the financial crisis in advanced countries, the sector warrants a closer review.² The purpose of this article is threefold: (i) to provide an overview of MBF in Canada, highlighting its key characteristics; (ii) to examine potential vulnerabilities that could have a material impact on systemic risk; and (iii) to review possible reforms that have been proposed in Canada and abroad, drawing on lessons from the crisis.

MBF activities are significant in several advanced countries, and are comparable in size to traditional lending activities performed by the regulated banking sector. In Canada, the most prominent MBF activities are repurchase (repo) agreements, government-guaranteed securitized mortgages, asset-backed securities (ABS) involving consumer credit receivables, and short-term wholesale

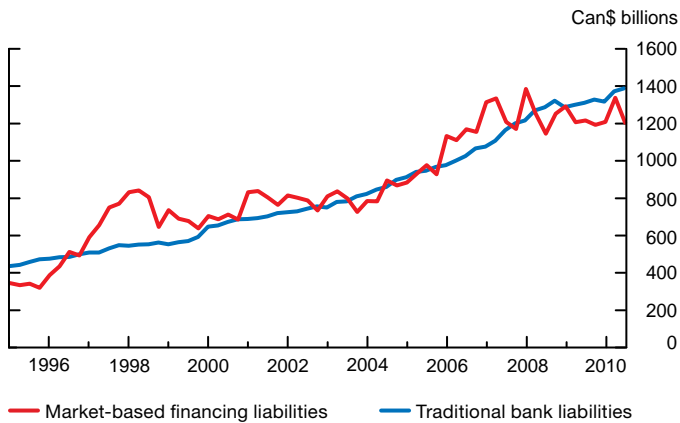
* This report was prepared with the research assistance of Derrick Schroeter.

¹ Paul McCulley (2007) was the first to use the term “shadow banking” at the 2007 Jackson Hole Central Bank Conference, but Raghuram Rajan (2005) had identified the vulnerabilities associated with this sector at the same conference two years earlier.

² Shleifer (2010) reviews the debate on the role of MBF in the U.S. financial crisis.

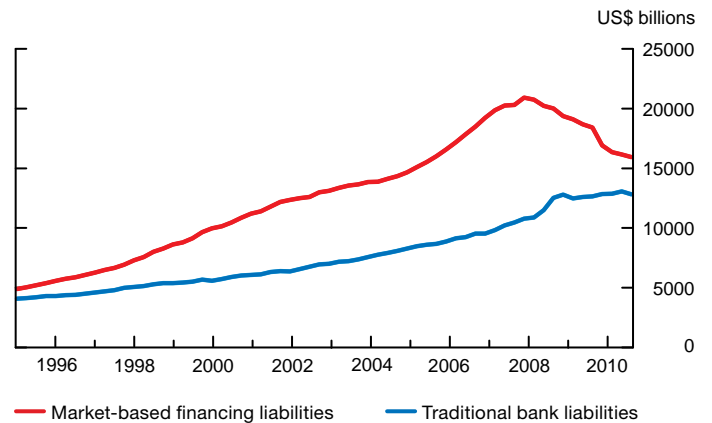
Chart 1: MBF liabilities vs. traditional bank liabilities

Canada



Notes: MBF liabilities include short-term debt instruments, repos, NHA MBS, special-purpose corporations and shares of money market mutual funds outstanding. Traditional bank liabilities are the sum of gross deposits, subordinated debt and foreign currency deposits at Canadian chartered banks.
Source: Bank of Canada Last observation: 2010Q3

United States



Notes: MBF liabilities include short-term debt instruments, repos, net securities loaned by funding corporations, total liabilities of government-sponsored enterprises and pool securities, total liabilities of ABS issuers, and shares of money market mutual funds outstanding. Traditional bank liabilities are the total liabilities of the commercial banking sector, as per the flow of funds data.
Source: U.S. Federal Reserve Last observation: 2010Q4

funding. Although the crisis caused the growth of MBF activities to slow, and even reverse in some jurisdictions, overall, MBF has expanded significantly over the past 15 years in advanced countries, most notably in the United States and the United Kingdom, but also in Canada. This growth has largely been determined by financial innovation and the expansion and deepening of financial markets.

Before the crisis, MBF activities were more pervasive and generally riskier in the United States than in Canada, and represented a significant source of systemic risk. In Canada, one segment of the MBF sector, the non-bank-sponsored ABCP market, experienced a severe disruption during the crisis, while other segments such as the repo market and the mortgage-backed securities market performed relatively well.³

As a result of the crisis, reforms to the MBF sector are being considered at the international level, under the auspices of the Financial Stability Board (FSB).⁴ These reform efforts are also driven by concerns about potential regulatory arbitrage, owing to the implementation of tighter capital, liquidity and leverage rules for the regulated banking sector under Basel III. These tougher requirements could increase the incentive for financial activities to move to the MBF sector. If left unchecked, this development could lessen the benefits of financial reforms in terms of the reduction of systemic risk. The work of the FSB (2011a) will

focus on three issues: to define the sector; to develop the data and methodology to systematically monitor the sector; and to review a set of feasible policy options. Any regulatory reforms aimed at MBF will have to strike a balance, however, between expanding the perimeter of regulation to manage the risks associated with activities in the MBF sector and maintaining an environment for beneficial competition and financial innovation that enhances the efficiency and resilience of financial intermediation.

KEY CHARACTERISTICS OF MBF

One of the main features of MBF is its rapid growth over the past 15 years (**Chart 1**). While most of the forces driving the growth of MBF are beneficial, others may increase systemic risk. Clearly, the desire to realize efficiencies in hedging, diversification and credit intermediation is responsible for much of the innovation in financial activities. More worrisome are financial innovations driven by regulatory arbitrage or, in other words, by the desire to circumvent existing regulation. For example, the securitization of non-conventional residential mortgages in the United States was caused, in part, by bank capital requirements that encouraged banks to take these assets off their balance sheets, yet maintain liquidity support for the securitization vehicles, resulting in imperfect risk transfer. There are other examples in which financial innovation occurs for a particular purpose, and then the new instrument is repackaged, often with leverage, to boost its expected return, which also increases its risk. For example, commercial paper was originally developed to allow firms to finance short-term funding requirements, but then ABCP was issued to finance the securitization of

³ Kamhi and Tuer (2007) provide an analysis of the collapse of the non-bank ABCP market.

⁴ At the Seoul Summit in November 2010, the G-20 leaders asked the FSB to develop recommendations to strengthen the regulation and oversight of the shadow banking system by mid-2011.

longer-term assets. ABCP paid a higher expected return, but it was also subject to more risk. The MBF sector is constantly evolving over time in response to the effects of financial innovation and regulatory changes.

While competitive market forces generally produce outcomes that are welfare enhancing in normal times, the absence of public oversight, guarantees and liquidity backstops can increase the vulnerability of the MBF sector to shocks, which could result in financial panics (similar to bank “runs”), market failures and, in turn, systemic risk.⁵ These vulnerabilities are likely to be exacerbated when the financial activities are motivated primarily by regulatory arbitrage.

Another key characteristic of MBF is its heterogeneity within and across countries. In Canada, the key activities are: (i) collateralized short-term borrowing and lending of cash and securities via repos; (ii) issuance of securitized debt instruments backed by pools of individual loans such as credit card receivables, car and student loans, and residential and commercial mortgages; and (iii) wholesale short-term borrowing and lending. These activities are conducted through the repo market, the market for mortgages and other ABS, and the markets for commercial paper and other short-term debt instruments issued by financial and non-financial corporations (e.g., bankers’ acceptances, ABCP). The financial institutions involved in MBF activities include both regulated and unregulated institutions that directly participate in these activities, such as banks, securities dealers, hedge funds and money market mutual funds (MMMFs), and institutions that facilitate MBF activities, such as credit-rating agencies (CRAs) and mortgage insurers.⁶ MBF also varies across jurisdictions, depending on the structure and regulation of the banking system.

Comparing the MBF sector in Canada and the United States

Total activity in the MBF sector in Canada and the United States, as measured by liabilities outstanding, has increased three to four times since 1995 (**Chart 1**).⁷

- 5 It is important to note that the failures of individual institutions and markets that occurred during the recent financial crisis were not primarily due to a lack of public involvement in the MBF sector. Excessive risk-taking by market participants owing to a lack of understanding of the securitized products also played a part. Moral hazard was created through the mistaken belief that public authorities would intervene to prevent losses in MBF activities.
- 6 In Canada, DBRS rates securitized instruments, and the CMHC insures mortgages, including some that are subsequently securitized. See CMHC (2009) for further details. In the United States, the government-sponsored enterprises Freddie Mac and Fannie Mae facilitated the securitization of the bulk of conventional mortgages.
- 7 Note that using total liabilities to compare the size of MBF with that of the traditional banking sector is imperfect because of the potential for double counting. For example, a deposit put into an MMMF that is in turn used to buy commercial paper creates two MBF liabilities, whereas the same intermediation handled by a bank would result in the creation of only one liability. Double counting is also possible in the regulated banking sector, but is likely to be less prevalent.

Interestingly, in Canada, the volume of MBF activities has generally increased at the same pace as traditional bank-intermediation activities and, since 1999, has been approximately the same size, reflecting the important role of banks in MBF. In comparison, the MBF liabilities outstanding in the United States have grown more rapidly. At their peak before the crisis, they were roughly twice as large as traditional bank liabilities. Currently, they are about 25 per cent larger. Since 2007, total MBF activity has remained relatively unchanged in Canada, while it has declined in the United States by approximately 25 per cent over the same period.

Chart 2 and **Chart 3** provide a breakdown of total MBF liabilities by component in Canada and the United States, before (2007) and after (2010) the crisis. In Canada, the repo market is the dominant component of the MBF sector, representing 55 per cent of total liabilities. In recent years, the securitization of mortgages has increased sharply, in particular, the issuance of NHA MBS (see **Box 1** for further details), which increased from about 5 per cent of outstanding residential mortgages in 1998 to almost 20 per cent in 2007 (Witmer 2010).⁸ In the United States, repos, MBS and other ABS increased sharply until the crisis and have since fallen back. Gorton and Metrick (2010) tie the growth of the repo and ABS/MBS markets in the United States together, noting that the latter securities were often used as collateral in repo transactions.⁹ This practice was different in the United States than in Canada, where most of the collateral used for repo transactions is composed of securities issued or guaranteed by government entities (**Chart 4**).¹⁰

- 8 This upward trend was the result of several factors: changes in the NHA MBS program (e.g., more flexible features); the creation of the Canada Mortgage Bond (CMB) program; increased investor demand for securitized products before the crisis; and the Government of Canada’s Insured Mortgage Purchase Program, which was instituted during the crisis to purchase mortgages from Canadian financial institutions (Witmer 2010). More recently, covered bonds have been used by Canadian banks as another means of borrowing against their mortgage holdings.
- 9 Gorton and Metrick (2010) argue that the development of the repo market was also driven, in part, by regulation, in particular the lack of insurance on deposits greater than \$100,000 and the bankruptcy treatment of repo contracts. Repos are essentially collateralized deposits that give the depositor the right to claim the collateral in the event of the bankruptcy of the borrowing institution. Other factors also contributed to the development of repo markets. In particular, securities dealers use repo transactions to facilitate their market-making activities, including financing inventories of securities and borrowing securities to sell to clients. Consequently, the existence of a repo market enhances liquidity and price discovery in secondary markets. Repos, however, increase leverage and can be used to boost expected returns, which may increase risk if, for example, long-term assets are financed with short-term repos that need to be rolled over frequently. Morrow (1995) provides an overview of the early development of Canadian repo markets.
- 10 About 75 per cent of repo transactions in Canada use Government of Canada bonds and treasury bills as collateral. Of the remaining 25 per cent, most consist of federal or provincial government-guaranteed securities.

Chart 2: Canadian MBF, by component, before and after the crisis

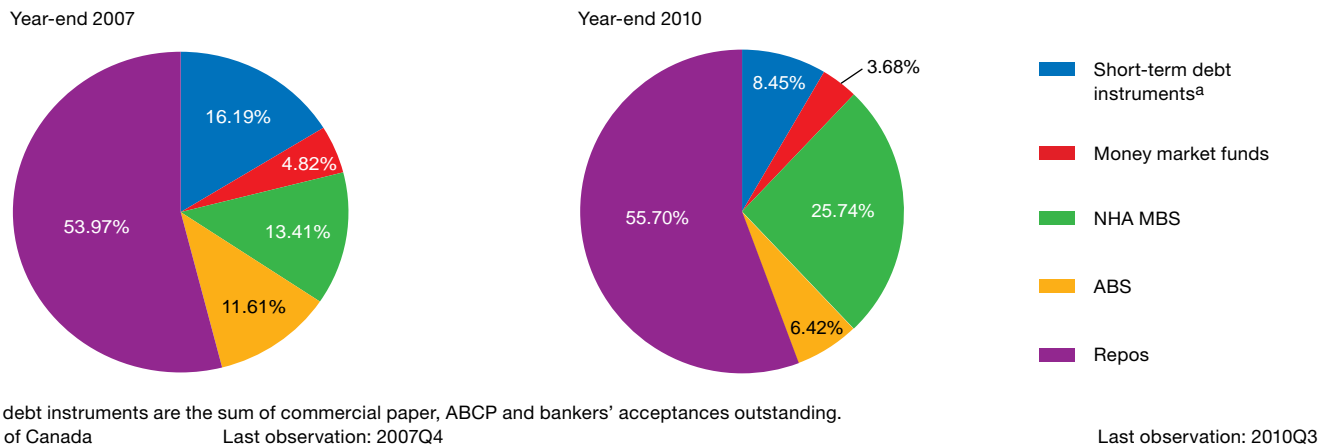
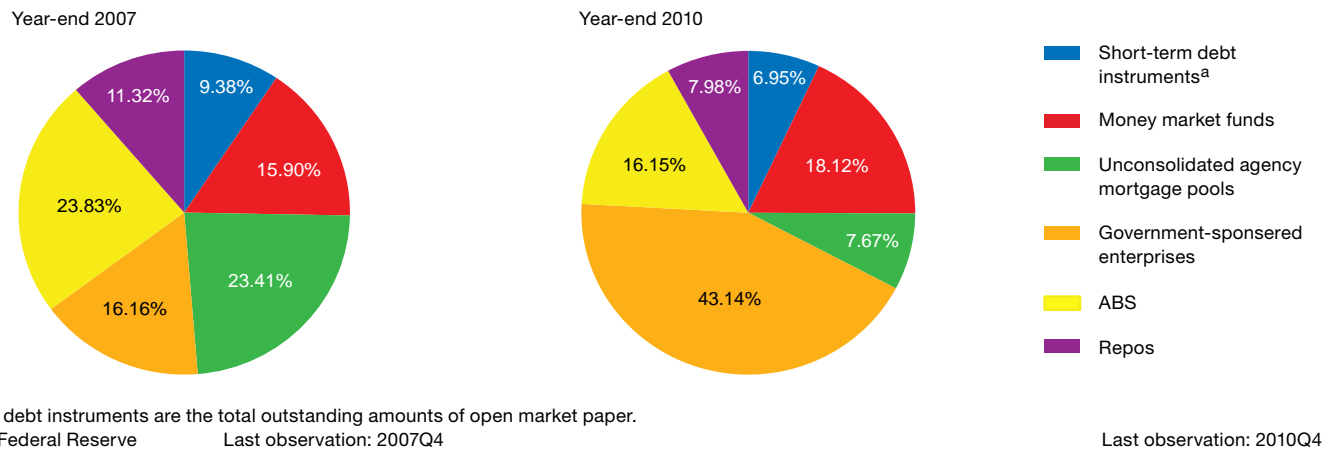


Chart 3: U.S. MBF, by component, before and after the crisis



While many regulated financial institutions, such as banks, insurance companies, pension and mutual funds, as well as provincially regulated credit unions, participate in MBF activities, other institutions that lie outside the perimeter of regulation are also active. These include hedge funds, which may be buyers of ABS and users of repo financing, and finance and leasing companies, which issue ABS to finance various pools of loans. A notable characteristic of this sector in Canada, compared with the U.S. sector, is the greater participation by regulated financial institutions. For example, virtually all of the participants in the NHA MBS market are either federally or provincially regulated. Similarly, the dominant participants in the repo market are banks and regulated securities dealers.

Comparing the MBF sectors in Canada and the United States is instructive for understanding the vulnerabilities of the Canadian sector and the related systemic risks (discussed in the next section), and also for considering possible regulatory reforms. In Canada, the dominant and active participation of the major regulated financial

institutions in MBF activities and the widespread use of government or government-guaranteed securities as collateral to underpin these transactions render the Canadian MBF sector less vulnerable. Nonetheless, because of the dynamism and heterogeneity of the sector, it merits close monitoring to understand its possible impact on systemic risk.

KEY VULNERABILITIES IN MBF EXPOSED BY THE CRISIS

As discussed above, MBF is essentially a market-based alternative to the traditional financial intermediation processes that take place within a typical bank. Consequently, MBF activities are subject to the same vulnerabilities as traditional bank intermediation, but they do not receive the same degree of prudential oversight, nor do they typically have the same access to publicly provided liquidity facilities. These potential systemic vulnerabilities are both cross-sectional and procyclical, and are exacerbated by

National Housing Act Mortgage-Backed Securities

A major type of securitization used in Canada consists of mortgage-backed securities (MBS) that are guaranteed by the Canada Mortgage and Housing Corporation (CMHC) under the authority of the National Housing Act (NHA). This type of security is known as an NHA MBS. Under the NHA, the securities issued or guaranteed by CMHC are fully backed by the Government of Canada.

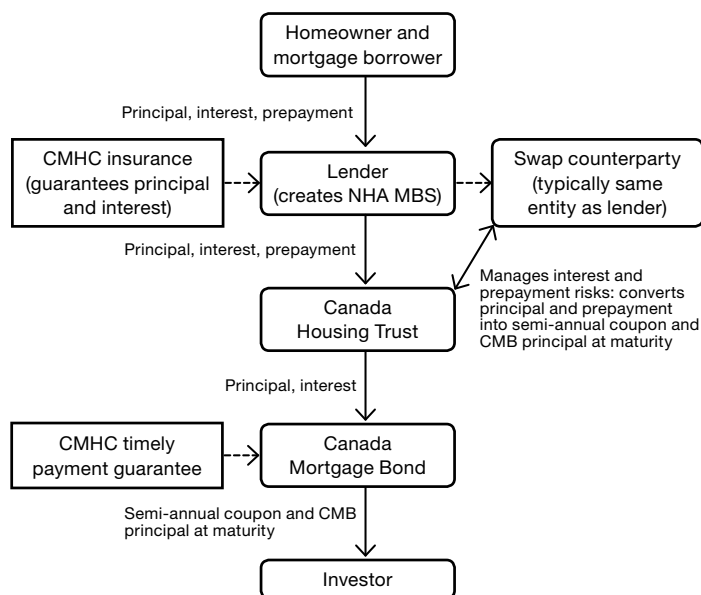
A financial entity that would like to participate in issuing NHA MBS must meet minimum criteria set out by CMHC. These criteria include a net worth requirement and a minimum level of financial performance.

To issue NHA MBS, a participant in this program (e.g., a chartered bank) creates a pool of insured mortgages that it has originated subject to a set of government-approved underwriting standards that are of consistent quality. The pool is then guaranteed, for a fee, by CMHC; this guarantee covers the principal and interest on securities issued in the pool. The pool of mortgages is placed with a trust, and securities are issued against the cash inflows from the mortgages. Investors in these securities are not subject to credit risk, owing to the CMHC timely payment guarantee as well as the CMHC insurance on the underlying mortgages. The NHA MBS may be subsequently sold to the Canada Mortgage Bond (CMB) program, in which case the Canada Housing Trust issues non-amortizing, semi-annual coupon bonds backed by the mortgage pools and fully guaranteed by CMHC and the Government of Canada. The interest rate and prepayment risks inherent in the underlying mortgages are managed via a swap transaction and investments in permitted securities. The broad outline of this process is shown in **Figure 1**.

In addition to the federal government guarantee and the interest rate and prepayment risk hedges described above, the NHA MBS program includes many other mechanisms to mitigate credit risk. A detailed description of the NHA MBS program can be found in CMHC (2006).

The NHA MBS program started in 1987 and, in 2001, was enhanced by the CMB program, which significantly increased the outstanding volume and secondary market liquidity of securitized mortgages.

Figure 1: The NHA MBS securitization process



While NHA MBS and CMBs have identical credit risk as securities issued by the Government of Canada, the liquidity risk is not the same, especially during periods of severe market stress. This greater liquidity risk, which is not unique to those securities, is evidenced by the spread between CMBs and equivalent Government of Canada bonds, which reached nearly 90 basis points during the crisis, compared with approximately 15 basis points before the crisis and the current level of about 25 basis points.

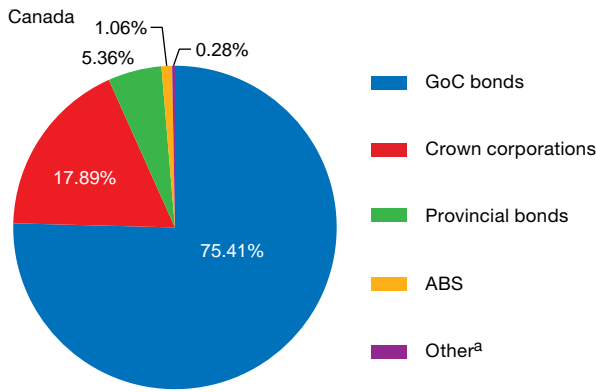
the linkages between the MBF and traditional banking sectors.

While the Canadian MBF sector escaped the worst of the global financial crisis, the disappearance of the non-bank-sponsored ABCP market illustrated some of the latent vulnerabilities of MBF, which are examined in more detail below. The ABCP market collapsed because of the high degree of leverage embedded in these structured instruments, which were backed by troubled offshore assets and had inadequate arrangements for liquidity support.

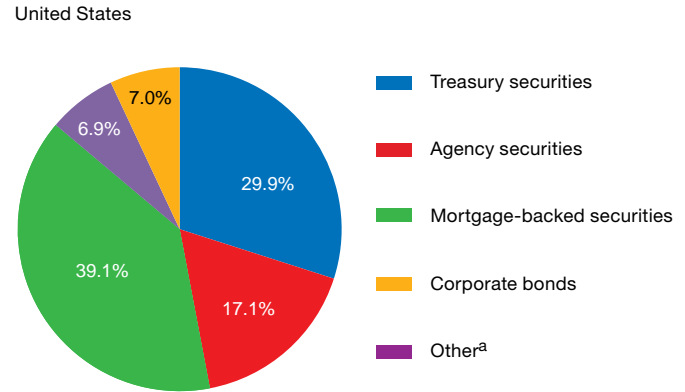
Panics and liquidity crises

The first cross-sectional vulnerability that might arise in the MBF sector is exposure to panics. Owing to their funding structure, entities that rely on MBF are susceptible to liquidity crises that resemble a classic bank run. In MBF, longer-term lending is financed by short-term funding, which is usually provided by commercial and institutional

Chart 4: Typical components of repo market collateral



a. Other securities include corporate, municipal, and bank trust mortgage company paper.
Source: Bank of Canada Last observation: 2010Q3



a. Other securities include equities, asset-backed securities, money market instruments, ETFs, CDOs, and municipal debt.
Source: U.S. Federal Reserve Last observation: 9 April 2010

investors.¹¹ This intermediation takes place outside traditional bank channels by, for example, the sale of short-term assets such as commercial paper or ABCP. An entity may also fund the purchase of an asset by using that asset as collateral in a repo agreement. In the Canadian case, in addition to repos, wholesale funding most often consists of wholesale deposits and short-term debt securities (such as bearer deposit notes, commercial paper or bankers' acceptances). Because of the maturity mismatch between the funds loaned and received, borrowers are vulnerable to runs, since they invest in assets that may not be easily sold if lenders simultaneously refuse to roll over their short-term funding.

The non-bank Canadian ABCP conduits that were affected during 2007 provide a prime example of how a liquidity crisis can unfold with MBF. In that case, maturing instruments were not rolled over into new issues as investors became more aware of, and concerned about, the potential risks. This rollover risk is similar to the risk of bank runs in traditional banking, with the important difference that MBF lenders do not benefit from deposit insurance, and MBF borrowers typically do not have direct access to central bank liquidity.

Interconnectedness and counterparty credit risk

A second vulnerability in MBF is counterparty credit risk arising from the interconnected nature of the MBF sector. MBF investors are exposed to credit risk, both from their direct counterparty and, more generally, in the form of a

¹¹ An important category of large investors consists of MMMFs, which manage the liquid assets of corporate clients, as well as individual investors. See Kacperczyk and Schnabl (2010) for more details on MMMFs and the commercial paper market in the United States.

network externality.¹² While the former risk is generally well understood, the latter is unlike the risk faced by a depositor in a traditional bank.¹³

The network externality in MBF is exacerbated by the replacement of internal bank processes with market-based alternatives, which creates a network of obligations and flows that require an investor to both be aware of the creditworthiness of its direct counterparty and to understand how the counterparty is connected to the rest of the financial system. Caballero and Simsek (2009) define this vulnerability as a "complexity-externality." In normal times, this network functions efficiently to transfer funds and risks between participants. During a crisis, however, each participant in the system can be exposed not only to the risk of its own counterparties, but also to that of their counterparties' counterparties, and so on. This complex network of interconnected obligations may become too difficult to comprehend, and the resulting uncertainty may cause or amplify a financial panic. With reference to the non-bank ABCP example used above, investors became concerned not only about their own exposures to the troubled assets, but about their counterparties' exposures as well.

Securitization: Opacity and illiquidity

To mitigate the different types of counterparty risk, MBF is often conducted on a secured basis against high-grade collateral. This could lead to a third cross-sectional vulnerability that is related to the opacity and illiquidity of some of the securitized assets being used as collateral

¹² This exposure to counterparty credit risk manifests itself in two ways: directly, through the default of a counterparty if the exposure is not fully collateralized; and indirectly, through an exposure to market risk and liquidity risk if the exposure is collateralized.

¹³ Gregory (2010) provides a complete treatment of traditional counterparty credit risk.

in secured borrowing.¹⁴ This opacity—which has become less prevalent since the crisis—led lenders and investors to place a greater emphasis on the ratings provided by CRAs.

One way to acquire high-grade collateral of the type commonly used in some countries before the crisis was to use securitization to transform illiquid assets into highly rated, more-liquid tradable securities. This type of collateral created a vulnerability, however, because, during the crisis, it suddenly became illiquid and difficult to value. This opacity exacerbated the U.S. subprime-mortgage problem because not only were the original subprime mortgages securitized, additional securitization was applied to the resulting tranches until it was extremely difficult, if not impossible, to accurately assess the exposures to default in various adverse scenarios. A similar problem plagued Canadian non-bank ABCP in 2007, which in some cases was backed by other structured assets, such as collateralized debt obligations (CDOs). The lack of information that results from such layers of securitization can amplify a liquidity crisis, because the value of these assets becomes extremely sensitive to new information, which in turn makes them less suitable for use as collateral (Gorton 2010).

Owing to its lower degree of regulation, the MBF sector is often the area of the financial system where financial innovations are first developed and marketed. These financial innovations create new ways to transfer and hedge risk, which provide a benefit for the economy as a whole, but can also lead to risks that may not be well understood, owing to their opacity or novelty (as in the case of CDOs or exchange-traded funds). In addition, opaque structures can be used to hide leverage off the balance sheet and away from investors and prudential and systemic regulators. This may be done for regulatory arbitrage purposes in order to reduce the amount of capital a financial intermediary must hold. Furthermore, the risk transfer that these innovations are designed for is incomplete.

Procyclicality in leverage: Systemic concerns

While the MBF system has evolved to protect individual participants from the idiosyncratic risk of their counterparties, the system as a whole is vulnerable to systemic shocks. Procyclical vulnerabilities also serve as channels to transmit systemic shocks through the MBF sector.

The primary procyclical vulnerability is the buildup of leverage that is permitted by MBF activities, owing to their lower level of regulation. The link between the leverage that can be obtained through collateralized market-based transactions and the haircut charged in collateralized lending is an example of this procyclicality (Kamhi 2009). While a haircut protects the lender against market

volatility, it also directly influences the amount of leverage a borrower receives in a transaction. Since haircuts tend to vary with the business cycle, leverage in collateralized borrowing can be highly procyclical, potentially acting as a destabilizing force for the financial system as a whole (CGFS 2010). More broadly, changes in the constraints on funding liquidity faced by financial intermediaries (which include haircuts) can have a first-order impact on asset prices and market dynamics, and thus propagate and amplify financial shocks throughout the financial system (Fontaine and Garcia 2009).

The systemic vulnerabilities of MBF in Canada are currently relatively low, for at least two reasons: the reduction in unregulated MBF activity following the non-bank ABCP crisis, and the fact that, in Canada, MBF is generally concentrated among the well-regulated and supervised chartered banks. In addition, microprudential and system-wide regulatory work under way domestically and internationally will further reduce vulnerabilities inherent in the MBF sector. Nonetheless, the high degree of innovation in this sector necessitates that it be monitored continuously, using a systematic approach to identify emerging vulnerabilities.

POSSIBLE REFORMS OF MBF

MBF has intrinsic vulnerabilities that can increase systemic risk by fostering the development of less stable practices in financial markets, facilitating regulatory arbitrage or changing the incentives of the regulated sector. It can also lead to common exposures and interconnections among institutions, amplifying shocks and exacerbating procyclicality. But this sector also serves useful and legitimate economic functions: it contributes to the efficient funding and transfer of credit risk; it can provide competition to the traditional banking sector (more so in countries where banks are not also the primary entities active in MBF activities); and it diversifies credit sources available in the economy. If properly constrained, MBF can thus lead to welfare-enhancing financial innovation. Hence, the regulatory approach should be balanced and should aim to mitigate the sector's risks and vulnerabilities while preserving its benefits. The regulatory approach will also need to evolve gradually, recognizing that increased regulation of banks may create incentives for more activities to move to the MBF sector, as well as the potential for new instruments and activities to emerge, and the modification of existing ones in ways that increase systemic risk.

There are four broad ways to address concerns that MBF could pose risks to the stability of the financial system (FSB 2011a). The first is to make the prudentially regulated entities that interact with the MBF sector, such as banks, more resilient by encouraging them to better manage the risks related to MBF activities and by requiring them to hold sufficient capital and liquidity, thus reducing the potential for contagion from MBF to the overall financial system. Steps can also be taken to reduce opportunities

¹⁴ Kirabaeva (2010–11) examines the adverse effects of a lack of information on financial stability in the context of the recent financial crisis.

for regulatory arbitrage. The second is to broaden, increase or improve the regulation of entities active in, or facilitating, MBF activities, such as hedge funds, MMMFs and CRAs. The third is to monitor MBF activities and either regulate them or foster best practices; for example, with regard to securitization. Finally, the risks posed by MBF may be addressed through macroprudential measures and improvements to the infrastructures that support markets. Some of the reforms that are under way or have been proposed internationally and in Canada are described below.

Reducing the risk of contagion from MBF activities

Basel III introduces a number of changes that will reduce the prospect for contagion between the MBF sector and the regulated banking system. First, banks will be required to hold more and better-quality capital, which will help them to withstand shocks. Second, new liquidity standards will be introduced to foster prudent practices for funding and liquidity management. All else being equal, these standards will decrease the reliance on short-term funding (such as overnight repos) and the demand for illiquid assets (such as securitized products), both of which contributed to the growth of MBF and the buildup of vulnerabilities before the crisis. These new standards will also make it more costly for banks to provide backup liquidity lines to ABCP conduits and special-purpose vehicles. Third, a new limit on leverage similar to the one that exists in Canada will be introduced as a backstop against excess risk exposure that can sometimes arise with risk-based capital rules.¹⁵ Combined with changes that will make it more difficult for banks to move assets off balance sheet, this should help to reduce the scope for MBF to expand because of regulatory arbitrage.

Although these changes will enhance the overall resilience of the financial system, they may encourage more risk-taking and cause activities to move to the unregulated MBF sector, so other measures are needed.

Enhancing the monitoring and regulation of entities active in MBF

Initiatives are also being taken to improve the monitoring, and to enhance the regulation, of entities that participate in MBF, such as hedge funds, MMMFs and CRAs.

¹⁵ The regulatory measure of leverage in Canada is the ratio of total assets and certain off-balance-sheet items to total regulatory capital. The limit for this multiple is 20, but banks in good standing can be allowed to increase it up to 23 if they meet certain conditions. See OSFI (2007) and Bordeleau, Crawford and Graham (2009).

Hedge funds

In the case of hedge funds, members of the International Organization of Securities Commissions (IOSCO) agreed to a common template for the global collection of hedge fund information to help regulators in the assessment of systemic risks and to inform any planned legislative changes.¹⁶ In addition, the IOSCO task force recommended that a global data-gathering exercise based on this template be carried out in September 2010 to the best ability of each jurisdiction (pending legislative changes). The Canadian Securities Administrators (CSA) participated in the exercise.¹⁷ In the United States, the Dodd-Frank Act will require that hedge fund advisers with over \$150 million in assets under management register with the Securities and Exchange Commission (SEC) and provide extensive records about their investment and business practices. In Canada, the CSA introduced a mandatory registration regime for investment fund managers, which is expected to be in full force by September 2011.¹⁸ Similar steps are being taken in other countries.

Money market mutual funds

Reforms have also been proposed for MMMFs. As explained earlier, MMMFs can be susceptible to a sudden loss of confidence and destabilizing runs by investors. The industry has had a long-standing practice of maintaining a stable net asset value despite the absence of government insurance or access to public sector liquidity, while allowing investors to withdraw funds on demand. This creates a mismatch between the maturity and liquidity of the funds' investments and those of their liabilities, which the proposed reforms aim to address. In order for these funds to be better able to handle redemption requests, both the SEC in the United States and securities commissions in Canada have enacted tougher requirements that shorten the average term to maturity of the investment portfolios of MMMFs and require them to maintain higher minimum levels of highly liquid assets.

There is, however, a tension between these requirements and the requirements under Basel III for banks to lengthen the duration of their funding, given that MMMFs are an important source of funding for some banks, particularly in Europe. And while the steps taken to improve the ability of MMMFs to handle redemptions are helpful, more of them are needed to reduce the vulnerability of this sector.

¹⁶ Member jurisdictions that agreed to this template include, among others, Canada, the United Kingdom and the United States.

¹⁷ While results from this data-gathering exercise are not public, the Canadian hedge fund industry is estimated to be a fraction of the size of both the Canadian mutual funds industry and the global hedge fund industry.

¹⁸ Requirements under National Instrument 31-103 cover capital, financial reporting, compliance, conflict of interest and outsourcing.

Credit-rating agencies

CRAs play a key role in MBF activities by aggregating and disseminating information about different securities in the form of credit ratings. In the years preceding the crisis, the high ratings assigned to securitized products were central to the confidence placed by investors in these instruments and enabled firms to use them to obtain short-term market-based funding (see the previous section). The subsequent downgrades in the ratings raised concerns about the reliability of the CRA rating process, the CRAs' inherent conflicts of interest¹⁹ and the lack of formal regulation of CRAs (Zelmer 2007). Regulatory initiatives in the United States, Europe, Canada and elsewhere seek to remedy the lack of formal oversight of CRAs and to alleviate the conflict of interest inherent in the issuer-pays model.

Efforts are also under way to reduce the widespread and often mechanistic reliance on CRA ratings for regulatory and investment decisions.²⁰ This should lower the risk of a renewed growth in MBF driven by the creation of securitized products.²¹

Fostering best practices in MBF activities

Steps are also being taken to restore confidence and improve the resilience of securitization markets. One important initiative has been to encourage greater transparency among issuers of securitized products. IOSCO published disclosure principles for ABS, and the Financial Stability Forum (FSF) recommended that financial institutions with significant exposures to structured credit products provide additional risk disclosures, and identified leading practices in this regard (FSF 2008). Regulators and institutions in various jurisdictions have either taken steps to implement those recommendations or are working on how best to do so in their respective markets.²² In Canada, the CSA proposed a framework for regulating securitized products that would improve investor protection through enhanced transparency and disclosure requirements, both at the time of distribution and on an ongoing basis.²³

¹⁹ Most CRAs use an “issuer-pays” model where the issuer of the security pays the CRA to issue a rating. This raises concerns about conflicts of interest and ratings shopping (Bolton, Freixas and Shapiro 2009).

²⁰ See FSB (2010) and SEC at <<http://www.sec.gov/news/press/2011/2011-59.htm>>.

²¹ Mandatory risk-retention requirements have also been proposed in some countries to better align the interests of the sponsors of securitized products with those of investors. Of course, implementation details will be just as important as the principle behind this initiative for it to have the desired effects.

²² The FSB assessed the implementation of these recommendations by its 24 member jurisdictions and the major financial institutions located in those jurisdictions (FSB 2011b).

²³ The proposed regulation also modifies the current exemptions that investors use to access these products in the exempt market.

Macroprudential measures and improvements to market infrastructures

Macroprudential measures and improvements to market infrastructures can also help mitigate the risks of instability stemming from MBF. These measures can include ways to alleviate procyclicality in the financial system by, for example, using margins and haircut policies that are less procyclical (CGFS 2010). Additional measures can include improvements to the infrastructures supporting markets, such as a greater use of properly risk-proofed central counterparties for repo and derivatives transactions (see Chande, Labelle and Tuer 2010; Slive, Wilkins and Witmer 2011). These steps should reduce the risk of contagion across the financial system.

CONCLUSION

The rapid expansion in the magnitude and scope of MBF activities in Canada and the rest of the world over the past 15 years makes it imperative to understand the reasons for this dynamic growth and the potential vulnerabilities that may accompany it. The expansion, which largely reflects competitive market forces and ongoing financial market deepening, is increasing the overall efficiency and resilience of financial intermediation activities. However, the high rate of financial innovation and the constantly evolving activities are raising concerns that some of this innovation may be driven by regulatory arbitrage, outpacing public oversight and increasing systemic risk. A more systematic approach to monitoring these activities and further research are required to identify and assess the impact on systemic risk of any vulnerabilities emerging from the MBF sector, and to determine whether the intensity or perimeter of regulation and supervision of MBF should be reformed. An appropriate balance should be struck between the benefits of this innovation and its impact on systemic risk.

The recent financial crisis exposed significant weaknesses in MBF activities, in particular, the lack of transparency and the excessive buildup of leverage. Reforms are under way at national and international levels to address these shortcomings. The MBF sector has proven to be relatively resilient in Canada because of the dominant participation of prudentially regulated institutions and the widespread use of government collateral. Nonetheless, an important lesson from the non-bank ABCP crisis and the financial crisis more generally is that the Canadian financial system is not immune to potential vulnerabilities in the MBF sector, whether homegrown or arising in other countries and transmitted to Canada through the globalization of markets and institutions. Thus, a coordinated global response is needed to establish clear principles for the monitoring, assessment and regulation of MBF that allows for differences in the MBF sector across countries and limits unintended consequences and opportunities for cross-country regulatory arbitrage.

REFERENCES

- Bolton, P., X. Freixas and J. Shapiro. 2009. "The Credit Ratings Game." National Bureau of Economic Research Working Paper No. 14712.
- Bordeleau, E., A. Crawford and C. Graham. 2009. "Regulatory Constraints on Bank Leverage: Issues and Lessons from the Canadian Experience." Bank of Canada Discussion Paper No. 2009-15.
- Caballero, R. and A. Simsek. 2009. "Fire Sales in a Model of Complexity." MIT Working Paper No. 09-28.
- Canada Mortgage and Housing Corporation (CMHC). 2006. *The NHA Mortgage Backed Securities Guide 2006*. Ottawa: CMHC.
- . (CMHC). 2009. *Annual Report*. Ottawa: CMHC.
- Chande, N., N. Labelle and E. Tuer. 2010. "Central Counterparties and Systemic Risk." Bank of Canada *Financial System Review* (December): 43-50.
- Committee on the Global Financial System (CGFS). 2010. "The Role of Margin Requirements and Haircuts in Procyclicality." CGFS Papers No. 36.
- Financial Stability Board (FSB). 2010. "Principles for Reducing Reliance on CRA Ratings." 27 October.
- . 2011a. "Shadow Banking: Scoping the Issues." FSB Background Note, 12 April.
- . 2011b. "Thematic Review on Risk Disclosure Practices." FSB Peer Review Report, 18 March.
- Financial Stability Forum (FSF). 2008. "Report of the Financial Stability Forum on Enhancing Market and Institutional Resilience." 7 April.
- Fontaine, J.-S. and R. Garcia. 2009. "Bond Liquidity Premia." Bank of Canada Working Paper No. 2009-28.
- Gorton, G. 2010. *Slapped by the Invisible Hand: The Panic of 2007*. Toronto: Oxford University Press.
- Gorton, G. and A. Metrick. 2010. "Regulating the Shadow Banking System." *Brookings Papers on Economic Activity* (Fall): 261-97.
- Gregory, J. 2010. *Counterparty Credit Risk: The New Challenge for Global Financial Markets*. Chichester, West Sussex: John Wiley & Sons.
- Kacperczyk, M. and P. Schnabl. 2010. "When Safe Proved Risky: Commercial Paper During the Financial Crisis of 2007-2009." *Journal of Economic Perspectives* 24 (1): 29-50.
- Kamhi, N. 2009. "Procyclicality and Margin Requirements." Bank of Canada *Financial System Review* (June): 55-57.
- Kamhi, N. and E. Tuer. 2007. "The Market for Canadian Asset-Backed Commercial Paper, Revisited." Bank of Canada *Financial System Review* (December): 13-16.
- Kirabaeva, K. 2010-11. "Adverse Selection and Financial Crises." *Bank of Canada Review* (Winter): 11-19.
- McCulley, P. 2007. "General Discussion: Housing and Monetary Policy." In *Housing, Housing Finance and Monetary Policy*, 485. Proceedings of a symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, 30 August-1 September 2007. Kansas City: Federal Reserve Bank of Kansas City.
- Morrow, R. 1995. "Repo, Reverse Repo and Securities Lending Markets in Canada." *Bank of Canada Review* (Winter): 61-70.
- Office of the Superintendent of Financial Institutions (OSFI). 2007. Guideline. "Capital Adequacy Requirement (CAR)—Simpler Approaches." November, Ottawa: OSFI.
- Rajan, R. G. 2005. "Has Financial Development Made the World Riskier?" In *The Greenspan Era: Lessons for the Future*, 313-69. Proceedings of a symposium sponsored by the Federal Reserve Bank of Kansas City, Wyoming, 25-27 August 2005. Kansas City: Federal Reserve Bank of Kansas City.
- Shleifer, A. 2010. "Comments on Gorton and Metrick: Regulating the Shadow Banking System." In *Brookings Papers on Economic Activity* (Fall): 298-303.
- Slive, J., C. Wilkins and J. Witmer. 2011. "Access to Central Clearing Services for Over-the-Counter Derivatives." Bank of Canada *Financial System Review* (June): 39-45.
- Witmer, J. 2010. "Trends in Issuance: Underlying Factors and Implications." *Bank of Canada Review* (Autumn): 19-30.
- Zelmer, M. 2007. "Reforming the Credit-Rating Process." Bank of Canada *Financial System Review* (December): 51-57.