Canadian Open-End Mutual Funds: An Assessment of Potential Vulnerabilities

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- Mutual funds provide retail investors with access to a broad range of investment opportunities. Globally, mutual funds have grown considerably in recent years and have become important players in many securities markets, prompting regulatory interest in vulnerabilities that could emanate from the sector.
- This report finds that vulnerabilities arising from Canadian mutual funds are currently limited:
  - (i) Funds hold an adequate amount of cash, given the underlying liquidity of their investments, and have a stable investor base, limiting risks from liquidity and maturity transformation.
  - (ii) Since the degree of leverage held by a fund is restricted by securities regulation, funds have low leverage ratios and limited derivatives exposures.
  - (iii) Even the largest funds are not dominant players in the securities markets in which they invest.

Introduction

A mutual fund is a professionally managed investment vehicle that pools money from individuals and corporations and invests in securities. It channels savings to productive investments through capital markets and offers investors a number of advantages over direct investments, including access to professionally managed, diversified portfolios of assets, reduced transaction costs due to economies of scale and an expanded set of investable securities available to retail investors. In addition, investors in open-end mutual funds are able to purchase shares from the fund or sell shares to the fund on a daily basis.[1]

Mutual funds are becoming increasingly important players in financial markets globally. For example, U.S. mutual funds now hold 20 per cent of U.S. corporate bonds and foreign bonds held by U.S. residents (**Chart 1**). This proportion has doubled since the 2007–09 global financial crisis. Although Canadian mutual fund assets under management have also grown, this growth has been more subdued. For example, the increase in their relative importance in the Canadian non-government and foreign-issuer bond markets has been less pronounced.[2] Canadian mutual funds also represent a smaller share of GDP in comparison with U.S. funds. Canadian long-term mutual fund assets under management amounted to Can$1.1 trillion in December 2014—about 54 per cent of Canada's GDP.[3]

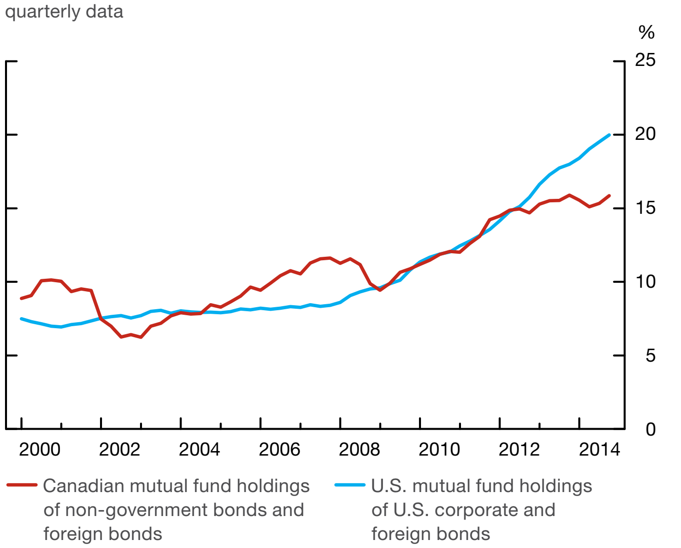
1 In contrast, closed-end funds issue a fixed number of shares in an initial public offering, which later trade in secondary markets. Investors in closed-end funds cannot redeem shares (i.e., they must sell their shares to other investors rather than sell them back to the fund). An exchange-traded fund (ETF) is another type of investment fund that is traded on a stock exchange. Unlike in a closed-end fund, the amount of shares outstanding in an ETF can be increased or decreased after the initial public offering by authorized participants. Foucher and Gray (2014) analyze the benefits, vulnerabilities and risks of ETFs.

2 Non-government bonds include bonds and debentures issued by Canadian corporations with an original maturity of more than one year. These bonds could be denominated in Canadian dollars or a foreign currency and include mortgage-backed securities, Canada Mortgage Bonds and other bonds issued by government-backed enterprises.

3 This estimate, from the Investment Funds Institute of Canada, excludes money market funds.

Chart 1: U.S. mutual funds are becoming more important participants in U.S. corporate markets

Mutual fund holdings of sector debt as a share of total sector debt outstanding, quarterly data



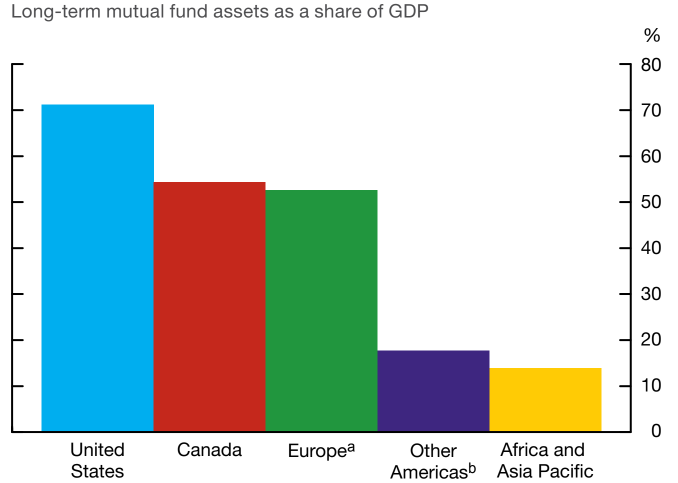
Note: A foreign bond represents domestic residents' investment in bonds issued by non-residents.

Sources: Statistics Canada and the U.S. Federal Reserve

Last observation: 31 December 2014

Chart 2: Canada's mutual fund industry represents 54 per cent of GDP

Long-term mutual fund assets as a share of GDP



a. Europe includes all countries within the European continent.

b. "Other Americas" includes countries in North and South America, excluding the United States and Canada.

Sources: Investment Company Institute and CIA *World Factbook*

Last observation: 31 December 2014

In comparison, U.S. long-term mutual fund assets under management represented over 70 per cent of U.S. GDP in 2014 (**Chart 2**).[4]

From a financial stability perspective, the growing importance of mutual funds should be welcome since, under securities regulation, such funds are more transparent and less leveraged than many other participants in the market (**Box 1**). As regulatory requirements for capital and liquidity alter the capacity of commercial banks to intermediate in securities markets, end investors such as mutual funds are poised to become more important participants in these markets.

Because of the growing significance of mutual funds in markets worldwide and, in particular, the large size of individual funds or of total assets being managed by a single manager, the Financial Stability Board and the International Organization of Securities Commissions (FSB-IOSCO 2015) and the U.S. Office of Financial Research (OFR 2013) have expressed concerns that vulnerabilities in mutual funds could transmit stress to the broader financial system. In particular, the liquidity and maturity transformation service that large open-end funds provide might result in their not having enough cash and other liquid assets to cover a sharp increase in investor redemptions in some circumstances. Ultimately, this potential cash shortage could lead to distressed asset sales and losses for investors, creditors and counterparties such as commercial banks. These effects could amplify shocks into broader financial markets if counterparty exposures, and the funds involved, are large.

This report examines the potential vulnerabilities in Canadian long-term open-end mutual funds.[5] It first examines vulnerabilities within the mutual fund sector and then assesses vulnerabilities that could emanate from the sector to the Canadian financial system. Overall, we find that these vulnerabilities are limited.

4 The relative size of each jurisdiction's mutual fund market is likely a function of various structural factors, such as pension policy, tax policy and regulatory structure.

5 Considering the small size of the sector, we do not focus on money market funds, which may have a greater redemption risk, since the fund share price is fixed rather than floating (Witmer 2012). The International Organization of Securities Commissions (IOSCO 2012) has provided recommendations to mitigate the systemic risks associated with money market funds.

Box 1

Regulation of Canadian Mutual Funds

In Canada, the distribution and sale of mutual fund shares are regulated by provincial securities commissions. An informal council of securities regulators, the Canadian Securities Administrators (CSA), coordinates provincial securities regulation through national instruments.[1] The main regulatory framework for open-end mutual funds is contained in National Instrument 81-102 *Investment Funds* (NI 81-102), which includes operational requirements regarding custodianship of a fund's assets, the structure of portfolio management fees and redemption of a fund's shares.[2] It also includes restrictions on short-sales, limits to ownership concentration and leverage, restrictions on the use of derivatives, and regulations limiting a fund's ability to undertake securities-financing transactions. Other national instruments contain additional guidelines: disclosure requirements are specified in NI 81-101 and NI 81-106; the independent review committee requirements are in NI 81-107; and rules for sales practices are contained in NI 81-105.

Some funds operate under National Instrument 81-104 *Commodity Pools* and are thus able to invest in specified derivatives and physical commodities in a manner that is not permitted in NI 81-102. As well, funds may apply to be exempted from some of the NI 81-102 rules. Recently, in response to an interest by fund managers to offer funds that invest outside the limits in NI 81-102, the CSA has put forward an Alternative Funds Proposal to allow such funds to pursue strategies and invest in securities not permitted under NI 81-102. As part of this proposal, the CSA is considering feedback on various issues, including different naming conventions for these alternative funds, a proposed maximum leverage ratio for alternative funds and allowing these funds to undertake short-selling beyond the limits in NI 81-102 (Canadian Securities Administrators 2015).

1 For more information on the CSA, see http://www.securities-administrators.ca/aboutcsa.aspx?id=77.

2 For example, a fund may suspend redemptions if normal trading of securities that represent at least 50 per cent of the fund's assets is suspended on exchanges or upon the approval of securities regulators.

Canadian Mutual Funds: Potential Vulnerabilities

The Bank of Canada's approach to assessing vulnerabilities in the Canadian financial system identifies four vulnerabilities that have the potential to create systemic risk: funding and liquidity mismatch, leverage, the pricing of risk, and opacity (Christensen et al. 2015). Since mutual funds are generally transparent (i.e., they disclose their entire portfolio on a semi-annual basis), this report focuses on the first two vulnerabilities: funding and liquidity mismatch and leverage.

Funding and liquidity vulnerabilities are low

A mutual fund provides investors with the ability to hold illiquid assets (those that cannot be readily sold, used as margin or used as collateral to raise funds) or assets with long maturities in a vehicle that offers day-to-day liquidity. However, this potential for maturity and liquidity transformation exposes the fund to the risk of large redemptions and could create a first-mover advantage if the price at which investors redeem their shares is greater than the price the fund will receive for liquidating the underlying assets. This can occur with money market funds that maintain a fixed share price but is less likely to occur with the long-term mutual funds examined here, since they maintain a variable share price. In long-term mutual funds, this first-mover advantage can happen if the fund incurs significant liquidation costs when selling its assets that are not reflected in the price (net asset value, or NAV) paid to redeemers.[6] Since the first-mover advantage is stronger in funds that hold more illiquid, infrequently traded assets (Chen, Goldstein and Jiang 2010), this financial stability concern is likely to be more acute in fixed-income funds that hold less-liquid assets.

Large redemptions from a fund or group of funds should not, in themselves, cause a disruption to the market prices of the underlying assets. Three conditions must be met for large redemptions to lead to disruptive fire sales:[7] (i) all other sources of liquidity for the fund must be exhausted, requiring the fund to sell its less-liquid portfolio holdings to meet the redemption requests; (ii) the sale by the fund (or group of funds) has to be large relative to the overall market into which it is selling; and (iii) other investors and market-makers—who would normally provide liquidity to the fund by buying or selling the underlying assets—must also be constrained to the point that they would require an abnormally high discount to purchase the security.

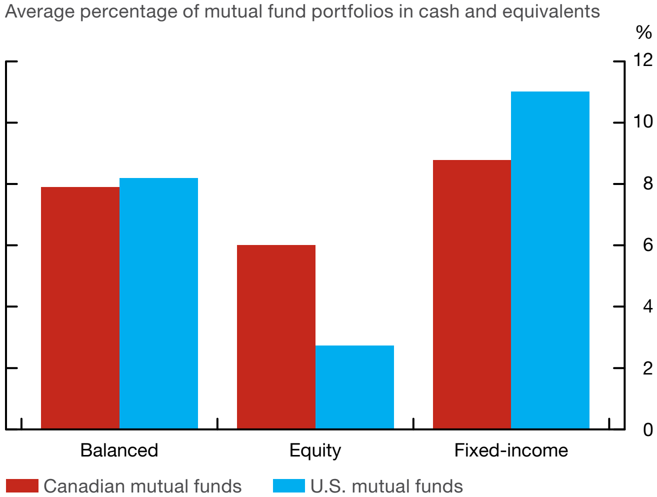
6 This effect may be limited for two reasons. First, the fund manager has a duty to treat its unitholders fairly and not give preferential treatment to any unitholder (e.g., first movers). Second, funds are often aware of large redemptions occurring during the day and may attempt to sell less-liquid assets before the end of day, thus reflecting the cost of these redemptions in the end-of-day price that the redeeming unitholders receive.

7 A fire sale is a forced sale of assets at a dislocated price (Shleifer and Vishny 2011).

In general, Canadian mutual funds appear to be managing this liquidity risk effectively. First, funds are limited in the amount of illiquid assets they can include in their portfolio, and those that hold illiquid assets should and do hold more cash and cash equivalents.[8] For example, funds that invest in fixed-income securities hold more cash and equivalents than funds invested in equities, which are generally considered to be more-liquid investments (**Chart 3**).[9] Within the fixed-income category, U.S. funds with less-liquid securities hold more cash (International Monetary Fund 2015). Second, the average cash holdings of funds can cover redemptions under most circumstances. The average fixed-income fund keeps enough cash and equivalents to cover unusually large redemptions.[10] In addition, Canadian mutual funds have a predominantly retail investor base that is focused mostly on long-term investing.[11] Although it is theoretically possible, for example, for all investors in Canadian fixed-income funds to redeem their shares *en masse*, Canadian fixed-income flows have been stable during past periods of stress (**Chart 4**).[12] As well, in the United States, monthly outflows by category have not been large historically, even during times of market stress (Collins 2015).

Chart 3: Funds holding less-liquid securities tend to hold more cash

Average percentage of mutual fund portfolios in cash and equivalents



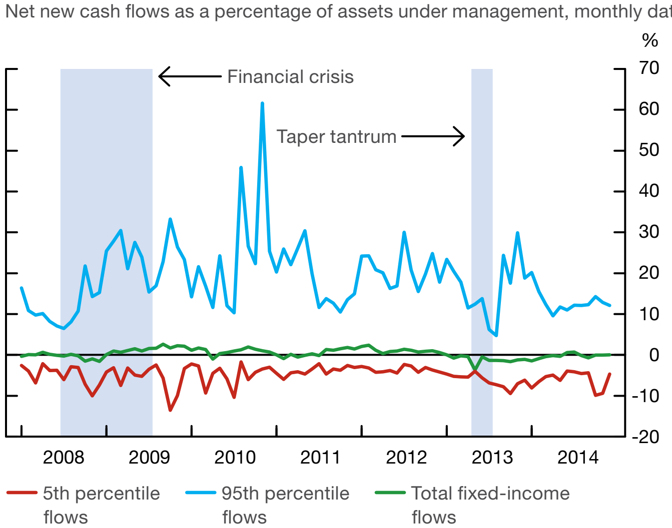
Note: These data exclude funds of funds.

Source: Morningstar

Last observation: 31 January 2015

Chart 4: Flows of Canadian fixed-income funds have been stable during past stress episodes

Net new cash flows as a percentage of assets under management, monthly data



Note: The "taper tantrum" refers to the episode in the summer of 2013 following remarks that the former Chairman of the Federal Reserve, Ben Bernanke, made in a speech on 22 May regarding the possible curtailing of the Federal Reserve's asset purchase programs.

Sources: Morningstar and Investment Funds Institute of Canada

Last observation: 31 December 2014

Leverage in Canadian mutual funds is limited

Leverage allows mutual funds to increase their exposure to a particular asset or asset class. In addition to borrowing, mutual funds can obtain leverage synthetically through the purchase of derivatives or structured securities with embedded leverage.[13] Sometimes, exposure through synthetic leverage can be more cost-efficient and liquid than an underlying investment in the physical asset.[14] Large amounts of leverage can amplify financial stress, however, by increasing the likelihood of margin calls, liquidity constraints and, ultimately, asset sales by a fund. Increased leverage can also cause a fund's losses to spread to its creditors and derivatives counterparties, which may include systemically important financial institutions.

In Canada, securities regulation limits the potential for a mutual fund to be leveraged. For example, National Instrument 81-102 *Investment Funds* specifies that cash

8 National Instrument 81-102 *Investment Funds* restricts a mutual fund from having more than 15 per cent of its net asset value in illiquid assets.

9 To avoid double-counting, this analysis excludes funds of funds (mutual funds that invest in other mutual funds instead of holding securities directly), which will be discussed later in the report.

10 In 2013, the average fixed-income fund held about 10 per cent of its assets in cash equivalents, while only 5 per cent of fixed-income funds experienced monthly outflows greater than 6 per cent of their assets, on average, during this period.

11 During the financial crisis, institutional U.S. money market funds experienced more outflows than retail funds did during the run on the Reserve Primary Fund in September 2008 (McCabe 2010; Schmidt, Timmermann and Wermers 2014).

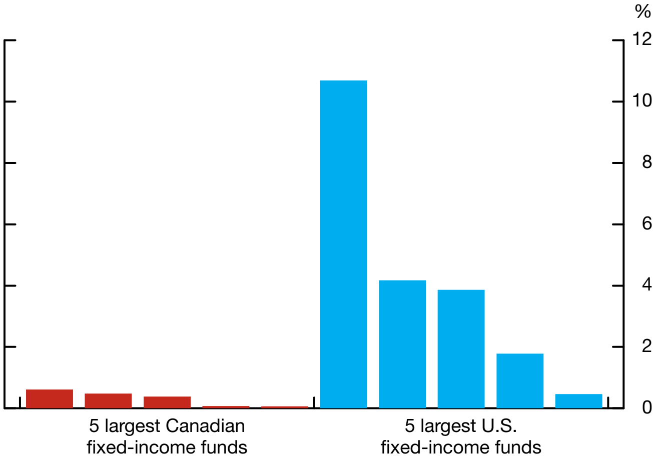
12 **Chart 4** shows measures at the 5th and 95th percentiles of net flows across fixed-income funds for each month, together with industry total flows. For example, in December 2012 the 5th percentile of net flows was -4.2 per cent, indicating that 5 per cent of fixed-income funds had net flows less than -4.2 per cent (i.e., net outflows greater than 4.2 per cent) in that month.

13 For example, in the United States, 65 of the top 100 fixed-income funds by size as of 2004 used credit default swaps (CDSs) between 2004 and 2008, and the mean total notional value of these CDSs relative to the funds' NAV increased from 2 per cent to almost 14 per cent (Adam and Guettler 2010).

14 Individual retail investors may prefer to access derivatives trading through mutual funds, since they are unable to access them directly because transactions are either too large or uneconomical (Johnson and Yu 2004).

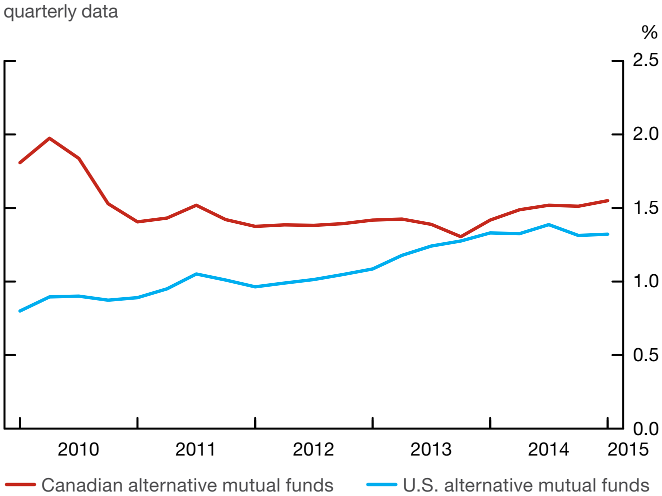
borrowings and the provision of a "security interest over any of its portfolio assets" are allowed only if they are temporary and used to meet redemptions or to settle transactions and do not exceed 5 per cent of the fund's assets. This instrument also includes limits on derivatives exposures, short-selling and the ability to undertake securities-financing transactions. As a result of this regulation, all of the largest fixed-income mutual funds in Canada have leverage ratios (the ratio of liabilities to assets) of less than 1 per cent (**Chart 5**).[15]

Chart 5: Canadian fixed-income funds have low leverage ratios
Leverage ratio (total liabilities/total assets)



Note: These data exclude funds of funds.
Sources: Morningstar and funds' latest annual or semi-annual reports
Last observation: 31 March 2015

Chart 6: Alternative mutual funds account for less than 2 per cent of the industry
AUM of alternative mutual funds as a percentage of total industry AUM by country, quarterly data



Note: AUM = assets under management. These data exclude funds of funds.
Source: Morningstar
Last observation: 31 March 2015

In comparison, the leverage ratios of the largest U.S. fixed-income funds range up to 11 per cent, but most of these liabilities are payables associated with the purchases of portfolio investments. None of the largest Canadian mutual funds has derivatives-related liabilities (the market value of current exposures) greater than 0.5 per cent of its assets.[16] It therefore seems unlikely that problems in a creditor or derivatives counterparty could transmit stress to the fund. Similarly, it is also unlikely that problems in one of these funds could cause substantial losses to its creditors or derivatives counterparties, especially since counterparties are typically much larger than the funds themselves.

Alternative funds (i.e., publicly offered investment funds that have investments or strategies not permitted under National Instrument 81-102) may have greater redemption risk than traditional mutual funds, given that some of these funds hold illiquid assets (e.g., real estate) or use more derivatives than traditional mutual funds do (**Box 1**).[17] However, since alternative funds account for less than 2 per cent of Canadian mutual fund assets, it is unlikely that stress in this sector would be transmitted more broadly (**Chart 6**).

Canadian Financial System Vulnerabilities to Mutual Funds

A material adverse shock to a mutual fund will not likely transmit broader stress to the Canadian financial system since these funds are not large or highly interconnected with other parts of the system.

No single Canadian mutual fund is large enough to directly cause systemic stress

The largest mutual funds in Canada are not dominant players in the markets in which they invest. Only six Canadian funds (one equity fund, two fixed-income funds and three balanced funds) have more than Can$10 billion in assets (**Chart 7**).[18] Four of these funds hold primarily equities and account for less than 1 per cent of the total market capitalization of the Toronto Stock Exchange. Moreover, they are not dominant players relative to other funds in their categories. For example, the five largest Canadian equity, balanced and fixed-income mutual funds hold 9, 20 and 21 per cent of fund assets under management in their respective categories (**Chart 8**).

15 The leverage ratios of the largest equity and balanced funds are even smaller.

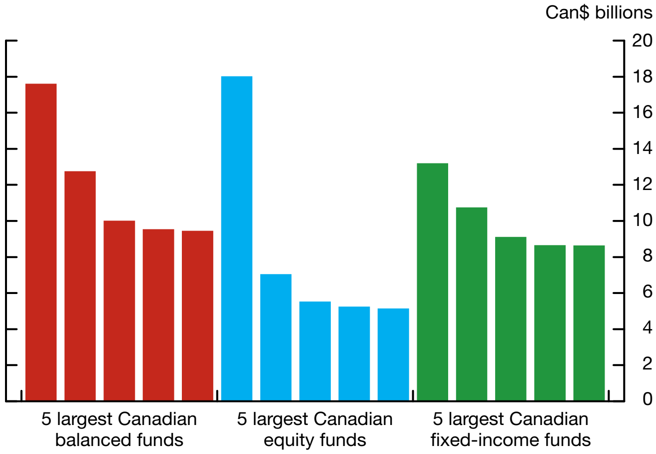
16 Fund annual reports do not provide information on potential future exposures.

17 While hedge funds pursue strategies using leverage and derivatives, they manage the associated liquidity risk by imposing redemption restrictions such as gates (i.e., limitations on the amount of withdrawals on any withdrawal date to a stated percentage of a fund's net assets) or lock-up periods.

18 This is one-tenth of the threshold used by the Financial Stability Board in its initial criteria for identifying a fund as globally systemically important (FSB-IOSCO 2015).

Chart 7: Only six mutual funds in Canada have more than Can$10 billion in assets

Total net assets



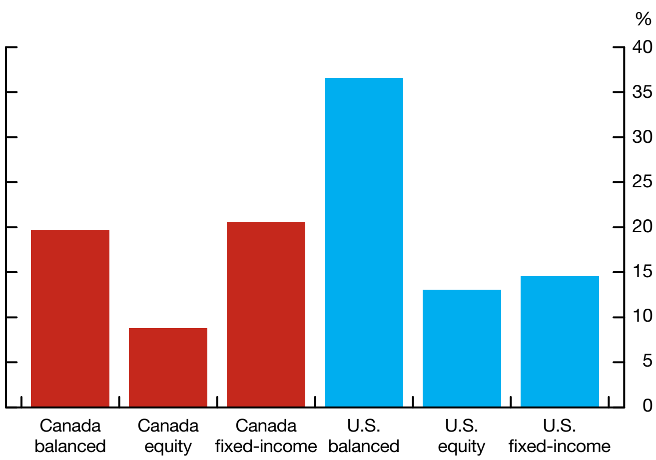
Note: These data exclude funds of funds.

Sources: Morningstar and funds' latest annual or semi-annual reports

Last observation: 31 December 2014

Chart 8: Large funds are not dominant players in their markets

AUM of 5 largest mutual funds as a percentage of category AUM, in Canada and the United States



Note: AUM = assets under management. These data exclude funds of funds.

Source: Morningstar

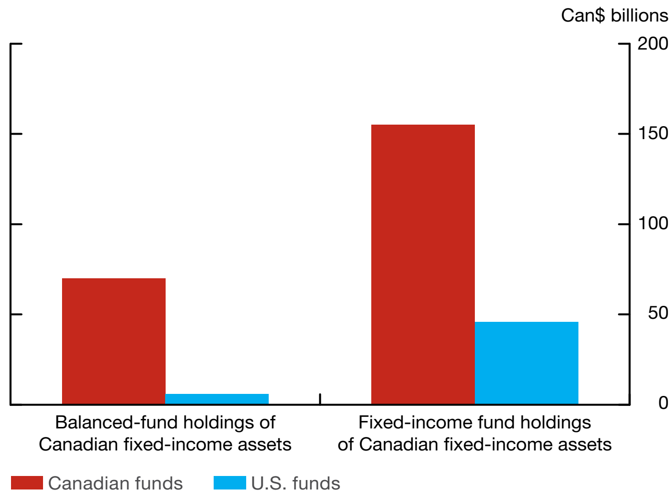
Last observation: 31 December 2014

U.S.-domiciled fixed-income funds are important but not dominant participants in Canadian bond markets

Although some U.S.-domiciled funds are larger, more leveraged and more complex than Canadian funds, the exposure of the Canadian market to stress in a particular U.S. fund is limited. While, individually, the largest U.S. fixed-income funds are much bigger than their Canadian counterparts, they have smaller holdings of Canadian assets than the largest Canadian funds do. As well, in the aggregate, U.S. funds hold fewer Canadian fixed-income assets than Canadian funds do (**Chart 9**).

Chart 9: U.S. funds hold fewer Canadian fixed-income assets than Canadian funds do

Canadian and U.S. mutual fund holdings of Canadian fixed-income assets



Note: These data exclude funds of funds.

Source: Morningstar

Last observation: 31 December 2014

Funds are unlikely to simultaneously engage in a disruptive sell-off of less-liquid fixed-income assets

Fixed-income mutual funds have similar objectives and many measure their performance against the same benchmark, which exposes them to the same shocks and generates common exposures. As at December 2014, approximately 60 per cent of domestic fixed-income mutual funds (by assets under management) in Canada benchmarked their performance against the FTSE TMX Canada Universe Bond Index.[19] Fund managers that follow the same benchmark could behave similarly in a period of stress. For example, fear of job loss through underperformance relative to his or her peers may cause a manager to follow investment strategies that are similar to those of other fund managers in the category. This "last-place aversion" could also motivate fund managers to sell investments at the same time as others.[20]

However, the most widely followed benchmarks are usually composed of large, liquid and highly rated securities. As well, about 30 per cent of fixed-income assets are held directly by balanced funds that invest a large proportion of their portfolios in equities, which are more liquid. Therefore, these funds would be unlikely to engage in a disruptive sell-off of less-liquid fixed-income assets. Further, flows of fixed-income funds have been stable across the industry during past periods of stress (**Chart 4**).

19 However, other benchmarks are often subindexes of those that are most widely followed.

20 Morris and Shin (2014) show how last-place aversion can result in a sharp rise in risk premiums following a small tightening of monetary policy. This rise is increasing as mutual funds become more important participants in markets.

Stress is unlikely to be propagated through a mutual fund family

A mutual fund family is a group of funds administered and sold by the same mutual fund management firm. In Canada, the top 10 mutual fund management firms manage close to 70 per cent of Canadian mutual fund assets,[21] and many of these firms are wholly owned subsidiaries of Canadian banks or insurers. While stress in one mutual fund could be transmitted to other funds in the family or to the management firm (and affiliated financial institution), this potential is well contained.

The fund management firm and affiliated financial institution are unlikely to suffer losses associated with a poorly performing fund. First, since funds are separate legal entities from their management firm and other funds, their interconnectedness is limited (**Box 2**). Second, unlike money market funds, there is no implicit guarantee that a fund will maintain its price at a certain level and, therefore, there should be no expectation that the fund management firm or its affiliate would support a poorly performing fund. Third, although the fund management firm or its affiliate may in some rare cases provide explicit guarantees to the fund, any such exposures to mutual funds that banks have would attract prudential capital and liquidity requirements.[22] In addition, since the mutual funds are much smaller than the financial institutions, even if support were required, the large Canadian banks should be well positioned to cope with any stress emanating from funds of their affiliated asset manager.

Regarding funds of funds, the associated vulnerability is also limited. In Canada, approximately one-quarter of mutual fund assets is in funds of funds, the largest of which is Can$17 billion. Although the fund-of-funds structure could be a source of contagion within a mutual fund family, it can also mitigate the effect of outflows from the underlying funds. For example, a fund of funds could purchase shares in an underlying

21 In contrast, as at 31 December 2013, the share of U.S. mutual fund assets managed by the 10 largest U.S. firms was 53 per cent.

22 Occasionally, the fund management firm or an affiliate promises to support the fund by, for example, buying fund assets (e.g., mortgages) or providing liquidity when redemptions exceed the fund's liquid assets.

Box 2

Legal Structure of Canadian Open-End Mutual Funds

An open-end mutual fund is a professionally managed investment vehicle that pools money from individuals and corporations and invests in securities. Most open-end mutual funds in Canada (approximately 90 per cent) are organized as trusts, which are separate legal entities from the management company that administers them and from other funds that belong to the same family.[1] Investors are unitholders (i.e., owners) of the fund. The fund manager is the entity that establishes the fund, directs its business and operations, and provides services or retains the third-party services required to operate the fund (Table 2-A). In some cases, these third-party service providers are affiliated with the fund manager.

1 In Canada, mutual fund corporations have recently grown in size and now represent the remaining 10 per cent of Canadian mutual fund assets. Mutual fund corporations have risen in popularity because they provide additional tax benefits that are not provided by mutual fund trusts. A single mutual fund corporation may be composed of several funds, each represented by a different class of shares. Thus, while still separate legal entities from their management company, mutual funds within the corporation are not separate legal entities.

Table 2-A: Organization and management of an open-end mutual fund

Stakeholder	Responsibility
Unitholder	Owns a share of the assets of the fund.
Independent review committee	Reviews and provides input on conflict of interest matters; provides advice on issues relating to the management of the fund; and prepares an annual report on its activities. The independent review committee is composed of members that are independent from the fund manager and entities related to the fund manager.
Fund manager	Establishes the fund; acts as trustee of the fund's assets; directs its business and operations; and provides services or retains third-party services, such as portfolio management.
Principal distributor	Markets and sells units of the fund.
Custodian	Holds the fund's assets, maintaining them separately to protect unitholder interests.
Auditor	Certifies the fund's financial statements.
Registrar	Keeps records of who owns the fund's units.
Securities-lending agent	Administers securities-lending transactions entered into by the fund.

Source: Bank of Canada using information from various simplified prospectuses fund that is experiencing outflows, thereby lessening the likelihood that the outflows would lead to a fire sale at the underlying fund.[23]

Conclusion

Mutual funds have grown markedly in Canada and around the world. Since this growth is the result of a demographic change in which an aging population increases its savings toward retirement, a trend that is likely to continue into the future (Haldane 2014), it is important to understand the nature of any vulnerability this ongoing shift could create in the financial system. Overall, Canada's largest mutual funds do not represent an important area of vulnerability for the Canadian financial system at this time. They are not dominant players in their markets and, because of regulation, they use limited leverage; they also hold a sufficient level of cash and other sources of liquidity to manage investor redemptions. Funds that invest in less-liquid securities also tend to hold relatively more cash and other liquid assets.

Since fixed-income mutual funds represent a non-negligible proportion of Canadian corporate and government fixed-income markets, a sell-off triggered by outflows could, at least in principle, cause significant price volatility in these markets. Nevertheless, redemption behaviour during past periods of stress was contained, suggesting that this potential vulnerability is limited. Finally, although many Canadian fund management firms are affiliated with a major bank, these banks are unlikely to suffer losses from stress in any of the management firm's funds, since funds and their management firms are separate legal entities and there is no implicit expectation that a long-term mutual fund's price would be supported to maintain a certain value.

Given the continued growth in mutual funds and the potential, in principle, for vulnerabilities to emerge in the future, the Bank of Canada will continue to monitor developments in this sector.

23 For evidence of this mechanism, see Bhattacharya, Lee and Pool (2013). Some funds of funds may have a fixed allocation to underlying funds and may rebalance their portfolio automatically. Therefore, they may not necessarily purchase shares in an underlying fund with the intent of providing a liquidity buffer to the underlying fund.

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