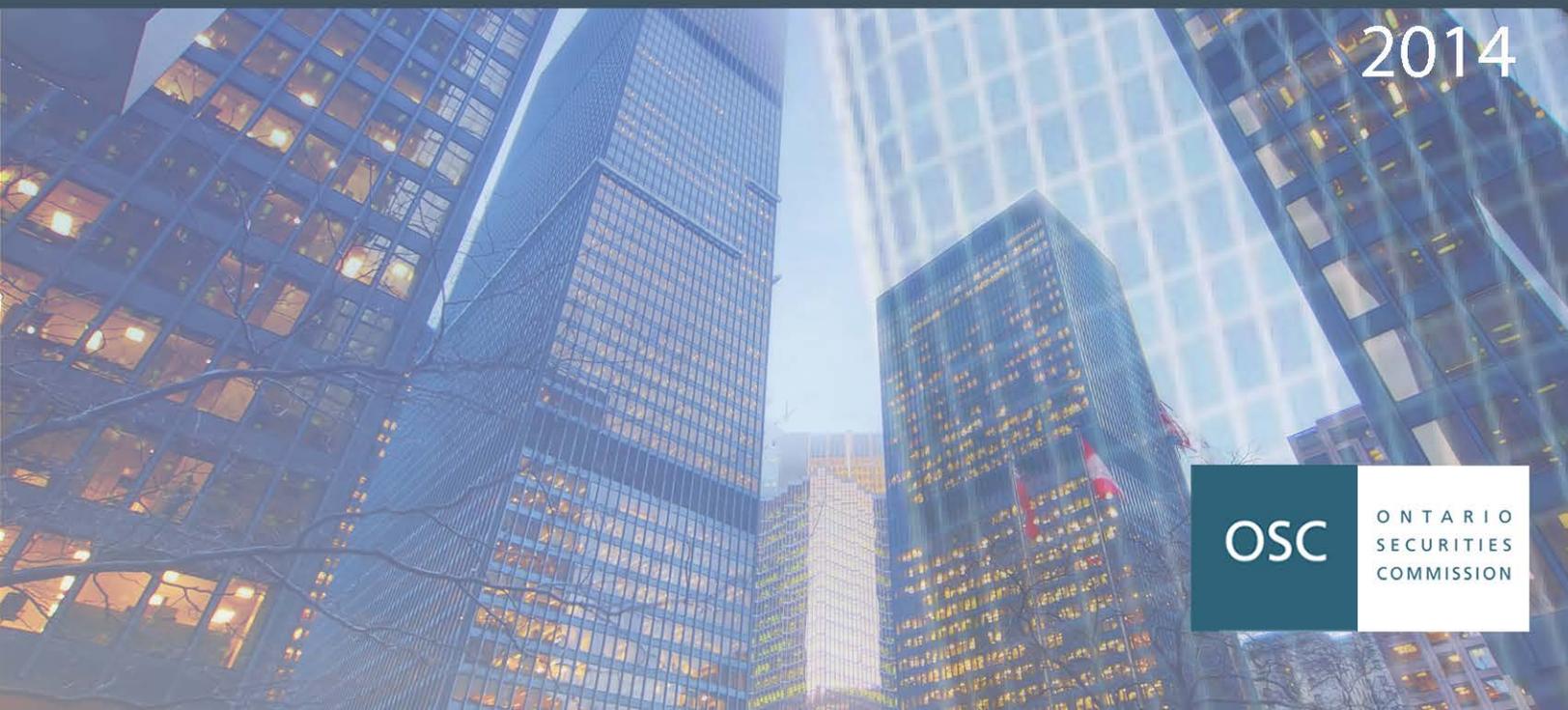




The Canadian Fixed Income Market



2014

OSC

ONTARIO
SECURITIES
COMMISSION

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EXECUTIVE SUMMARY

In the past, regulators have tended to place a greater focus on issues that impact the equity market than they have on those that impact the fixed income market. The 2008 financial crisis, however, marked a new epoch with regard to how regulators assess the regulatory environment.

In its Statement of Priorities, the OSC recognized the need to better understand the Canadian fixed income market. This included identifying any significant issues (e.g. access, sales practices and disclosure) in the market, as well as potential regulatory changes that could improve market transparency and better protect the interests of investors.

This report is the first phase of the OSC's review of the fixed income market. Based primarily on publicly-available information, the report is a fact-based snapshot of the fixed income market in Canada. The focus of the report is corporate bonds, although provincial securities regulation applies to, and particularly the trading of, all bonds. The report provides an overview of the main market participants, primary market issuance, secondary market trading and post-trade transparency, as well as a brief comparison of fixed income markets in other regions.

The fixed income market in Canada was approximately \$2 trillion in size (as of December 2014, par outstanding). While over \$255 billion of fixed income securities were issued in the primary market and more than \$10 trillion traded in the secondary market in 2014, most of this activity was concentrated among a few large issuers and institutions. Governments (federal, provincial and municipal) accounted for approximately half of the bonds outstanding, over 60% of the bonds issued domestically in 2014 and over 90% of the value traded.

Corporate bonds issued in Canada tend to be investment grade with a maturity of less than 10 years. Banks and other financial institutions are the largest issuers of corporate debt in Canada and financial institution bonds account for more than 40% of the corporate bonds traded in Canada.

There are a number of key themes highlighted in the report:

1. There is a limited amount of data available on the market which is fragmented across a number of sources, which makes it difficult to conduct a comprehensive assessment of the fixed income market;
2. The fixed income market is a decentralized, over-the-counter (OTC) market where large investors have significantly more information and bargaining power than small investors;
3. The adoption of electronic trading and alternative trading systems has been limited, especially for corporate bonds; and
4. Direct retail participation in the primary and secondary market is low and retail investors typically access the fixed income market by purchasing investment funds.

This document builds on other regulatory initiatives relevant to the fixed income market:

- The CSA has strengthened requirements for cost and performance reporting rules to provide retail investors with more disclosure on their fixed income market holdings and related fees;
- The CSA is currently reviewing the framework for the information processor for corporate debt securities under National Instrument 21-101 Marketplace Operation (NI 21-101); and
- IIROC adopted Rule 3300 concerning the fair pricing of OTC securities and confirmation disclosure requirements.
- IIROC adopted Rule 2800C which requires Dealer Members to report OTC debt securities transactions to IIROC on a post-trade basis.

INTRODUCTION

MARKET DEFINITION

MONEY MARKETS VS DEBT CAPITAL MARKETS

Fixed income securities are products that provide investors a fixed number of payments over a pre-determined period of time. Those that are issued with a maturity of one year or less constitute the money market and those issued with a maturity date greater than one year form the debt capital market. Fixed income securities are generally viewed as less risky than other asset classes on a risk-reward basis because there is a promise to repay the lender by a specific date (see Figure 1). Fixed income securities also tend to be priced relatively efficiently in the market as described by the Yale Investments Office, “Less efficiently priced securities trade in wider ranges. Stocks provide more difficult pricing challenges than bonds...” and “[i]lliquid assets show substantially larger annualized spreads.”¹

FIGURE 1: SIMPLIFIED RISK AND RETURN PROFILE BY ASSET CLASS²



PURPOSE AND SCOPE

A SNAPSHOT OF THE FIXED INCOME MARKET IN CANADA

The purpose of this report is to present a fact-based snapshot of the debt capital market in Canada (“fixed income market”) and the securities that trade in it (“bonds”).³ The report provides an overview of the main market participants, primary market issuance, secondary market trading and post-trade transparency, as well as a short comparison of fixed income markets in other regions.

¹ *Endowment Update 2012*. Rep. Yale University Investment Office, 2013. Web. 24 Feb. 2015. <http://investments.yale.edu/images/documents/Yale_Endowment_12.pdf>.

² For illustration only. Diagram is not to scale or intended to be comprehensive. Debt securities are bolded in blue.

³ Excludes money market securities because borrowers use that market to fund short-term shortfalls in cash (for operating expenses or working capital needs) while lenders use it as a relatively safe, liquid conduit to invest excess cash.

THE SCOPE OF THE REPORT

The scope of the report is as follows:

- Bonds issued in Canada, with additional emphasis on corporate bonds;^{4,5}
- Bonds traded over-the-counter (OTC) in the secondary market;⁶
- Information that is publicly available as of December 31, 2014.

MAIN MARKET PARTICIPANTS*THREE KEY PARTICIPANTS*

The main groups in the fixed income market are:

1. Issuers, who are the borrowers in the market;
2. Underwriters and dealers, who facilitate the movement of capital from investors to the issuers; and
3. Investors, who lend funds to issuers.

THE FIXED INCOME MARKET CAN BE A COST-EFFICIENT SOURCE OF CAPITAL FOR ISSUERS

Bonds are a cost-efficient vehicle to raise capital.^{7,8} Corporations issue bonds because they are cheaper and less restrictive (in terms of covenants) than sourcing funds from a bank. Corporations also issue bonds because banks often manage balance-sheet risk by limiting their exposure to a single-name borrower.

Governments also issue bonds to fund spending. Bonds issued domestically by the Government of Canada are also used to determine the risk-free interest rate because these bonds do not carry any material risk of default.^{9,10} The difference in yield between any type of bond and a Government of Canada bond with the same maturity is called the credit spread, which compensates the investor for assuming default risk.

UNDERWRITERS AND DEALERS CONNECT ISSUERS AND INVESTORS

Investment banks play the role of intermediary between the issuer and investors in the primary market. As underwriters, they help price the bond offering and purchase it from the issuer, while as dealers they sell (or distribute) these bonds to investors.¹¹ The underwriter's profit (or gross spread) is based on the difference between how much it pays the issuer to purchase the bonds and how much it earns by selling them to investors.

The secondary market for bonds is a negotiated market. Both retail and institutional investors typically access the market through a dealer that brings together buyers and sellers.¹² Trading is decentralized and takes place OTC through dealer networks, one reason why the fixed income market is less transparent than the public equity market.^{13,14}

⁴ Debt securities issued outside of Canada and those held by non-residents of Canada are outside the scope of this review.

⁵ Bonds issued or guaranteed by the government (federal, provincial and municipal) are generally distributed pursuant to a prospectus exemption (National Instrument 45-106 *Prospectus and Registration Exemptions* s 2.34 Specified Debt).

⁶ Provincial securities commissions have jurisdiction over the trading of all bonds. Excludes exchange-traded corporate bonds.

⁷ Issuing bonds are cheaper than equity for two reasons: interest on debt payments is tax-deductible and, since debt is considered less risky than equity, the market-risk premium is lower.

⁸ There are other reasons for issuing debt or equity, however, these are not relevant for purposes of this discussion.

⁹ This is an oversimplification for purposes of this discussion. Theoretically the risk-free interest rate is based on a zero-coupon bond issued by the government, where there is no risk of default and no reinvestment risk. Coupon-bearing bonds issued by the Government of Canada need to be bootstrapped in order to calculate the zero-coupon yield curve. See <https://web.actuaries.ie/sites/default/files/event/2010/05/100525%20Bond%20Markets.pdf> for a more detailed explanation of spot curves and bootstrapping.

¹⁰ "The New Risk-free Rate?" *The Economist*. The Economist Newspaper, 11 Mar. 2014. Web. 18 Feb. 2015. <<http://www.economist.com/blogs/buttonwood/2014/03/investing>>.

¹¹ See Appendix I: Additional Background, "Marketing and Distribution Costs" for more information on bond pricing in the primary market.

¹² Public equities generally operate in an auction market. See "Box 4: Negotiated and Auction Markets" for a discussion on negotiated versus auction markets.

¹³ Note that any subsequent reference to "dealer markets" refers to a decentralized dealer market (as opposed to a centralized one such as the NASDAQ).

¹⁴ Any subsequent reference to "equity" or "stock" refers to those that publicly trade on an exchange.

ACCESS VARIES BETWEEN LARGE AND SMALL INVESTORS

A variety of investors participate in the fixed income market, ranging from retail investors to large institutions like banks, pension funds, insurance companies, and investment funds. Direct participation in the fixed income market is mainly institutional; retail investors, in contrast, tend to participate in the market indirectly through pension plans or mutual funds.

Since bonds trade OTC, retail investors have limited access to pricing and trade volume information; have little ability to determine the components of the retail price; and have limited access to many bonds.¹⁵ Asymmetric information in the fixed income market places retail investors at a disadvantage relative to other participants.¹⁶ Furthermore, a significant number of bonds, ranging from 23-47%, are privately placed and only available to accredited investors.¹⁷

¹⁵ In a typical exchange-based trading model, all investors can trade the same products because they are standardized. In the decentralized OTC bond market, however, access to the market can vary significantly by participant and products are not standardized, which makes many fixed income products out-of-reach for retail investors.

¹⁶ For example, this makes retail investors susceptible to price discrimination, where different prices are charged for the same goods.

¹⁷ Based on an analysis of FP Infomart data from 2010-2013. These securities can only be traded and held by accredited investors.

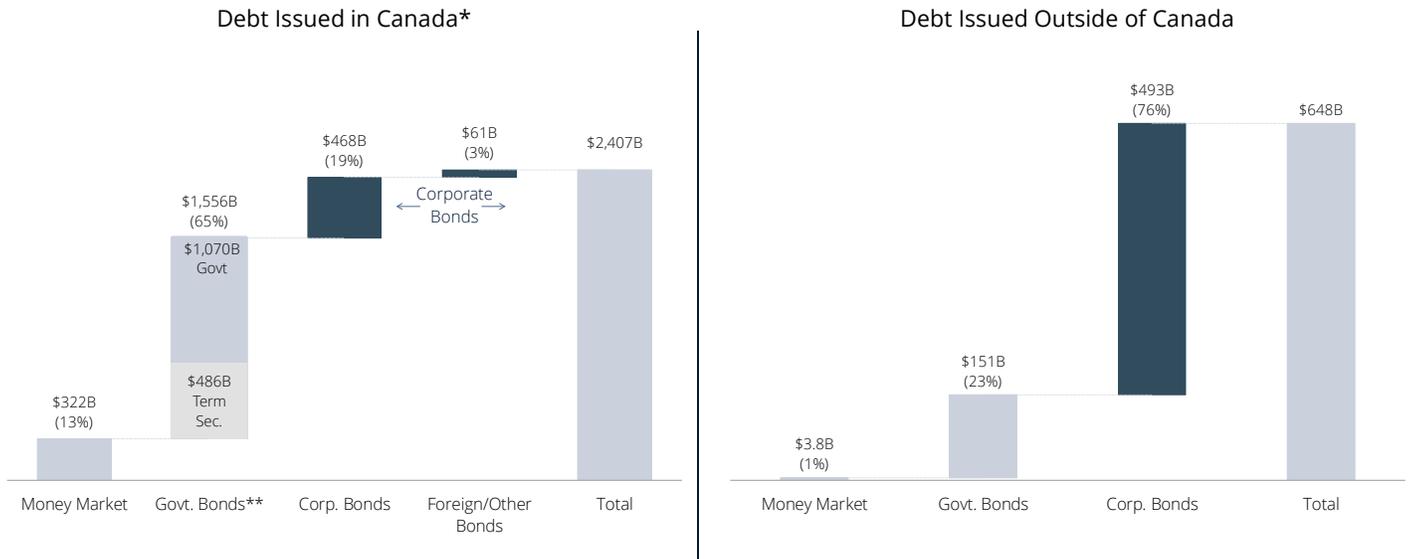
MARKET OVERVIEW

MARKET SIZE

THE GOVERNMENT OF CANADA IS THE LARGEST BOND ISSUER IN CANADA

As of December 2014, there were approximately \$2.4 trillion (par or face value) in short- and long-term fixed income securities outstanding in Canada: \$2.1 trillion (87%) in long-term securities (debt capital market), and \$322 billion (13%) in short-term securities (money market).¹⁸ See Figure 2.

[FIGURE 2: CANADIAN FIXED INCOME MARKET](#)



Outstanding par, as of December 2014

Source: Statistics Canada, Bank of Canada

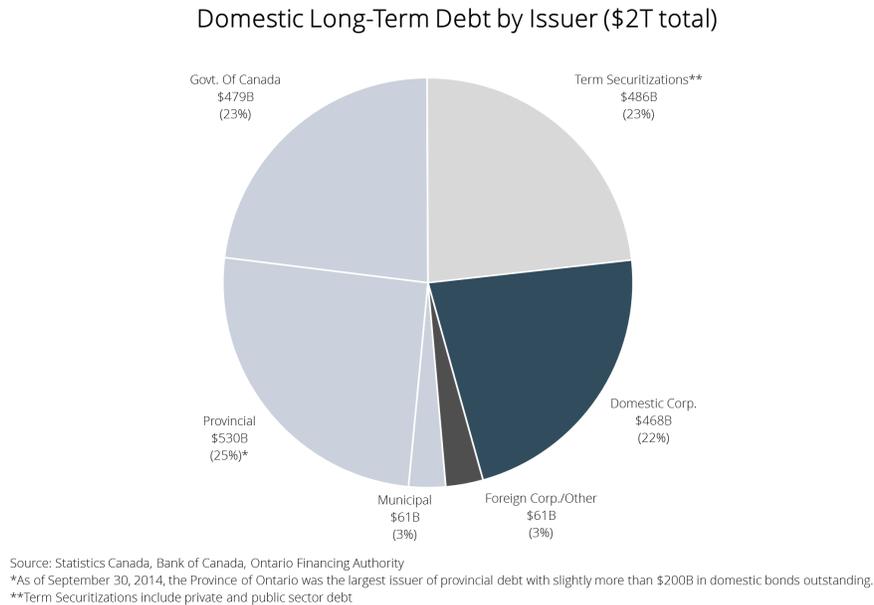
*Term securitizations include both private sector and public sector securities.

**Includes bonds issued by the federal, provincial, and municipal governments.

¹⁸ As of December 2014, issued by Canadian and foreign issuers in Canada. Data by market was not available. Currency of issue is used as a proxy for market.

Bonds issued by the various levels of government (federal, provincial, and municipal) make up slightly more than half (51% or \$1.1 billion) of the bonds outstanding in the domestic market. The other half of the market is almost evenly split between term securitizations (23% or \$486 billion) and bonds issued by domestic corporations (22% or \$468 billion), with foreign bonds making up the residual (3% or \$61 billion). See Figure 3.^{19,20,21}

FIGURE 3: DOMESTIC DEBT BREAKDOWN BY ISSUER TYPE (DECEMBER 2014)



CORPORATIONS ISSUE THE MAJORITY OF BONDS DISTRIBUTED OUTSIDE OF CANADA

Canadian corporate and government issuers have approximately \$648 billion in bonds outstanding abroad. Canadian-based corporations are especially active outside of Canada and have issued 76% of all bonds outstanding abroad.^{22,23} Foreign-issued bonds (most of which are sold in the US) also make up 48% of all bonds issued by Canadian corporations.

Corporations and governments issue bonds outside of Canada for a variety of reasons:²⁴

1. Access a larger market in order to reduce the cost of capital for the issuer. This is especially important for Canadian-based high-yield issuers because the US is the primary market for high-yield (or junk) bonds;²⁵
2. To manage foreign currency risk. Non-financial issuers, notably exporters, with foreign currency income may issue bonds abroad to hedge currency risk;
3. As a form of price arbitrage where a bank borrows in a foreign currency to take advantage of a pricing differential between two markets, but simultaneously hedges the currency risk with a derivative such as a currency swap; and/or
4. For funding diversification. Financial issuers in particular may spread their funding across a number of sources or instruments in different markets.

¹⁹ Canada Mortgage Bonds (CMBs) and term securitizations include instruments issued under the National Housing Act (insured mortgage-backed securities program) and other term securities issued by special purpose corporations because the majority of these instruments are ultimately guaranteed by the Government of Canada (only a small percentage of these securities are guaranteed by private-sector issuers, however, detail a breakout was not available at the time of writing).

²⁰ The figures for government bonds include \$466B account for term securitizations.

²¹ Statistics Canada. *Impact of New Accounting Standards on the Financial and Wealth Accounts*. Statistics Canada, 5 Nov. 2014. Web. 4 Dec. 2014. <<http://www.statcan.gc.ca/pub/13-605-x/2011003/article/11492-eng.htm>>.

²² See Figure 2 for details.

²³ Split between corporate and other bonds not available.

²⁴ See <http://www.bis.org/publ/bppdf/bispap52e.pdf> for more detailed discussion on price arbitrage and funding diversification.

²⁵ Nordick, D'Arcy, and Ruth Elnekave. "Canadian Securities Law : Canadian Securities Lawyer & Attorney : Stikeman Elliott Law Firm : Montreal, Ottawa, Calgary, Vancouver, Montreal, Toronto." *The Rise of a Canadian High Yield Debt Market: Canadian Securities Law*. Stikeman Elliot, 4 Mar. 2011. Web. 11 Mar. 2015. <<http://www.canadiansecuritieslaw.com/2011/03/articles/mergers-acquisitions/the-rise-of-a-canadian-high-yield-debt-market/>>.

SOME ISSUERS NEED TO ACCESS THE US MARKET DUE TO SUPPLY-SIDE CONSTRAINTS

While it is cheaper for many high-quality issuers to sell their bonds in Canada, for very large offerings it can be more economical to distribute them in the US.²⁶ Research has shown that bond offerings in the US by Canadian-based high-quality firms were more than twice the size of the average offering in Canada (\$246 million compared to \$91 million).²⁷ Two factors explain this phenomenon:²⁸

1. The domestic market is not large enough to absorb the largest offerings (or a supply-side constraint). This is because there are fewer asset managers in Canada (smaller investor base) than in the US and because domestic asset managers have smaller portfolios than their US peers;²⁹ and
2. Investment banking fees, as a percentage of total issuance cost, decline as the size of the issuance grows. In general, investment banking fees comprise the greatest portion of the cost of issuing bonds.³⁰

CORPORATE BONDS OUTSTANDING

HIGH-QUALITY CREDIT COMPRISES THE MAJORITY OF THE MARKET

Financial services firms, mainly banks supplementing their deposit-based sources of funding, are the largest corporate bond issuers in Canada. Utilities, natural resources, and mature firms with stable cash flows in other sectors tend to comprise the remainder of the market (Figure 4). In Canada, the majority of corporate bonds are issued with a medium-term maturity (less than 10 years) and rated investment-grade or higher.

There is a small high-yield market in Canada. High-yield bonds issued in Canadian dollars represent less than 1% of global high-yield bonds outstanding (Figure 5). When domestic corporations do issue high-yield bonds (in Canada), they tend to focus on offerings of \$250 million or less.³¹

²⁶ Holding issue size constant, the median gross underwriting spread for high-quality Canadian firms was 0.5% for bond issues in Canada compared to 0.65% for those in the US. See footnote 27.

²⁷ Mittoo, Usha R., and Zhou Zhang. "Bond Market Access, Credit Quality, and Capital Structure: Canadian Evidence." *Financial Review* 45.3 (2010): 579-602. SSRN. Web. 31 July 2014.

<http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1639195>. Based on data from 1990-2003. More recent data was not available.

²⁸ Hendry, Scott and King, Michael, "The Efficiency of Canadian Capital Markets: Some Bank of Canada Research", Bank of Canada Review, Summer 2004.

²⁹ "The P&I/Towers Watson World 500: World's Largest Money Managers." Pensions & Investments, 10 Nov. 2014. Web. 19 Feb. 2015.

<<http://www.pionline.com/article/20141110/INTERACTIVE/141109944/the-pitowers-watson-world-500-worlds-largest-money-managers>>.

³⁰ See Appendix I: Additional Background, "Marketing and Distribution Costs" for an example of bond issue costs. Note that the line item for taxes should not be considered because these figures were based on Brazilian-, Mexican-, and Chilean-based issuers who may be subject to different tax rules than a Canadian entity (issuing debt in Canada or the US).

³¹ There is a pricing penalty typically levied on deals of less than \$250 million issued in the US. See Fougere, Kevin A., Janan Paskaran, and Amanda C. Balasubramanian. "Canadian High-Yield Debt Market." *Torys LLP*, June 2013. Web. 11 Mar. 2015. <<http://www.torys.com/insights/publications/2013/06/canadian-highyield-debt-market>>.

FIGURE 4: CANADIAN CORPORATE BOND PROFILE

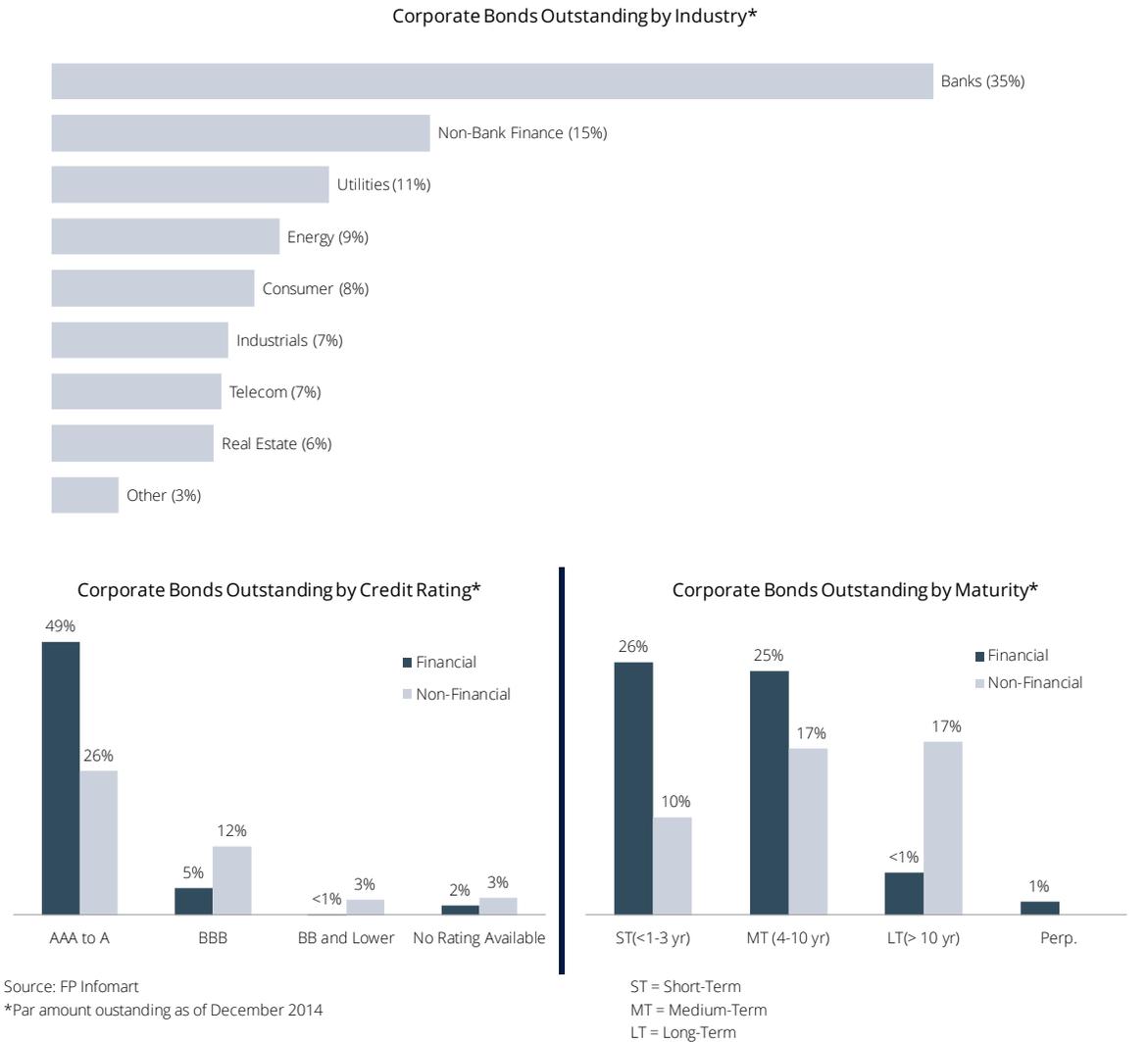
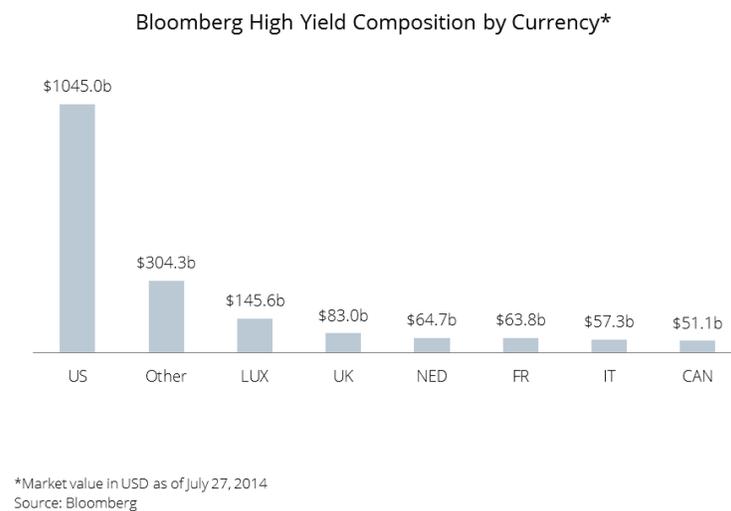


FIGURE 5: GLOBAL HIGH YIELD ISSUES OUTSTANDING³²



³² Note that this represents market value as opposed to par. This is because the index is weighted according to market value.

MARKET TRENDS (2008-2014)

THE FIXED INCOME MARKETS RECOVER FROM THE FINANCIAL CRISIS

During the 2008 financial crisis, the number and size of primary bond issuances was greatly reduced. Since then the level of issuance has steadily increased due to a number of factors:³³

1. Central banks encouraged liquidity using a combination of accommodative monetary policy and open-market operations (such as the US Federal Reserve's Quantitative Easing programs);³⁴
2. The Canadian economy returned to growth, albeit slowly, while inflation remained low;
3. Investors sought less-risky assets to protect themselves (i.e. "flight-to-quality"); and
4. Credit spreads approached pre-recession levels.³⁵

THE US FEDERAL RESERVE ("FED") HAS HELPED DRIVE CANADIAN INTEREST RATES LOWER

In response to the 2008 recession, the Fed swiftly cut overnight lending rates in order to spur economic growth, however, with short-term interest rates already approaching zero, this proved to be insufficient. In response, the Fed commenced the first of three quantitative easing programs (QE1) in November 2008, purchasing securities in the open market (primarily mortgage-backed securities) to lower long-term interest rates (growing its balance sheet significantly in the process).³⁶ With US economic growth still slow after QE1, the Fed implemented QE2 in November 2009, and (later) QE3, in September 2012, and, while both QE2 and QE3 helped reduce long-term interest rates in the US, they were less effective than QE1.^{37,38}

The Bank of Canada, in contrast, reduced short-term interest rates by lowering the overnight lending rate, but has not implemented quantitative easing to cut long-term rates. Nonetheless, weaker-than-expected economic growth forecasts (in Canada) and the Fed's quantitative easing programs combined to reduce long-term bond yields in Canada, particularly in the mortgage market.^{39,40,41} In January 2014, Stephen Poloz indicated that the Bank of Canada expected long-term bond rates would increase as the Fed begins to unwind its long-term stimulus program.⁴² However, Canadian long-term bond yields continued to remain near all-time lows by the end of 2014, as the fall in global oil prices led to lower economic growth and inflation forecasts.⁴³

³³ Poloz, Stephen S., Carolyn A. Wilkins, Timothy Lane, Agathe Côté, Lawrence Schembri, and Lynn Patterson. *Financial System Review - June 2014*. Publication. Ottawa: Bank of Canada, 2014. Financial System Review - June 2014. Bank of Canada, 12 June 2014. Web. 7 Jan. 2015. <<http://www.bankofcanada.ca/2014/06/fsr-june-2014/>>.

³⁴ United States. United States Federal Reserve. *Credit and Liquidity Programs on the Balance Sheet*. United States Federal Reserve, n.d. Web. 30 July 2014.

<https://www.federalreserve.gov/monetarypolicy/bst_openmarketops.htm>. See "Large-Scale Asset Purchase Programs" for a details on the Quantitative Easing programs.

³⁵ The credit spread is the difference in yield between a non-government bond and government bond with a comparable time to maturity. It reflects the additional yield investors require to compensate them for taking on additional credit risk.

³⁶ Ricketts, Lowell R., and Christopher J. Waller. *The Rise and (Eventual) Fall in the Fed's Balance Sheet*. Publication. Federal Reserve Bank of St. Louis, Jan. 2014. Web. 13 Jan. 2015.

<<https://www.stlouisfed.org/publications/re/articles/?id=2464>>.

³⁷ Nellis, Daniel. "Measuring the Change in Effectiveness of Quantitative Easing." *Issues in Political Economy* 22 (n.d.): 108-26. 2013. Web. 9 Mar. 2015. <<http://www.elon.edu/docs/e-web/students/ipe/volumes/nellis%202013.pdf>>.

³⁸ The Fed only purchased US Treasuries for QE2, while in QE3 it purchased mortgage-backed securities.

³⁹ When the Fed implemented quantitative easing, it drove down long-term bond yields in the US. Because US bond yields act as the benchmark for Canadian bonds, this indirectly reduces long-term bond yields in Canada as some investors shift some of their long-term US bond holdings to long-term Canadian bonds.

⁴⁰ Fawley, Brett W., and Luciana Juvenal. *Quantitative Easing: Lessons We've Learned*. Publication. Federal Reserve Bank of St. Louis, July 2012. Web. 08 Jan. 2015.

<<https://www.stlouisfed.org/publications/re/articles/?id=2258>>.

⁴¹ Curren, Don. "Would Fed Tapering Affect Canada's Housing Sector?" *Canada Real Time*. The Wall Street Journal, 21 June 2013. Web. 08 Jan. 2015.

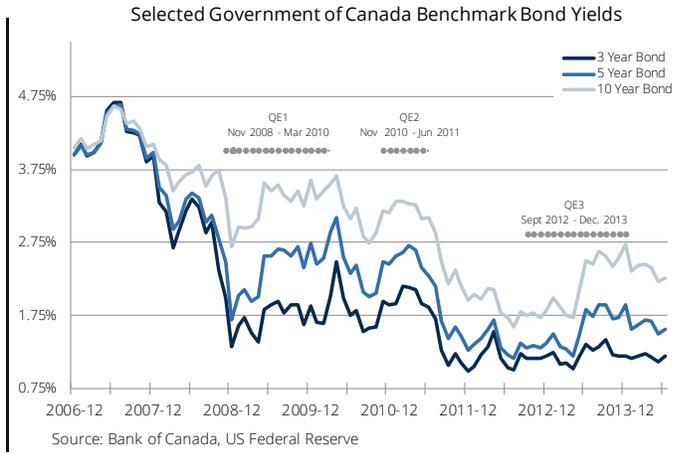
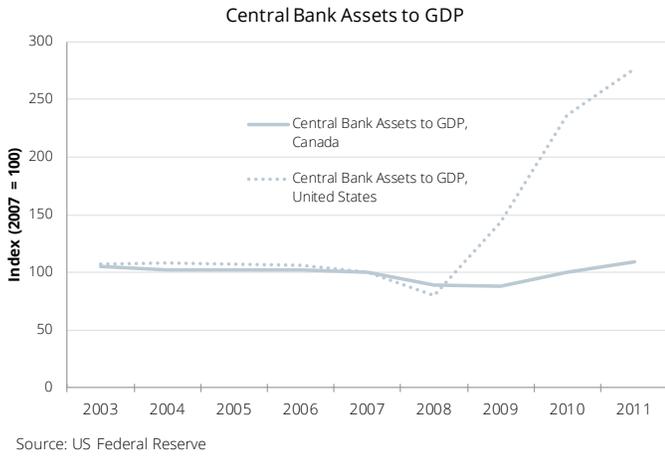
<<http://blogs.wsj.com/canadarealtime/2013/06/21/would-fed-tapering-affect-canadas-housing-sector/>>.

⁴² McKenna, Barry. "Poloz Says Fed Tapering Could Push up Long-term Rates in Canada." *The Globe and Mail*, 7 Jan. 2014. Web. 08 Jan. 2015. <<http://www.theglobeandmail.com/report-on-business/economy/poloz-says-fed-tapering-could-push-up-long-term-rates-in-canada/article16237315/>>.

⁴³ Nguyen, Lananh. "Canada Dollar Trades at Almost 5-Year Low as U.S. Economy Surges." *Bloomberg.com*. Bloomberg, 23 Dec. 2014. Web. 19 Feb. 2015.

<<http://www.bloomberg.com/news/articles/2014-12-23/canadian-dollar-approaches-five-year-low-as-u-s-economy-surges>>.

FIGURE 6: CENTRAL BANK BALANCE SHEET AND INTEREST RATES



THE POST-CRISIS ECONOMY IS ONE WITH SLOW ECONOMIC GROWTH AND LOW LEVELS OF INFLATION

While GDP growth remains below historical levels (~3%), the Canadian economy recovered relatively quickly from the 2008 recession. In contrast to most G7 countries, Canada did not undergo a domestic banking crisis which, combined with a high level of commodity exports, helped the Canadian economy resume growing relatively quickly after the global recession.

CANADA BENEFITS FROM THE FLIGHT-TO-QUALITY

After the financial crisis, Canadian investors shed equities for high-quality bonds to reduce their portfolio volatility. Between 2009 and 2012, Canadian bond funds saw a net inflow of \$56 billion, while Canadian equity funds saw almost \$46 billion in outflows over the same period as investors remained concerned about the pace of the global recovery.⁴⁴

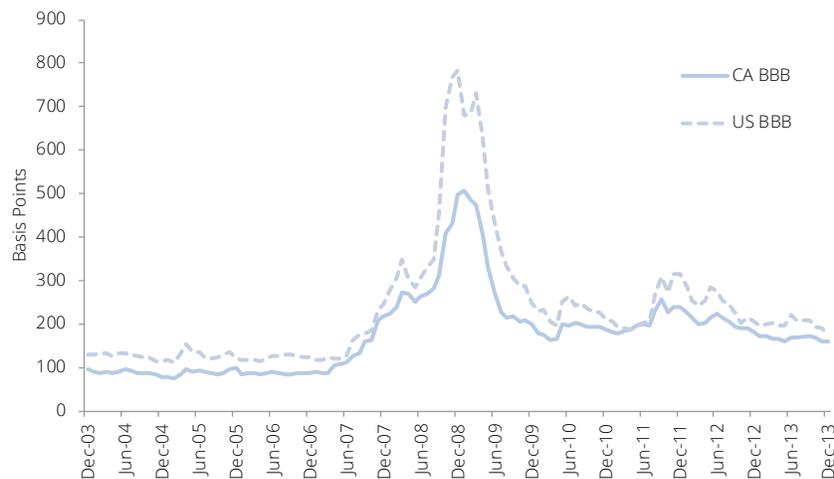
Foreign investors also increased their purchases of Canadian bonds after the recession as yields in the traditional safe havens (the US, Germany, and Japan) hit record lows.⁴⁵ Between January 2008 and December 2014, non-residents purchased a net \$375 billion in Canadian bonds.⁴⁶

ISSUANCE HAS RECOVERED AS CREDIT SPREADS IN CANADA HAVE FALLEN TO PRE-RECESSION LEVELS

Investment grade credit spreads in Canada remain slightly higher than before the recession, but remain lower than those in the US. Tighter corporate credit spreads, combined with historically-low benchmark interest rates, has led Canadian firms to take advantage of lower borrowing costs by issuing bonds both domestically and abroad.

FIGURE 7: CORPORATE CREDIT SPREADS

Investment Grade Corporate Credit Spreads (OAS) Canada vs US



Source: BofA Merrill Lynch

⁴⁴ Gungor, Sermin, and Jesus Sierra. *Search-for-Yield in Canadian Fixed-Income Mutual Funds and Monetary Policy*. Working paper no. 2014-3. The Bank of Canada, Jan. 2014. Web. 6 Apr. 2015. <<http://www.bankofcanada.ca/wp-content/uploads/2014/01/wp2014-3.pdf>>.

⁴⁵ Popper, Nathaniel. "Investors Seek Out Safer Shores." *The New York Times*. The New York Times, 06 Aug. 2012. Web. 06 Apr. 2015. <<http://www.nytimes.com/2012/08/07/business/investors-face-tough-search-for-financial-safe-havens.html>>.

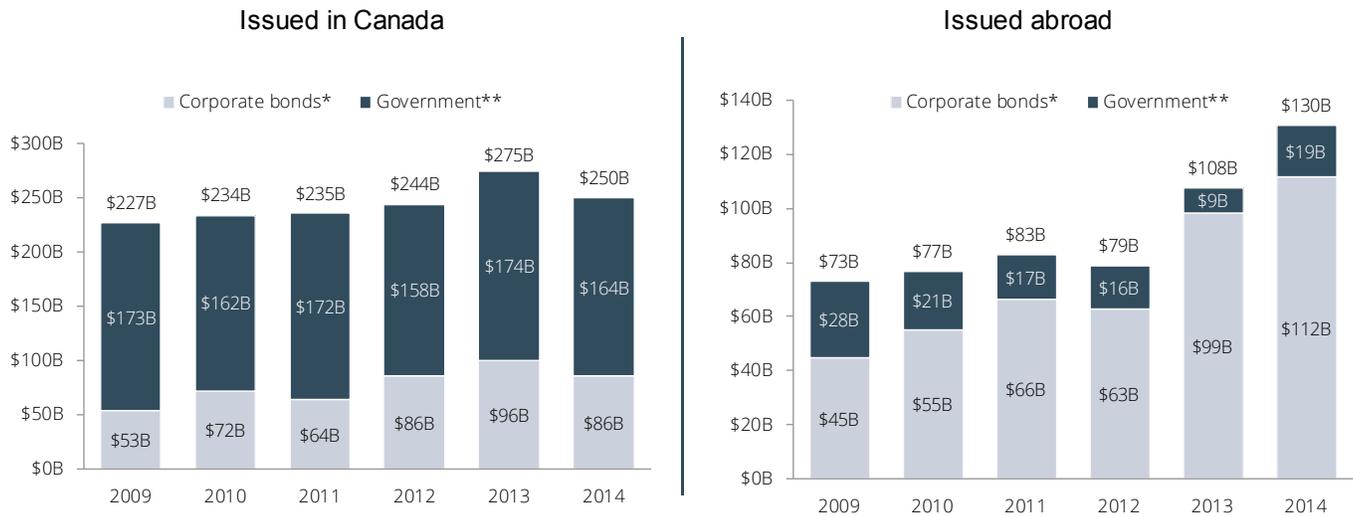
⁴⁶ Statistics Canada. *Table 376-0131 - International transactions in securities, portfolio transactions in Canadian and foreign securities, by type of instrument and issuer, monthly (dollars)*, CANSIM (database). (accessed: 2015-04-06).

PRIMARY ISSUANCE

CANADIAN CORPORATIONS USE FOREIGN MARKETS TO DIVERSIFY FUNDING

As noted in the prior section, corporations are more likely than the government to issue bonds abroad. In both 2013 and 2014, more than half of all corporate bonds were issued outside of Canada. As noted previously, Canadian corporations issue debt outside of Canada to access a larger market, match the currency of cash inflows and outflows, for price arbitrage, and/or for funding diversification.

FIGURE 8: GROSS PRIMARY ISSUANCE, CANADA AND ABROAD⁴⁷



*Includes all issues of Canadian corporations and issues of federal government business enterprises

**Federal, provincial, and municipal bonds

Source: Statistics Canada, Bank of Canada

FOREIGN FIRMS DO NOT ISSUE MANY BONDS IN CANADA

Less than 2% of the bonds issued annually are foreign bonds, most of which are issued by large US and European financial firms. In recent years, however, issuance of foreign bonds in Canada has declined. First, a number of global financial institutions failed or contracted as a result of the financial crisis, reducing the number of potential issuers. Second, stricter capital requirements (i.e. Basel III) have made foreign issuance less attractive to issuers.^{48,49}

⁴⁷ Bank of Canada and Statistics Canada issuance data does not include Canada mortgage bond issuance.

⁴⁸ Hatley, James. "The "Maple Bond" Market." *Financial System Review*; 35-42. Web. 24 July 2014.

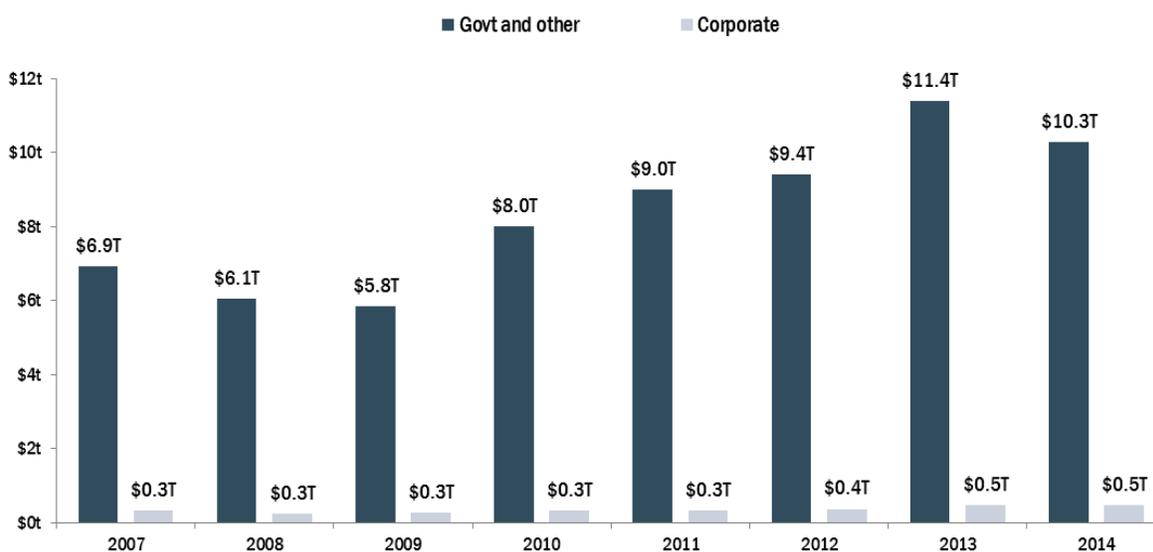
⁴⁹ Zhang, Moran. "Investment Banks To Cut 40,000 More Jobs, Shrink Global Footprint; Partly Due To Basel III." *International Business Times*. N.p., 21 Nov. 2012. Web. 28 July 2014. <<http://www.ibtimes.com/investment-banks-cut-40000-more-jobs-shrink-global-footprint-partly-due-basel-iii-895784>>.

SECONDARY MARKET ACTIVITY

In 2014, there was more than \$10 trillion in bonds traded in the secondary market (Figure 9). Corporate bond trades account for less than 5% of bond trading. There are a number of reasons why government bonds trade more frequently than corporate bonds:

1. Government bonds are more standardized and more interchangeable;⁵⁰
2. Government issuances are larger in size (on per-offering basis);
3. Government bonds are more widely held, while corporate bonds are held by a small base of investors that tend to hold these investments after they are issued (which makes them less liquid);
4. Government bonds are used more frequently for other market activities, such as hedging and collateral for repos or swaps;⁵¹
5. Margin requirements for government bonds are lower than those for corporate bonds, which makes holding corporates more expensive and difficult to hedge;⁵² and
6. Many larger corporate bond offerings are issued outside of Canada which reduces the amount of high quality securities available in the domestic market.^{53,54}

FIGURE 9: DOMESTIC SECONDARY BOND MARKET TRADING ACTIVITY (PAR VALUE)



*Govt and other includes Government of Canada bonds, federal crown corporation bonds, provincial bonds, municipal bonds and asset-backed securities.
Source: IIROC

⁵⁰ Gyntelberg, Jacob, Guonan Ma, and Eli M. Remolona. *Corporate Bond Markets in Asia*. BIS Quarterly Review. Bank of International Settlements, 5 Dec. 2005. Web. 31 July 2014.

<https://www.bis.org/publ/qtrpdf/r_qt0512.htm>.

⁵¹ Gutscher, Cecile. "Canada to Boost Bond Sales to C\$95 Billion to Ease Repo Squeezes." *Bloomberg.com*. Bloomberg, 11 Feb. 2014. Web. 31 July 2014. <<http://www.bloomberg.com/news/2014-02-11/canada-to-boost-bond-sales-to-c-95-billion-to-ease-repo-squeezes.html>>.

⁵² Kamhi, Nadja. "Procyclicality and Margin Requirements." *Financial System Review*. Bank of Canada, 21 June 2009. Web. 31 July 2014. <<http://www.bankofcanada.ca/2009/06/fsr-june-2009/>>.

⁵³ Mittoo, Usha R., and Zhou Zhang. "Bond Market Access, Credit Quality, and Capital Structure: Canadian Evidence." *Financial Review* 45.3 (2010): 579-602. SSRN. Web. 31 July 2014.

<http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1639195>. Based on data from 1990-2003. More recent data was not available.

⁵⁴ Anderson, Stacey, Ron Parker, and Andrew Spence. *Development of the Canadian Corporate Debt Market: Some Stylized Facts and Issues*. Issue brief. Ottawa: Bank of Canada, 2003. *Financial System Review*. Bank of Canada, Dec. 2003. Web. 11 Aug. 2014. <<http://www.bankofcanada.ca/wp-content/uploads/2012/02/fsr-1203-anderson.pdf>>.

CORPORATE BOND TRADING IS CONCENTRATED IN SHORTER-TERM ISSUES AND IN FINANCIALS

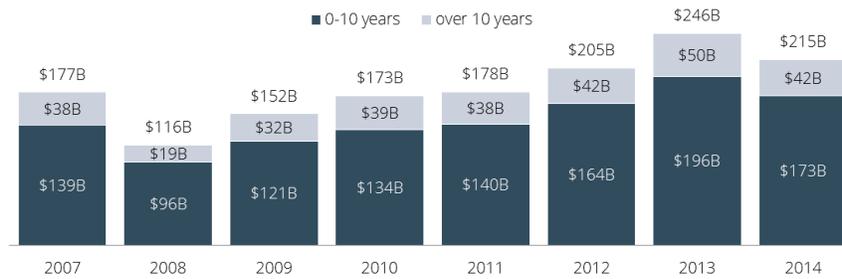
Corporate bond trading is concentrated in issues maturing within 10 years because the long-term corporate bond market in Canada is relatively shallow.⁵⁵ There are fewer long-term corporate bond issues and they tend to be sold to buy-and-hold investors such as pension funds and insurance companies.⁵⁶ Within the corporate bond segment, credit quality and issue size are highly correlated with liquidity (as is the case in the broader market). As expected, bank, trust and mortgage company bonds are the most actively traded securities in the market. These collectively represented more than 40% of total secondary corporate bond trading since 2007.

FIGURE 10: SECONDARY CORPORATE BOND TRADING BY ISSUER TYPE



Source: IIROC

FIGURE 11: SECONDARY NON-FINANCIAL CORPORATE BOND TRADING BY MATURITY



Source: IIROC

*Data for Maple bonds and financial corporations was not available by maturity

FIXED INCOME VS EQUITY MARKETS

COMPARED TO EQUITIES, THE SIZE OF THE CORPORATE BOND MARKET IS SMALLER, ANNUAL ISSUANCE IS HIGHER, AND SECONDARY MARKET ACTIVITY IS LOWER

The Canadian corporate bond market (par value of corporate bonds outstanding issued by Canadian corporations) is less than half the size of the Canadian equity market (market value of equities listed on the TSX and TSX Venture exchanges) and corporate bonds trade relatively infrequently compared to equities. This is despite the fact that there is four times as much corporate debt than equity issued on an annual basis.

⁵⁵ Secondary trading activity is only separated by bonds with 0-10 years until maturity and greater than 10 years by IIROC.

⁵⁶ These institutions often purchase long-term bonds to match their assets and liabilities. With long-dated liabilities they are not concerned the relative lack of liquidity for long-term corporate bonds and are only likely to consider trading these bonds if there is a risk that the borrower defaults. See Appendix I: Additional Background, "Holders of Corporate Debt" for additional details.

A direct comparison between activity in the fixed income and equity market is complicated due to a number of factors:

1. Stocks are standardized instruments that trade on an exchange, while bonds are negotiated contracts that typically trade OTC;
2. It is generally cheaper for a firm to issue bonds than to issue stock (lower cost of capital);
3. Bonds have a finite life and must be rolled over at maturity (unless the debt is retired);⁵⁷
4. Bond prices typically fluctuate less than stock prices;⁵⁸ and
5. Stocks are usually owned by multiple investors over their lifetime, while corporate bonds are often held until they mature.

FIGURE 12: DOMESTIC DEBT AND EQUITY MARKET COMPARISONS

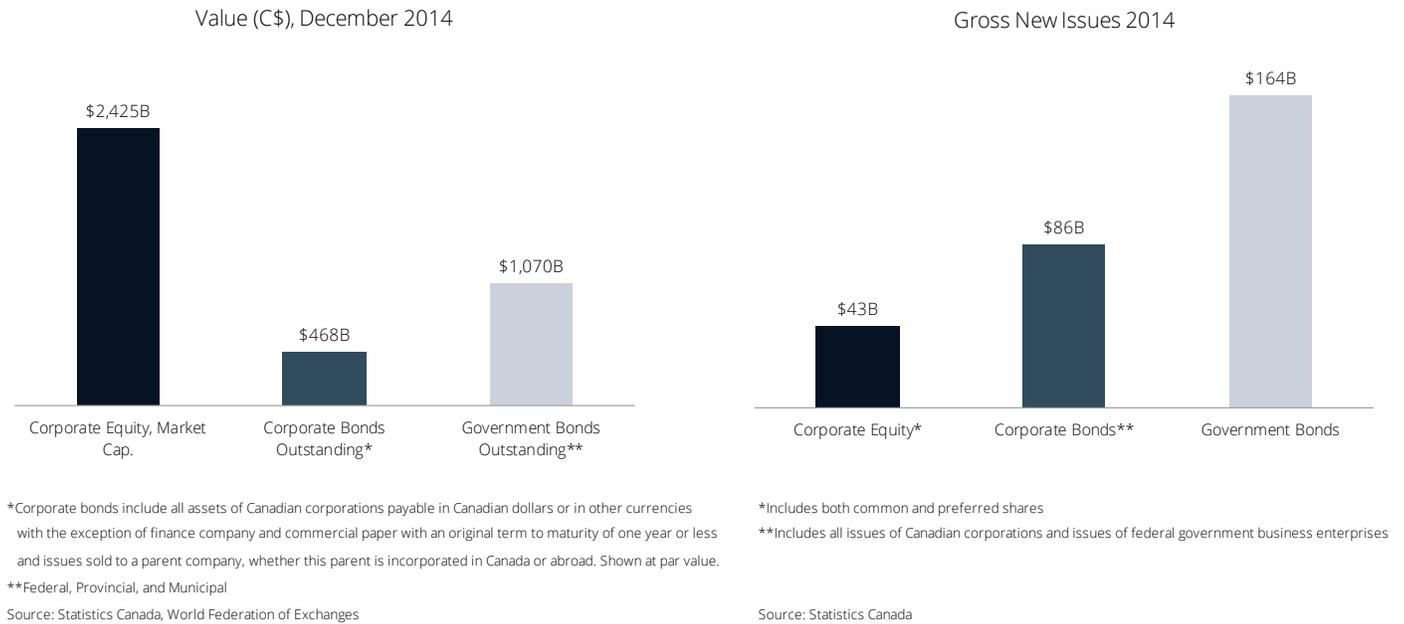
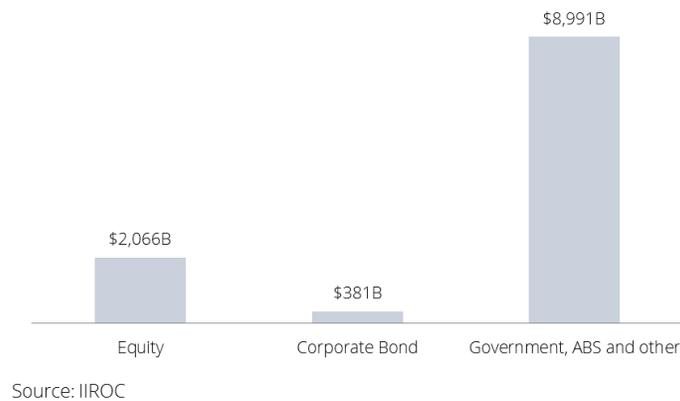


FIGURE 13: AVERAGE ANNUAL VALUE TRADED FROM 2009 TO 2014



⁵⁷ Equities do not have a finite life.

⁵⁸ While debt values do vary as interest rates changes in interest rates have a larger impact on equities because the future cash flows to equity are projected in perpetuity, while there only a finite number of future payments to debt holders. In addition, most corporate debt is issued by high quality firms that (historically) have low probability of default (thus credit events are infrequent) Furthermore equity securities are subordinate to debt securities, thus the value of debt securities will always be more stable than the value of equities (for the same issuer).

BOX I: MARKET-BASED FINANCE: DEBT COMPARED TO EQUITY

EQUITY FINANCING DOES NOT INCREASE A COMPANY'S DEBT BURDEN

When a company issues stock, it obtains funds without incurring debt. Debt financing, as the name suggests, increases the issuer's debt burden because bonds represent a contractual obligation to pay interest to the bondholder. Stock dividends, in contrast, are discretionary and can be suspended or changed by the issuer.

EQUITY REPRESENTS OWNERSHIP IN A COMPANY

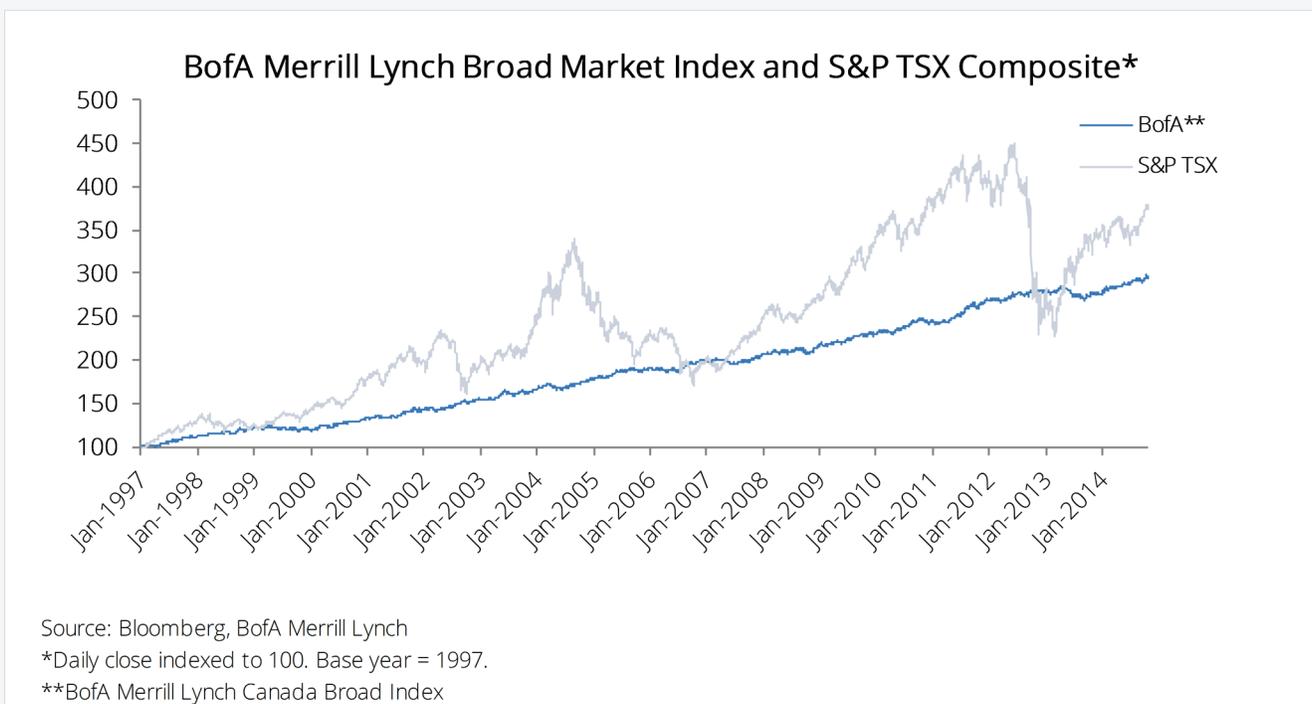
Stock gives the investor an ownership stake in a company. This is often accompanied with voting rights and provides claims on the firm's future earnings.

Bondholders do not have any ownership rights and typically do not have any claim on the firm's future earnings. The issuer is only obligated to repay the principal with interest.

EQUITIES ARE RISKIER THAN DEBT

The risk premium for a bond is lower than that of a stock for two reasons. First, payments to bondholders have priority over payments to shareholders in the event the company goes bankrupt. Second, bond prices are more stable than stock prices (stocks are a riskier asset class) and vary primarily due to market or interest-rate risk. For corporate bonds there is additional credit risk, but this is relatively small for bonds that are rated investment grade or higher. Stock prices are more volatile than bond prices: while there is a return component due to market risk, individual equity returns tend to be more closely related to firm-specific risk, making the return on individual stocks significantly more volatile than the return on bonds.

FIGURE 14: DAILY RETURN VOLATILITY, CANADIAN EQUITY VS DEBT



RETAIL PARTICIPATION IN THE FIXED INCOME MARKET

There is very limited data on retail bond holdings, either held directly or indirectly. Several research sources provide an aggregated estimate of retail bonds held via indirect channels such as mutual funds and pension funds, however they do not provide a breakout of these holdings by type of issuer. There are also few published studies on participation in the secondary bond market. In 2004, the Bank of Canada noted that retail investors not only represent a small portion of trading, but also have limited access to information and are less informed than wholesale market participants, which deters retail participation:

"To date, fixed income trading activity has been relatively concentrated, dominated by a small number of high-value transactions undertaken by a few highly skilled participants. These are usually large institutional customers, such as pension funds. Retail customers constitute a very small percentage of the volume of fixed income trading. In contrast, retail transactions account for a much larger volume of equity market trading. Because the retail trading volume is relatively small in fixed income markets, retail investors are relatively less informed than institutional investors."⁶⁰

Studies in other markets indicate that retail investors predominately participate in corporate bond markets through mutual funds.⁶¹

BOX 2: BARRIERS TO RETAIL PARTICIPATION

RETAIL INVESTORS TRADE WITH LIMITED INFORMATION

The Canadian fixed income market is opaque, especially for retail investors. In contrast, there is both pre- and post-trade transparency in the equity market: retail investors have access to trade data (prices, quotations, and volumes) at little or no cost. Similar information is not widely available for retail investors in the fixed income market.

A LESS ACTIVE SECONDARY MARKET FOR BONDS

The fixed income market is characterized by a low degree of secondary market turnover, in which a fragmented dealer network facilitates large, but infrequent trades. Furthermore, bond prices in the secondary market are highly correlated with interest rates instead of firm-specific (or idiosyncratic) risk, which makes signaling information less valuable. To price a bond, investors need the appropriate risk-free rate of interest and need to determine the appropriate credit spread.⁵⁹ In the equity market, however, there is a greater amount of firm-specific risk, which makes secondary-market transactions more valuable. The more standardized nature of equity securities, increased availability of information, and ability to transact in small transaction sizes has made the public stock market more accessible for retail investors.

DISSEMINATING INFORMATION HAS BEEN COSTLY

In the past, disseminating information has been costly both in the equity and fixed income markets. In the past, this meant the investor would have to contact their broker or search the newspaper to price their securities. However, the advent of electronic trading has made collecting pricing information in the equity market almost costless for a number of reasons:

1. In the equity market, the various equity exchanges are the nexus for information, which reduces search costs. There is no centralized information source in the bond market. Information must be patched together from individual dealers;
2. Since there are fewer equity securities than debt securities, it is easier to curate the information; and
3. Quoted prices in the equity market reflect executable bids and offers, which are more valuable than the indicative quotes that are more commonly available for bonds.

⁵⁹ See Appendix I: Additional Background, "Diversity of Securities" for more information on credit spreads.

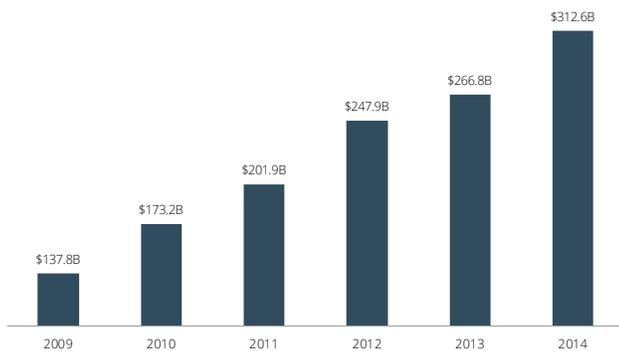
⁶⁰ Zorn, Lori. "Bank of Canada Workshop on Regulation, Transparency, and the Quality of Fixed-Income Markets." *Financial System Review*. Bank of Canada, June 2004. Web. 29 July 2014. <<http://www.bankofcanada.ca/2004/06/fsr-june-2004/>>.

⁶¹ Tendulkar, Rohini, and Giji Hancock. *Corporate Bond Markets: A Global Perspective*. Working paper. International Organization of Securities Commissions, Apr. 2014. Web. 15 Aug. 2014. <<http://www.iosco.org/research/pdf/swp/SW4-Corporate-Bond-Markets-Vol-1-A-global-perspective.pdf>>.

INDIRECT HOLDINGS

Based on 2014 data from Investor Economics, Canadian domiciled fixed income mutual funds had \$312 billion in AUM (Figure 15).⁶² In separate study of 2013 data, the Bank of Canada estimated that mutual funds hold approximately 16% of outstanding corporate bonds issued in Canada.⁶³ Like pension funds and insurance companies, mutual funds are subject to a number of investment restrictions and tend to hold instruments that are rated investment grade.⁶⁴

FIGURE 15: FIXED INCOME MUTUAL FUND AUM*



Source: Investor Economics, Insight January 2015 Annual Review

*Does not include holdings for balanced funds

DIRECT HOLDINGS

The OSC used data from the 2012 Canadian Financial Monitor Survey to analyze direct bond holdings at the Canadian household level.⁶⁵ Based on this analysis, the OSC found that fewer than 3% of households owned any Canadian marketable bonds (government or corporate), of which:⁶⁶

1. 80.4% were headed by an individual who was at least 50 years old; and
2. 79.6% of these households held more than \$100,000 in financial assets, with an average of \$104,000 per household in marketable bonds, representing 24% of all financial assets.

The relationship between the age of the head of a household and the likelihood that the household holds marketable bonds is consistent with optimal portfolio theory.⁶⁷

BOX 3: THE DECLINE OF CANADA SAVINGS BONDS (CSBS)*LOW INTEREST RATES HAVE REDUCED THE PUBLIC INTEREST IN CSBS*

With interest rates at record lows, public appetite for CSBs has been decreasing steadily since the 1990s. In 2012, the Government of Canada found that the value of CSBs in circulation continued to fall as retail investors shifted to higher-yielding products.⁶⁸

IT CAN BE EXPENSIVE TO TARGET RETAIL INVESTORS

While there is a legitimate concern that retail investors are excluded from primary bond offerings, there is evidence that retail distribution is not always cost effective for issuers. A 2004 study of the CSB program found that the program cost \$1 billion between 1997 and 2003 and was prohibitively expensive compared to selling directly to institutions.⁶⁹ For issuers of corporate debt, who will have less name recognition than the Canadian government and more heterogeneous securities, it is reasonable to conclude that there may be many instances where it is not cost efficient for underwriters to market offerings to retail investors.

⁶² Included in this measure are corporates, bank loans, and preferred shares from both Canadian and foreign issuers. See, Investor Economics Insight January 2015, Annual Review

⁶³ Based on holdings data as of 31 March 2013. See Gungor, Sermin, and Jesus Sierra. *Search-for-Yield in Canadian Fixed-Income Mutual Funds and Monetary Policy*. Working paper no. 2014-3. The Bank of Canada, Jan. 2014. Web. 6 Apr. 2015. <<http://www.bankofcanada.ca/wp-content/uploads/2014/01/wp2014-3.pdf>>.

⁶⁴ This can impact on the amount, quality and duration of debt they can hold.

⁶⁵ The Canadian Financial Monitor Survey from Ipsos Reid Canada compiles information on household balance sheets and amounts invested in bonds.

⁶⁶ The survey questions group together holdings of government and corporate bonds.

⁶⁷ Cappelletta, Giuseppe, Giovanni Guazzarottia, and Pietro Tommasino. "The Effect of Age on Portfolio Choices: Evidence from an Italian Pension Fund." *Journal of Pension Economics and Finance* 13.04 (2014): 389-419. Cambridge Journals Online, 17 Jan. 2014. Web. 08 Jan. 2015. <<http://journals.cambridge.org/action/displayAbstract?aid=9351317>>.

⁶⁸ Le Goff, Philippe. "Canada Savings Bonds: A Viable Program?" *Hillnotes*, Library of Parliament Research Publications (Government of Canada), 7 Nov. 2012. Web. 18 Aug. 2014. <<http://www.parl.gc.ca/Content/LOP/ResearchPublications/2012-80-e.htm>>.

⁶⁹ Kiladze, Tim. "The Long, Slow Death of the Canada Savings Bond." *The Globe and Mail*, 23 Mar. 2011. Web. 18 Aug. 2014. <<http://www.theglobeandmail.com/globe-investor/the-long-slow-death-of-the-canada-savings-bond/article573963/>>.

Reports from Investor Economics indicate that, in Canada, direct bond holdings (corporate and government) account for approximately 10% of retail assets held in full-service brokerage accounts. For online or discount brokerages, bonds (both corporate and government) account for around 3% of client assets.⁷⁰ This, combined with the fact that bond ownership is largely concentrated in households with over \$100,000 in financial assets, is consistent with expectations that bonds tends to be held by wealthier households.

INSTITUTIONAL PARTICIPATION IN THE FIXED INCOME MARKET

DIRECT OWNERSHIP IS CONCENTRATED AMONG INSTITUTIONAL INVESTORS

The fixed income market has evolved around the needs of institutional investors for a number of reasons:

1. The large universe of bonds, lack of standardization, and lack of publicly-available information can make search costs prohibitively high for small investors;⁷¹
2. Primary market distributions favor large investors who purchase bonds in large quantities which lowers their transaction costs; and
3. Not all institutional investors are return-sensitive. Many investors hold fixed income assets (especially government bonds) to use as collateral for repos or swaps, or to match liabilities. In addition, central banks use fixed income assets for their foreign exchange reserves.⁷²

*HIGH SEARCH COSTS FAVOR INSTITUTIONAL INVESTORS*⁷³

Corporations often issue bonds because they can be tailored to meet specific financing needs. These features include the maturity date, method of payment, seniority and collateral. A single corporation may issue a number of different bonds, whereas they typically only issue one class of stock.⁷⁴ This leads to high search costs that make it less economical for retail investors to trade. This is not the case for large institutions that have access to wider amount of information.

*PRIMARY MARKET ALLOCATIONS FAVOR INSTITUTIONAL INVESTORS*⁷⁵

The cost to issue a bond is inversely related to the size of the issue [Table 1]. A number of expenses (including legal costs, printing, regulatory fees) do not increase significantly as the size of a bond issue grows, while others such as investment banking fees decline on a per-unit basis, which makes large offerings more attractive.

TABLE 1: US UNDERWRITER SPREADS, OTHER CHARACTERISTICS, AND S&P RATINGS OF INDUSTRIAL BOND OFFERS (1990-1997)⁷⁶

Proceeds (\$m)	Number of Issues	Mean Spread (%)
\$10 to \$100	163	1.24%
\$100 to \$150	152	1.15%
\$150 to \$200	111	1.05%
\$200 to \$250	92	0.92%
\$250	110	0.61%
All	628	1.09%

As is the case in the equity market, underwriters appear to focus their efforts on marketing bonds to large institutions. The reasons for this include that larger investors:

⁷⁰ Investor Economics, Retail Brokerage and Distribution Advisory service, as of December 2013

⁷¹ Search costs represent the opportunity cost of researching a product or service for purchase.

⁷² Pomorski, Lukasz, Francisco Rivadeneyra, and Eric Wolfe. *The Canadian Dollar as a Reserve Currency*. Publication no. Spring 2014. Bank of Canada, 13 May 2014. Web. 16 Jan. 2015. <<http://www.bankofcanada.ca/wp-content/uploads/2014/05/boc-review-spring14-pomorski.pdf>>.

⁷³ See Appendix I: Additional Background, "Diversity of Securities".

⁷⁴ This is typically the case. It is possible for a firm to issue different types of equity such as preferred and common equity, or even multiple classes of the same type of equity. Nonetheless a typical bond issuer will have many more types of bonds outstanding than equities at a single point in time.

⁷⁵ See Appendix I: Additional Background, "Marketing and Distribution Costs".

⁷⁶ Altinkihc, Oya. "Are There Economies of Scale in Underwriting Fees? Evidence of Rising External Financing Costs." *The Review of Financial Studies* 13.1 (2000): 191-218. Web. 28 July 2014.

<<http://www.tulane.edu/~rsweb/Altinkihc,Hansen,RFS,2000.pdf>>.

1. Purchase larger blocks of inventory, reducing marketing costs and the associated markups;
2. Provide signaling information that helps the underwriter price the issue appropriately; and
3. Benefit from cross-selling, where prior relationships reduce marketing costs.⁷⁷

INSTITUTIONAL INVESTORS POSSESS STRUCTURAL ADVANTAGES⁷⁸

Many institutional investors, particularly pension funds and life insurance companies, have long-term, predictable liabilities.⁷⁹ Rather than focusing exclusively on generating excess returns, these institutions try to minimize the mismatch between their assets and liabilities. They also tend to employ a “buy-and-hold” strategy and aim to hold bonds until they mature because they want a predictable stream of cash flows. Since these institutions are buy-and-hold investors that focus on credit risk—as opposed to liquidity—they purchase investment-grade corporate bonds. Pension funds and insurance companies are large holders of corporate debt securities in Canada: insurance companies hold an estimated 15% of the corporate bonds in Canada⁸⁰ while pension funds hold over 14% of bond holdings in Canada.⁸¹

Institutional investors pay less, on a per-unit basis, than retail investors to trade bonds. In a 2010 study of US corporate bond trades, researchers observed that transaction costs were ten to twenty times lower for trades of \$500,000 or more than for trades up to \$100,000.^{82,83}

While economies of scale lower transaction costs for institutional investors, these investors also benefit from greater market access and bargaining power. Institutional investors have access to more dealers than retail investors which makes it easier to negotiate commissions and collect valuable information when they interact with dealers.

Analyzing bonds is inherently complex. Investors must consider a number of parameters including credit risk, duration, default risk, loss given default, and convexity.^{84,85} For corporate bonds, where credit risk assessment is a key component of valuation, most institutional investors perform their own credit assessment and due diligence, which places them in a better position to identify discrepancies in prices.⁸⁶ Retail investors, in contrast, generally rely on credit ratings and often lack the resources needed to perform their own independent analysis.⁸⁷

⁷⁷ For example institutional investors can participate in foreign offerings that are not available to retail investors. Many institutions (such as Canada Pension Plan Investment Board) interested in large domestic offerings likely allocate a portion of their portfolios to foreign offerings.

⁷⁸ See Appendix I: Additional Background, “Holders of Corporate Debt” for additional details.

⁷⁹ These investors are also tax-exempt whereas retail investors are subject to income taxes on interest income and capital gains if the bonds are sold prior to maturity unless these are held in a registered account.

⁸⁰ Davison, Jim. “How Stable Is Canada’s Life Insurance Industry?” Davison Orser & Ward. 04 Sept. 2014. Web. 13 Jan. 2015. <<http://www.davisonorsward.com/how-stable-is-canadas-life-insurance-industry/>>.

⁸¹ A split of corporate and government bonds was not available. Estimate based on 2013 data from the Pension Investment Association of Canada. (\$296.1B Canadian nominal bonds + \$38.4B real return bonds) / \$2,407B total Canadian domestic bond market = ~ 14%.

⁸² Transactions under \$100,000 are considered to be retail transactions. See Appendix I: Additional Background, “Table 4: Spreads by Trade Size – Corporate Bonds (November 2008–April 2010)”.

⁸³ Equivalent Canadian data is not available; however, we would expect to see a large disparity in Canada as well.

⁸⁴ Williams, James. “Overcoming the Risk Challenges of Trading Fixed Income Securities.” *Hedgeweek*, 19 Mar. 2014. Web. 28 July 2014. <<http://www.hedgeweek.com/2014/03/18/198818/overcoming-risk-challenges-trading-fixed-income-securities/>>.

⁸⁵ The relationship between bond prices and yields is convex, or curved (as opposed to linear). As a result a bond’s duration (a measure of how a bond’s price is affected by a change in interest rates) is not constant. See https://www.raymondjames.com/fixed_income_duration.htm for an explanation of bond prices, duration, and convexity.

⁸⁶ United States. Securities and Exchange Commission. Office of the Investor Advocate. *The ABCs of Credit Ratings*. Securities and Exchange Commission, Oct. 2013. Web. 6 Aug. 2014. <http://www.sec.gov/investor/alerts/ib_creditratings.pdf>.

⁸⁷ United States. Securities and Exchange Commission. Office of the Investor Advocate. *The ABCs of Credit Ratings*. Securities and Exchange Commission, Oct. 2013. Web. 6 Aug. 2014. <http://www.sec.gov/investor/alerts/ib_creditratings.pdf>.

THE SECONDARY MARKET

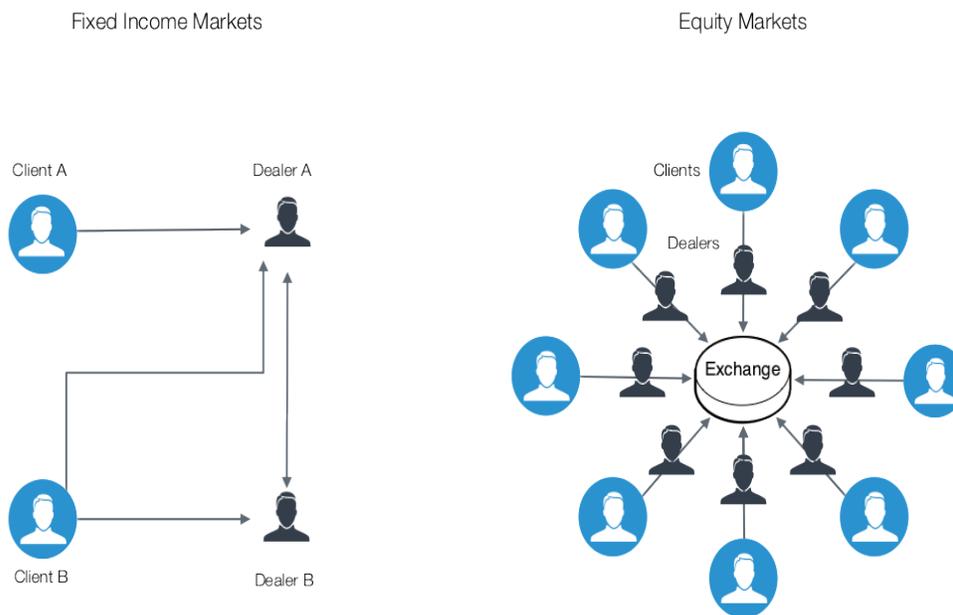
OVERVIEW

A DECENTRALIZED, OTC MARKET

The fixed income market is a quote-driven market where trades take place OTC, typically on a bilateral basis.^{88,89} In contrast, the equity market is an order-driven, transparent system that matches customer orders on a “price-time-priority” basis, otherwise known as a continuous auction market, where orders are maintained in a central limit order book.⁹⁰ The rule-based approach to order matching in equity markets is meant to ensure that investors receive the best price available on a market, whereas, in the fixed income market, orders are executed on a best efforts basis to obtain a fair price. The tradeoff between the cost to transact and liquidity is more pronounced in the fixed income market than it is in the equity market due to the structure of the fixed income market (e.g. search costs).

In the fixed income market there is no central place for buyers and sellers to meet. Some larger institutions may trade bilaterally, while most work with a dealer intermediary to find a trading counterparty or take on the position as principal. This helps to explain, in part, why the fixed income market is less transparent than the equity market from both a pre-trade and post-trade perspective.

FIGURE 16: FIXED INCOME VS EQUITY MARKETS (SIMPLIFIED)⁹¹



⁸⁸ Equity markets, for the purposes of this discussion, refers to publicly-traded equity markets unless otherwise noted (for example OTC equity or private equity markets).

⁸⁹ This applies to the majority of bonds traded in the world. There are a small number of bonds that are traded on an exchange (for example a small number trade on the NYSE), but, in general, bonds trade OTC.

⁹⁰ "Central Limit Order Book." Wikipedia. Wikimedia Foundation, 24 July 2013. Web. 27 Feb. 2015. <https://en.wikipedia.org/wiki/Central_limit_order_book>.

⁹¹ Tucker, Matthew. "From Phone Time to Real Time, How Bonds and Bond ETFs Trade." BlackRock Blog Global Market Intelligence. BlackRock, 15 Mar. 2012. Web. 20 Aug. 2014. <<http://www.blackrockblog.com/2012/03/15/from-phone-time-to-real-time-how-bonds-and-bond-etfs-trade>>.

BOX 4: AUCTION AND NEGOTIATED MARKETS

AUCTION MARKETS

In the stock market, an exchange or ATS acts as a platform market where buyers and sellers can interact. The marketplace facilitates transactions by structuring the auction process, helping buyers and sellers find each other in a central place (reducing search costs), setting standards, and enforcing contracts.

This works well for stocks because they are standardized instruments that are generally liquid and multiple buyers and sellers are ready to transact at any particular time (a competitive market). In this type of market, pre- and post-trade transparency helps to reduce trading costs and increase liquidity.

NEGOTIATED MARKETS

In the fixed income market, there are many differentiated securities that do not trade very frequently. This leads to high search costs for each transaction since the market for individual securities tends to be concentrated among a small number of participants (fragmented liquidity). This is one of the reasons the fixed income market operates as a negotiated market, where buyers and sellers negotiate the price of each transaction.

To facilitate the matching of buyers and sellers, dealers (or market makers) can help facilitate a transaction by serving as the trade counterparty. The market maker then assumes inventory risk while it looks for a seller (or buyer) to net out its position.

Complete transparency can deter market makers from participating for a number of reasons. One concern is that buyers or sellers can gain bargaining power over market makers. This could allow them to determine a market maker's position and cost information, which drastically reduces the market maker's potential profit.

The other concern is the free-rider effect: in a negotiated market, the initial search costs are high, but the marginal cost of disseminating and using this information is (or close to) zero. Full transparency can reduce bid-ask spreads but also reduces the incentive for market makers to participate because they rely on these spreads to compensate for their search efforts. While spreads in the fixed income market appear high relative to those in the equity market, one could argue that it is more appropriate to compare the fixed income market to other negotiated markets such as those for real estate and private equity, where both search and transaction costs can be significantly higher.

MOST TRANSACTIONS ARE INTERMEDIATED BY A DEALER (A "DEALER MARKET")

In the fixed income market, a dealer typically intermediates a transaction. For most trades, a client (either retail or institutional) contacts a dealer to facilitate the transaction.⁹² While an institutional investor can have direct access to a dealer's trading desk, retail investors must go through an investment advisor/registered representative. A dealer can play the role of agent or principal in a transaction. As an agent, the dealer brings the investor's request to market and finds a counterparty for the trade, while, as principal, the dealer buys or sells the investor's bonds from their own inventory. Agents typically charge a commission⁹³ to execute the transaction and earn revenue, while principals can earn both the commission for executing a transaction in addition to the bid-ask⁹⁴ spread.⁹⁵ In each instance the price the retail investors buys (sells) the bond for includes a premium (discount) to compensate the intermediary.

CUSTOMERS QUERY DEALERS FOR QUOTES IN THE FIXED INCOME MARKET

Investors transact with dealers through a request for quote (RFQ) model, which is a two-step process: first the customer contacts the dealer (usually by phone) to price the bond, then the dealer provides them with either an indicative or firm quote for the transaction.^{96,97}

⁹² Some very large institutional investors may be able to trade directly with each other.

⁹³ The investor is usually charged a commission, but there are some exceptions.

⁹⁴ The "bid" price represents the price a principal is willing to pay to purchase a security, while the "ask" price denotes the equivalent selling price. The "spread" represents the difference between a dealer's bid and ask price for a particular security. The bid-ask spread compensates the dealer for the associated inventory risk and incurring carrying costs related to the trade.

⁹⁵ This does not necessarily mean that the total cost is lower for the client. The total cost of dealing directly with a principal may be higher because the agent must source securities from another dealer (and pay a markup).

⁹⁶ The price is contingent on a number of factors, notably the size of the transaction.

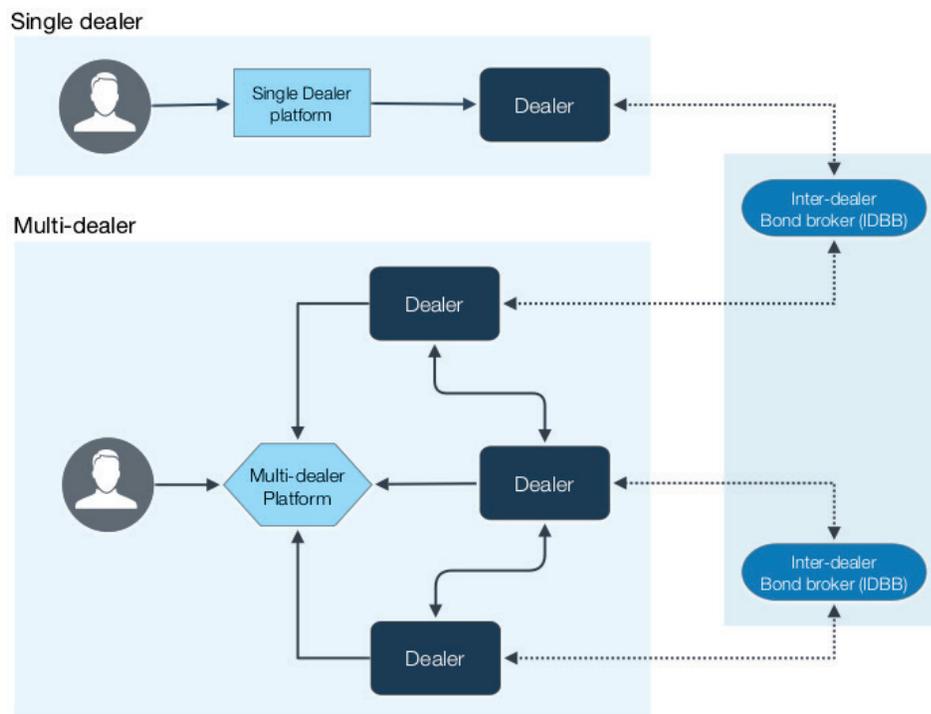
⁹⁷ An indicative quote is most common and usually entails additional communication before a firm quote is provided and the trade is executed. Since there is no order book, (where quotes are firm), an indicative quote does not obligate the dealer to transact.

There are two types of RFQ platforms: single-dealer RFQ and multi-dealer RFQ (see Figure 17). Most dealer-to-client transactions take place on a single-dealer RFQ structure, where a client contacts each dealer separately, either over the phone or electronically.

A multi-dealer RFQ platform allows the client to simultaneously contact multiple dealers for quotes, but requires the trade to be executed electronically.⁹⁸ While these trades cannot be completed over the phone, multi-RFQ platforms allow both dealer-to-client trades and all-to-all trades. This means that clients can both take liquidity from dealers and also provide liquidity to the market by posting limit orders (e.g. through CBID Institutional).

Inter-dealer bond brokers (IDBBs) are specialized agents that intermediate transactions anonymously between dealers. The majority of interdealer trades involve government bonds and IDBB's facilitate lower levels of corporate bond trading.⁹⁹

FIGURE 17: SINGLE VS MULTI-DEALER STRUCTURE



⁹⁸ Multi-dealer RFQ platforms are available to institutional clients.

⁹⁹ D'Souza, Chris, Charles Gaa, and Jing Yang. *An Empirical Analysis of Liquidity and Order Flow in the Brokered Interdealer Market for Government of Canada Bonds*. Working paper no. 2003-28. Bank of Canada, Sept. 2003. Web. 22 Aug. 2014. <<http://www.bankofcanada.ca/2003/09/working-paper-2003-28/>>.

BOND TRADING IN CANADA

THERE ARE SEVERAL KEY PLAYERS IN CANADA

Several actors play a key role in the secondary market (see Figure 18 to see how they are organized in the secondary market):

- Institutional and retail investors;
- Buy-side intermediaries such as investment advisors;
- Dealers or market makers that provide the liquidity [Primary Dealers and Government Securities Dealers (GSD's)];¹⁰⁰
- Dealer intermediaries such as IDBBs;
- Marketplaces such as alternative trading systems (ATS);
- The clearinghouse, operated by Canadian Depository for Securities (CDS); and
- The Information Processor (CanPX).^{101,102}

Large institutional clients can choose to transact directly with a single dealer, either by voice or electronically, e.g. through a Bloomberg terminal) or with multiple dealers concurrently using an ATS such as Candeal or CBID. Dealers also transact directly with one another in the market, though they can transact using an intermediary such as an IDBB or ATS to maintain anonymity.

In the equity market, most trades are electronic, however in the fixed income market, they usually take place over the phone. According to a 2013 Greenwich Associates study, while the number of electronic trades in the bond market is increasing, more than half of all trades (by volume) still take place over the phone in Canada.¹⁰³

Most corporate bond trades are cleared and settled by CDS, the primary clearinghouse in Canada.¹⁰⁴ Some retail trades, where the dealer trades directly with the client, are not cleared or settled through CDS.

Certain dealers are mandated to submit post-trade reporting of a pre-selected list of corporate bonds to the designated Information Processor, CanPX.¹⁰⁵ In addition, some IDBBs voluntarily report to CanPX information on quoted bids and offers, as well as executed trades for government bonds.

¹⁰⁰ See <http://www.bankofcanada.ca/markets/government-securities-auctions/> for full list of Primary Dealers and GSD's.

¹⁰¹ The CSA is currently reviewing the framework for the information processor for corporate debt securities under National Instrument 21-101 Marketplace Operation (NI 21-101).

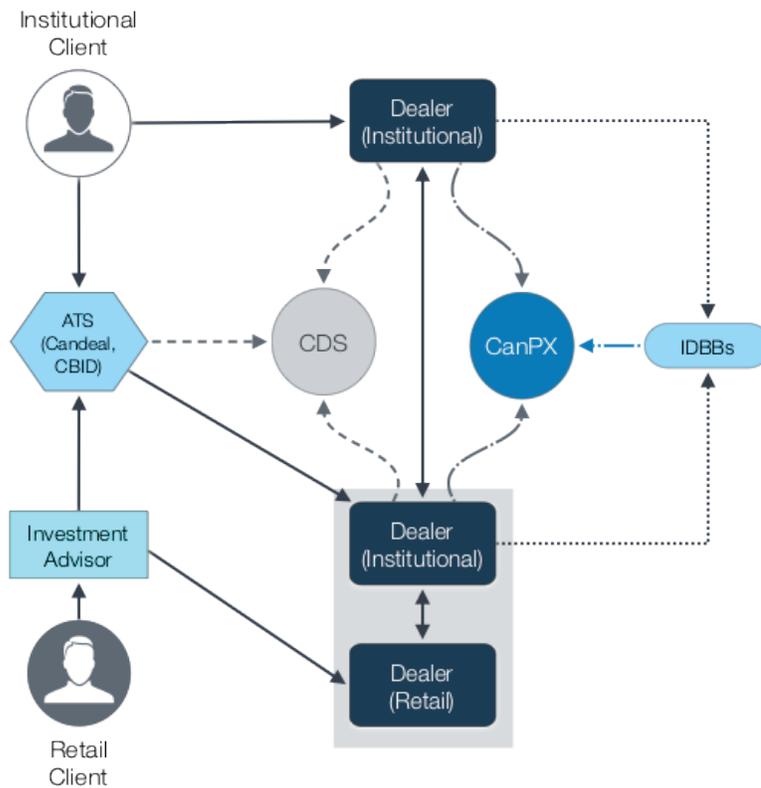
¹⁰² CanPX is a joint venture between the twelve largest dealers in Canada.

¹⁰³ 2013 Canadian Fixed Income Investors Study. Market Trend. Greenwich Associates, 30 July 2013. Web. 8 Jan. 2015. <http://www.candeal.com/sites/default/files/publications/files/NAFI-CAN_ETrading-13-MT.pdf>.

¹⁰⁴ In June 2012, the Canadian Derivatives Clearing Corporation (CDCC) began to operate a clearing service for repurchase agreements of government securities only.

¹⁰⁵ Dealers that reach 0.5% market share of the bond's total trading in two of the three most recent quarters.

FIGURE 18: SECONDARY MARKET ECOSYSTEM



BOND UNDERWRITING IS HIGHLY CONCENTRATED AMONG THE LARGE DEALERS

There are 17 GSDs who are eligible to participate directly in the tender process for Government of Canada securities auctions, 11 of which are also designated as Primary Dealers.¹⁰⁶ These Primary Dealers and GSDs also play a large role as the underwriters of and market makers for corporate bonds. The top 10 underwriters of corporate bonds in Canada are Primary Dealers, but market share is concentrated among the top five (see Figure 19). These same dealers also account for the majority of corporate bond trading in the secondary market.¹⁰⁷

FIGURE 19: PRIMARY CORP. BOND ISSUANCE LEAGUE TABLE (2013)

Top 10 Corporate Bond Underwriters in 2013

No.	Underwriter	% Total Amount Issued
1	RBC Capital Markets	25%
2	Scotia Capital Inc.	17%
3	BMO Capital Markets	15%
4	CIBC World Markets Inc.	15%
5	TD Securities Inc.	14%
6	National Bank Financial Inc.	4%
7	HSBC Securities	3%
8	Banc of America Securities	3%
9	Desjardins Securities Inc.	2%
10	Laurentian Bank Securities Inc.	1%

Source: FP Infomart

¹⁰⁶ Primary dealers can bid for a larger portion of the government bond auction and participate actively in market-making activities for Government of Canada securities. The 11 Primary dealers are: BMO Nesbitt Burns Inc., Casgrain & Company Limited, CIBC World Markets Inc., Desjardins Securities Inc., HSBC Securities (Canada) Inc., Merrill Lynch Canada Inc., Laurentian Bank Securities Inc., National Bank Financial Inc., RBC Dominion Securities Inc., Scotia Capital Inc., and The Toronto-Dominion Bank.

¹⁰⁷ Secondary market trading information is based on data from the Market Trade Reporting System.

ATSS AND IDBBS ARE MORE ACTIVE IN THE GOVERNMENT BOND MARKET

Two electronic marketplaces, Candeal and CBID, are the primary venues for trades that take place electronically in Canada. Another ATS, MarketAxess, only allows trading in foreign bonds. Despite the fact that a growing number of trades are executed on Candeal and CBID, they accounted for less than 20% of all trades executed between 2011 and 2013.¹⁰⁸

CANDEAL IS THE LARGER MARKET, BUT IS ONLY OPEN TO INSTITUTIONAL INVESTORS

Candeal, which is owned by the large Canadian banks and the TMX group, operates an electronic (multi-dealer) RFQ platform for institutional investors. While participants can trade both government and corporate bonds on Candeal, in practice, they only trade government bonds. Between 2011 and 2013, over 85% of ATS trades were executed on Candeal, with the remainder executed on CBID.¹⁰⁹

CBID RETAIL AND INSTITUTIONAL INCORPORATE ELEMENTS OF AN ORDER BOOK STRUCTURE

CBID operates both a retail platform ("CBID Retail") and institutional platform ("CBID Institutional"). Both platforms allow the participant to trade using a multi-dealer RFQ model or a cross-matching system that automatically matches subscriber's orders with posted quotes.¹¹⁰ In addition, both CBID platforms offer click-to-trade functionality, where participants can trade using firm and executable quotes. However, non-dealer subscribers can only offer liquidity on CBID Institutional. Corporate bonds were more likely to trade on CBID's retail platform.¹¹¹

¹⁰⁸ Based on an analysis of OSC filings between 2011 and 2013.

¹⁰⁹ Based on an analysis of OSC filings between 2011 and 2013.

¹¹⁰ Generally other dealers, investment advisors, managers or retail trading desk acting on behalf of their clients.

¹¹¹ The institutional platform deploys a similar matching system but allows both its dealer and non-dealer institutional subscribers to place orders and firm quotes.

TRANSPARENCY IN THE SECONDARY MARKET

OVERVIEW

HISTORICALLY AN OPAQUE MARKET

Transparency, in the context of the securities market, refers to the amount and timeliness of information available to all market participants regarding market conditions.¹¹² Transparency in the fixed income market is generally limited because it is a negotiated market. Despite significant advances in technology, many bond trades are still completed over the phone. This has hindered the growth of electronic trading platforms and made it more difficult to disseminate information.¹¹³

A GREATER EMPHASIS ON TRANSPARENCY

Around the world, regulators are placing greater emphasis on transparency in the secondary market.¹¹⁴ At the same time, the pace of change has been relatively tepid, region-specific, and focused mainly on post-trade information. The shift to greater transparency began in the US in 2002 with the adoption of the Trade Reporting and Compliance Engine (TRACE) system, which now covers all corporate bonds and structured products in the US market.¹¹⁵ European regulators are also contemplating new rules to provide greater pre-trade and post-trade transparency, however, these have not been finalized.¹¹⁶

A CONSENSUS ON LOWER TRANSACTION COSTS WITH A CONTINUING DEBATE ON LIQUIDITY

Empirical evidence, gathered after the rollout of the TRACE system, showed that post-trade transparency lowered transaction costs in the fixed income market without decreasing liquidity.^{117,118} As a corollary, these findings indicate that greater price transparency, leads to less information asymmetry and lower economic rents,¹¹⁹ which makes the market more efficient.¹²⁰ However, in a more recent study, researchers argue that while post-trade transparency has reduced transaction costs in the fixed income market, it has had a negative impact on liquidity, particularly for less frequently-traded bonds.¹²¹

TRANSPARENCY AND OVERSIGHT

OVERSIGHT OF THE FIXED INCOME MARKET IS CHANGING

There are fewer regulatory requirements in the fixed income market than in the equity market, particularly with regard to trade reporting. As noted earlier in this report, there is no comprehensive source of reliable trading data available to dealers, investors or regulators.

¹¹² Bessembinder, Hendrik, and William Maxwell, "Markets: Transparency and the Corporate Bond Market," *Journal of Economic Perspectives*, 22(2): 217-234, Spring 2008.

¹¹³ Ho, Trang, "Fixed-Income Trading Gets a Bit More Electrifying," *Institutional Investor*, 11 July 2014. Web. 20 Nov. 2014. <<http://www.institutionalinvestor.com/article/3360796/asset-management-fixed-income/fixed-income-trading-gets-a-bit-more-electrifying.html>>.

¹¹⁴ White, Mary J. "Intermediation in the Modern Securities Markets: Putting Technology and Competition to Work for Investors." Economic Club of New York, New York. 20 June 2014. Web. 26 Aug. 2014. <<http://www.sec.gov/News/Speech/Detail/Speech/1370542122012>>.

¹¹⁵ In the US, corporate bond prices (publicly-traded securities) are reported to FINRA through the Trade Reporting and Compliance Engine (TRACE) system (<http://www.finra.org/Industry/Compliance/MarketTransparency/TRACE/>) and updated every 15 minutes.

¹¹⁶ In the EU rules for bond market transparency are being discussed a part of directive on markets in financial instruments (MiFID 2), (http://ec.europa.eu/internal_market/securities/isd/mifid2/index_en.htm).

¹¹⁷ See Edwards, Amy K., Lawrence E. Harris, and Michael S. Piwowar. "Corporate Bond Market Transaction Costs and Transparency." *The Journal of Finance* 62.3 (2007): 1421-451. Web. 24 July 2014. <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=593823>; Learner, Heidi. "An Examination of Transparency in European Bond Markets." An Examination of Transparency in European Bond Markets. CFA Institute, Oct. 2011. Web. 06 Apr. 2015. <<http://www.cfainstitute.org/learning/products/publications/ccb/Pages/ccb.v2011.n5.1.aspx>>; and M. Goldstein, E. Hotchkiss, and E. Sirri, "Transparency and Liquidity: A Controlled Experiment on Corporate Bonds," Babson College working paper, 2005, <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=686324>.

¹¹⁸ See International Comparisons, "Comparing Transparency" for additional details related to TRACE.

¹¹⁹ Economic rent represents the return on an asset in excess of the amount needed to keep it productive in a competitive market. Alternatively economic rent is the return that can be eliminated by competition. Rent-seeking actors are those that enter a market to capture economic rents.

¹²⁰ Large traders can obtain a proprietary advantage by keeping the traded prices of bonds hidden. See United States. Library of Congress. Congressional Research Service. *Does Price Transparency Improve Market Efficiency? Implications of Empirical Evidence in Other Markets for the Health Sector*. By D. Andrew Austin and Jane G. Gravelle. United States Congress, 24 July 2007. Web. 31 July 2014. <<http://fas.org/sgp/crs/secretary/RL34101.pdf>>.

¹²¹ Asquith, Paul, Thomas R. Covert, and Parag Pathak. *The Effects of Mandatory Transparency in Financial Market Design: Evidence from the Corporate Bond Market*. Working paper. SSRN, 5 Sept. 2013. Web. 25 Nov. 2014. <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2320623>.

BOX 5: TRANSPARENCY AND PRICE DISCRIMINATION*WHY IS PRICE TRANSPARENCY IMPORTANT?*

Markets can operate more efficiently when pricing is transparent for both buyers and sellers. Price transparency helps to ensure the buyer can make a more informed purchase, especially in financial markets that involve an intermediary, and helps sellers by making it easier to gauge demand. Price transparency also helps to prevent price discrimination in the market, where different people pay different prices for otherwise identical goods or services.

WHY ARE PRICES IN SOME MARKETS LESS TRANSPARENT THAN OTHERS?

1. Search costs. There are opportunity, including time, and monetary costs to acquire information; and
2. Privacy. Some participants are concerned that any increase in transparency might have a negative effect on their ability to manage their positions. However, it is not clear if these privacy concerns should dominate if most participants do not intend to trade the securities.

WHAT ARE SOME OF THE ARGUMENTS FOR GREATER TRANSPARENCY IN THE FIXED INCOME MARKET?

1. The internet has significantly reduced search costs for consumers across many industries ranging from consumer retail to stock markets by reducing the marginal cost of information dissemination close to zero; and
2. Given that fixed income markets are generally not liquid, many participants in the market are buy-and-hold investors, so it is not clear if the privacy concerns are valid for investors that do not intend to trade these bonds.

In October 2014, IIROC adopted Rule 2800C to address this gap for regulators, mandating that Dealer Members report post-trade information for bond trades.¹²² Rule 2800C will be implemented in two phases: the first on or after November 1, 2015 and the second on or after November 1, 2016.¹²³ These new requirements are designed to make it possible for regulators to monitor the market. There are no provisions regarding pre- or post-trade transparency included in Rule 2800C.

TRANSPARENCY DEPENDS ON THE INVESTOR'S LEVEL OF SOPHISTICATION

The level of information available to market participants varies significantly based on the investor's level of sophistication. Large institutions generally have access to more information than smaller institutions or retail market participants.

THE MARKET IS RELATIVELY TRANSPARENT TO INSTITUTIONAL INVESTORS

Large institutional investors can leverage their dealer networks to collect indicative quotes. In addition, institutional investors (or their agents) who subscribe to CBID and Candeal can also access consolidated information. Institutions subscribe to both dealer networks and electronic marketplaces for pre-trade information, but only the marketplaces provide post-trade information. For example, institutional investors can subscribe, for a fee, to a number of third-party information providers such as Bloomberg and TMX's Fixed Income Price Service (FIPS), and FTSE TMX Global Debt Capital Markets (formerly PC Bond/DEX).

THERE IS LIMITED INFORMATION AVAILABLE TO RETAIL INVESTORS

Most of the information that is freely available is consolidated and only available for a limited time. For example, CanPX provides the last traded price of select securities for each day, but not all securities tracked by CanPX trade on a daily basis, in which case they are shown as "No Trades". Furthermore, investors do not have access to historical prices from CanPX.

Candeal publishes consolidated bid and ask quotes for government bonds trading on an hourly basis. In August 2014, Candeal started to disseminate quotes for corporate bonds selected by CanPX, and CanPX began to provide end of day

¹²² IIROC. *Rule 2800C – Transaction Reporting for Debt Securities*. 20 Oct. 2014. Proposed Requirements for Debt Securities Transaction Reporting. Canada, Toronto.

¹²³ See http://www.iiroc.ca/Documents/2014/1e5d1c52-fd61-4e93-b16f-abc26e72234c_en.pdf for details.

trade prices for these bonds.¹²⁴ CanPX also offers hourly post-trade information to subscribers. Finally, CBID provides end-of-day prices for a limited number of corporate bonds and TMX Money provides some pre- and post-trade information for exchange-listed convertible bonds, both of which are free of charge.

COSTS TO INVESTORS ARE NOT TRANSPARENT

Data from US retail bond purchases indicate that transaction costs can vary between 0.1% and 2% (or even higher in extreme cases) depending on which brokerage firm an investor uses.¹²⁵ In contrast, investors in the equity market are accustomed to flat trading fees, regardless of which equity they trade. The variation in markup between different bond trades can be explained by a number (or combination) of factors:

1. Markups reflect search costs. Since search costs can vary widely from transaction to transaction, so will the markup;
2. The size of the trade (because markups are inversely related to trade size); and/or
3. Markups are due to asymmetric information in the market.

Figure 20 illustrates some of the additional transaction costs that accompany a retail trade.

FIGURE 20: THEORETICAL COMPONENTS OF RETAIL MARKUP (SIMPLIFIED)



There is no readily available data on how much retail investors pay for bonds. As of July 2014, Retail investors must be provided with a trade confirmation that includes the following information as a part of the Client Relationship Model - Phase 2 (CRM2):¹²⁶

- The after-cost yield-to-maturity (YTM) for the bond (or the yield-to-call if the bond is callable); and
- Either total compensation or gross commission taken on the trade.¹²⁷

The dealer is not obligated to provide the retail client with a breakdown of the individual components of the transaction such as the desk spreads on fixed income securities held in inventory (either the markup or markdown) or the effective annual rate of return for the security. Instead investors are provided the YTM for the security, which is often confused for an effective annual return. The YTM is the discount rate that sets the present value of the bond's future cash flows so that they equal its current price, while the investor's effective annual rate of return on the security has to account for transaction costs and compounding.¹²⁸

¹²⁴ CanPX Corporation. *CanPX and CanDeal Partner to Strengthen Transparency in Canadian Corporate Debt Market*. N.p., 6 Aug. 2014. Web. 25 Aug. 2014.

<http://www.canpxonline.ca/Media/CanPX_Media_Release_Aug_06_14.pdf>.

¹²⁵ "Fidelity's Message for Retail Bond Investors: Comparison Shop -- It Can Make a Big Difference." *MarketWatch*. 20 Sept. 2013. Web. 19 Aug. 2014. <<http://www.marketwatch.com/story/fidelitys-message-for-retail-bond-investors-comparison-shop-it-can-make-a-big-difference-2013-09-20>>.

¹²⁶ Canadian Securities Administrators. CSA Notice of Amendments to National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations and to Companion Policy 31-103CP Registration Requirements, Exemptions and Ongoing Registrant Obligations (Cost Disclosure, Performance Reporting And Client Statements). Ontario Securities Commission, 28 Mar. 2013. Web. 19 Jan. 2015.

¹²⁷ Where gross commission is disclosed, the dealer is required to provide the following disclosure at the back of the trade confirmation, "Dealer firm remuneration has been added to the price of this security (in the case of a purchase) or deducted from the price of this security (in the case of a sale). This amount was in addition to any commission this trade confirmation shows was charged to you."

¹²⁸ Forbes, Shawn M., John J. Hatem, and Chris Paul. "Yield-to-Maturity and the Reinvestment of Coupon Payments." *Journal of Economics and Finance* Summer 7.1 (2008): n. pag. Summer 2008. Web. 26 Aug. 2014. <<https://www.economics-finance.org/jefe/issues/vol7summer.pdf>>.

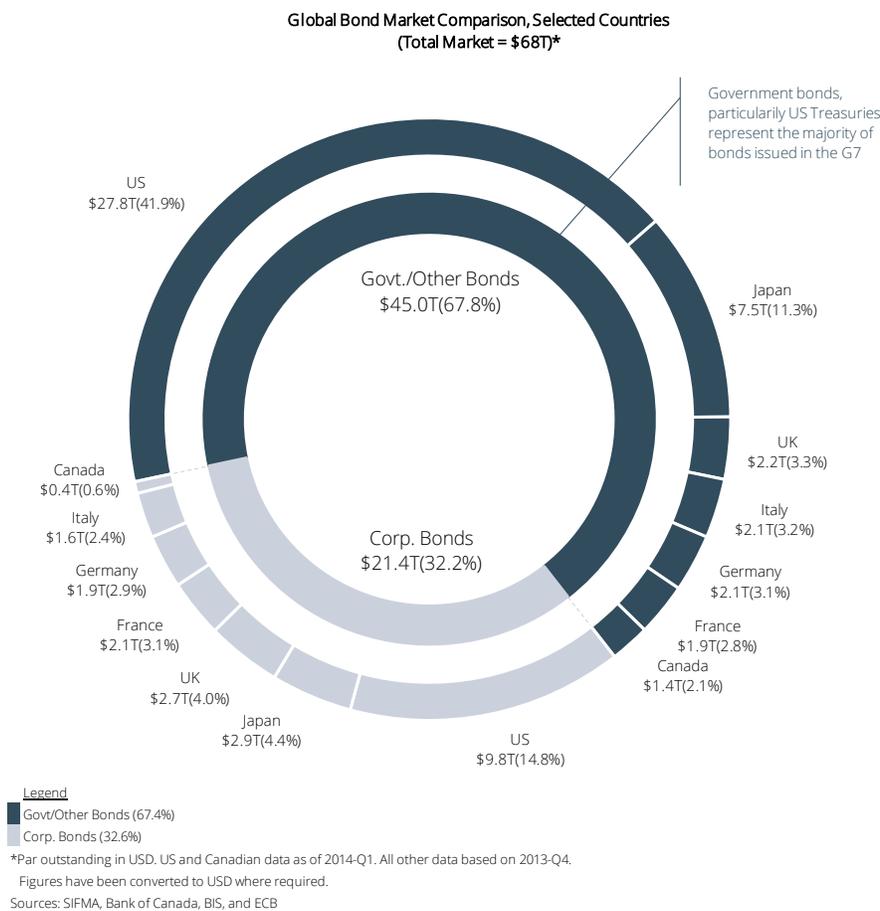
INTERNATIONAL COMPARISONS

MARKET SIZE AND COMPOSITION

THE US BOND MARKET IS LARGER THAN ALL OTHER G7 COUNTRIES COMBINED

The US is the largest bond market for both government and corporate issues in the world (Figure 21). As a rule of thumb, the size of the government bond market is contingent on both total economic output, the level of government indebtedness (Figure 22), and the amount of household and institutional participation in the market. In practice these factors tend to vary by market: some markets are largely domestic and characterized by a high degree of resident holdings (for example in Japan), while non-residents are more active in financial centers such as the US and UK. Non-residents are especially active in the US because the US dollar is the global reserve currency.¹²⁹

FIGURE 21: BOND MARKET SIZE (PAR), G7¹³⁰



¹²⁹ Andritzky, Jochen R. *Government Bonds and Their Investors: What Are the Facts and Do They Matter?* Working paper no. No. 12/158. International Monetary Fund, 1 June 2012. Web. 15 Aug. 2014. <<http://www.imf.org/external/pubs/cat/longres.aspx?sk=26004.0>>

¹³⁰ There are a number of limitations with this data. The grouping of corporate and government bonds can vary by source and holdings in one country, valuation methods are often inconsistent, and the use of international centers can result in data bias. See the IMF publication, "Government Bonds and Their Investors" (footnote 129) for details.

FIGURE 22: G7 ECONOMIC OUTPUT AND GOVERNMENT INDEBTEDNESS

GDP and Debt-to-GDP Comparison, G7*



*2013 GDP for the United States and Japan are estimates. GDP current PPP, USD.
Source: OECD, 2013

DATA SCARCITY CONFOUNDS A COMPARISON OF SECONDARY MARKET ACTIVITY¹³¹

While data on bond trading in the US is provided by the TRACE system, in other markets the data tends to be scarce because there are fewer post-trade reporting requirements.¹³² In general, secondary trading is correlated with the amount of bonds issued in a particular country. The majority of global bond trading takes place OTC, with trading concentrated among large institutions. This contributes to the lower level of retail participation in the market, which is why regulators around the world have tended to focus on the equity market.

THE STRUCTURE OF THE FIXED INCOME MARKET IS CHANGING

There are a number of structural changes taking place in the fixed income market:

1. Dealers are reducing the amount of inventory they hold as a result of regulations such as Dodd-Frank and the Basel III Accord;¹³³
2. Technology gives investors access to more information about the market and reduces search costs and information asymmetry;¹³⁴
3. A growing number of investors, both institutional and retail, are incorporating fixed income funds in their portfolios,¹³⁵ and
4. Analysis of information from the TRACE system has led some to suggest that retail participation in the fixed income market is much higher than previously estimated. FINRA defines retail-sized transactions as those with face value of \$100,000 or less and has estimated that these make up almost 2/3 of all trades captured by the TRACE system.¹³⁶

¹³¹ Tendulkar, Rohini, and Gigi Hancock. *Corporate Bond Markets: A Global Perspective*. Working paper. International Organization of Securities Commissions, Apr. 2014. Web. 15 Aug. 2014. <<http://www.iosco.org/research/pdf/swp/SW4-Corporate-Bond-Markets-Vol-1-A-global-perspective.pdf>>.

¹³² See Figure 25 for US market data.

¹³³ Bullock, Nicole, Michael Mackenzie, and Telis Demos. "Slimmer Bond Inventories as Dealers Reduce Risk - FT.com." *Financial Times*. N.p., 11 Nov. 2011. Web. 15 Aug. 2014. <<http://www.ft.com/intl/cms/s/0/98d5028a-0964-11e1-a2bb-00144feabdc0.html?siteedition=uk>>.

¹³⁴ Wirz, Matt. "How Retail Bond Investors Can Get Info the Pros Won't Share." *MoneyBeat* RSS. The Wall Street Journal, 11 Mar. 2014. Web. 15 Aug. 2014.

<<http://blogs.wsj.com/moneybeat/2014/03/11/how-retail-bond-investors-can-get-info-the-pros-wont-share/>>.

¹³⁵ Pett, David. "Canadian Funds, Money Managers Increasing Fixed-income ETF Use." *The Financial Post*, 19 Aug. 2014. Web. 11 Mar. 2015. <http://business.financialpost.com/2014/08/19/canadian-funds-money-managers-increasing-fixed-income-etf-use/>.

¹³⁶ Ketchum, Rick. "Remarks From the 2010 FINRA Annual Conference." FINRA Fixed Income Conference. United States, New York, 27 May 2010. Speech.

NEW PLATFORMS HAVE EMERGED FOR RETAIL INVESTORS AROUND THE WORLD

In February 2010, the London Stock Exchange launched the Order Book for Retail Bonds which allows retail investors to access listed bonds.¹³⁷ This follows the lead of the MOT market in Italy, which was set up to provide retail investors access to both Italian and non-Italian bonds in 1994.¹³⁸ Each of these initiatives is aimed at both increasing the potential market for corporate bonds as well offering retail investors more direct and transparent access to fixed income markets.

RETAIL INVESTORS CAN INCREASE THE SUPPLY OF DEBT CAPITAL AVAILABLE FOR SMALL FIRMS

Institutional investors tend to favor large offerings. This prevents many smaller firms from accessing the fixed income market, irrespective of credit quality, because they cannot issue offerings large enough to generate institutional interest. Retail investors, in contrast, do transact in smaller sizes and could be a source of capital for these firms, a theory that is currently being tested in the UK.

In the UK, small firms have created offerings targeted towards retail investors who are searching for higher yields.¹³⁹ This has allowed small firms to reduce their dependence on bank-based funding, which may be of particular interest to firms in Canada. Nevertheless it should be pointed out that this is a relatively nascent phenomenon and additional research is required before forming conclusions related to the suitability of this type of offering in Canada.

COMPARING TRANSPARENCY

THE US MARKET IS THE MOST TRANSPARENT TODAY

There is no jurisdiction that currently mandates pre-trade transparency in the fixed income market. Pre-trade transparency, while fragmented, is widely available to institutional investors (through their dealer networks, vendors, and multi-dealer marketplaces where they trade bonds). The US market is the only jurisdiction that disseminates, in real-time, post-trade information on all corporate bonds.¹⁴⁰ The UK and European regulators collect aggregated trade reports to monitor bond activity, but do not currently have a system like the TRACE in place. Most European regulators, however, are considering MiFID II proposals to publish post-trade information in near real-time. Although US regulators have not mandated disclosure of markups on corporate bond trades, the ability to access live bond prices may be sufficient for investors to assess whether they paid a fair price.

HISTORY OF TRACE

THE US WAS THE FIRST MARKET TO INTRODUCE WIDESPREAD POST-TRADE TRANSPARENCY IN THE FIXED INCOME MARKETS

In the US, post-trade transparency for corporate bonds is provided by the TRACE system.^{141,142} It was introduced on July 1, 2002 to increase price transparency for corporate bonds issued in the US. TRACE disseminates consolidated information on secondary market transactions. In June 2014 TRACE also started to disseminate information on the secondary trading of corporate bonds issued under Rule 144A.¹⁴³

¹³⁷ "Electronic Order Book for the UK Retail Bond Market." London Stock Exchange, Nov. 2011. Web. 17 Aug. 2014. <<http://www.londonstockexchange.com/traders-and-brokers/security-types/retail-bonds/downloads/srv-tec-des.pdf>>.

¹³⁸ "The MOT and ExtraMOT Bond Markets: Transparency and Efficiency." *MOTand ExtraMOT*. The London Stock Exchange, June 2013. Web. 17 Aug. 2014.

<<http://www.borsaitaliana.it/obbligazioni/obbligazioniold/brochuremercatoemotextramot.en.pdf>>.

¹³⁹ Dyson, Richard. "Should You Take a Punt on a 6pc Retail Bond?" The Telegraph. Telegraph Media Group, 05 July 2013. Web. 17 Aug. 2014.

<<http://www.telegraph.co.uk/finance/personalfinance/investing/10162370/Should-you-take-a-punt-on-a-6pc-retail-bond.html>>.

¹⁴⁰ "TRACE collects and disseminates the time of execution, price, yield and volume data for eligible fixed income securities. All FINRA-regulated firms must report transactions in TRACE-eligible securities and must do so within 15 minutes for corporate and agency bonds; however, in practice, over 80 percent of all corporate and agency transactions are available within five minutes. All data are disseminated in real-time as soon as received by TRACE." See, FINRA, "TRACE: The Source for Real-Time

Bond Market Transaction Data," <http://www.finra.org/web/groups/industry/@ip/@comp/@mt/documents/appsupportdocs/p014320.pdf>.

¹⁴¹ The TRACE system was developed by FINRA to facilitate the SEC mandatory reporting of over the counter secondary market transactions in eligible fixed income securities. All broker/dealers who are FINRA member firms have an obligation to report transactions in corporate bonds to TRACE under an approved set of rules.

¹⁴² The Municipal Securities Rulemaking Board's Electronic Municipal Market Access (EMMA) system provides real-time trade price information for municipal bonds.

¹⁴³ Financial Industry Regulatory Authority. *New Specifications for Bond Trade Dissemination Service for 144A Transactions*. Financial Industry Regulatory Authority, 2014. Web. 13 Aug. 2014.

<<http://www.finra.org/Industry/Compliance/MarketTransparency/TRACE/Notices/P459640>>.

THE TRACE SYSTEM WAS ROLLED OUT IN PHASES TO FACILITATE AN IMPACT ANALYSIS¹⁴⁴

The TRACE system was rolled out in three phases in order to allow FINRA to study the impact of transparency on market liquidity. In parallel to the rollout of TRACE, FINRA gradually reduced the transaction reporting window from 75 minutes to 15 minutes between 2002 and 2005.¹⁴⁵ Today most trades are reported in real time and the TRACE system now collects information on most bond trades in the US.¹⁴⁶

PROPOSED CHANGES IN THE US*US REGULATORS HAVE INDICATED ADDITIONAL TRANSPARENCY MAY BE FORTHCOMING*

The SEC has indicated that it would like to see public dissemination of price quotes generated on ATSs and other electronic markets.¹⁴⁷ They have raised concerns that fragmentation in the fixed income market makes it difficult for investors to gather quotes, especially because many bonds do not trade frequently.

Another concern relates to retail markups, particularly riskless principal transactions, where a dealer acts as principal in order to obfuscate the markup they charge the customer:

When retail investors enter into transactions with dealers to purchase municipal securities, those transactions may be executed by dealers either in an agency or a principal capacity. If a dealer completes a municipal security transaction in an agency capacity it must disclose to its customer the commission that it charges for the trade. Yet if the dealer instead chooses to complete the same transaction in a riskless principal capacity, it may disclose to the customer that zero commission was paid on the trade even if a markup or markdown was charged. Thus, under the existing rules, the information received by a customer concerning the compensation paid to a dealer for these two economically equivalent methods of executing the same transaction is vastly different. In effect, the current regulatory environment allows the dealer to hide its compensation from a customer merely by altering the method of execution used. As a result, customers may unknowingly be paying increased transaction costs while believing that their trades have not been subject to any commission payment.¹⁴⁸

While these findings were based on data gathered from the US municipal bond market, they are likely relevant to any discussions on transparency in the Canadian fixed income market as well.

In response, the Municipal Securities Rulemaking Board (MSRB) and FINRA have proposed that "bond dealers in retail-sized fixed income transactions [\$100,000 or less] would be required to disclose on the customer's confirmation the price of certain same-day principal trades in the same security, as well as the difference between this reference price and the customer's price".¹⁴⁹ These proposals are designed to allow retail investors to better determine the fairness of their dealer's markup and address concerns that while "knowledgeable industrious customers could observe these trading patterns retrospectively using TRACE data... retail customers do not typically consult TRACE data."¹⁵⁰

¹⁴⁴ 2013 TRACE Fact Book. FINRA Factbook. Financial Industry Regulatory Authority, Mar. 2014. Web. 13 Aug. 2014.

<<http://www.finra.org/web/groups/industry/@ip/documents/appsupportdocs/p459636.pdf>>.

¹⁴⁵ 75 minutes, July 1, 2002; 45 minutes, October 1, 2003; 30 minutes, October 1, 2004, to 15 minutes (July 1, 2005).

¹⁴⁶ For a description of TRACE-eligible securities see FINRA. *FINRA Manual*. N.p., n.d. Web. 22 Apr. 2015. http://finra.complinet.com/en/display/display.html?rbid=2403&element_id=4399. For more information on the roll out of TRACE see Appendix II: TRACE System. See also, 2013 TRACE Fact Book. FINRA Factbook. Financial Industry Regulatory Authority, Mar. 2014. Web. 13 Aug. 2014.

¹⁴⁷ Alden, William. "S.E.C.'s Mary Jo White Seeks to Shine Light Into Opaque Bond Markets." *Dealbook*. The New York Times, 20 June 2014. Web. 14 Jan. 2015. <<http://dealbook.nytimes.com/2014/06/20/sec-chief-seeks-to-enhance-disclosure-in-bond-markets/?smid=tw-dealbook&seid=auto&r=0>>.

¹⁴⁸ Piowar, Michael S. "Remarks at the 2014 Municipal Finance Conference Presented by The Bond Buyer and Brandeis International Business School." 2014 Municipal Finance Conference. Massachusetts, Boston. 1 Aug. 2014. Web. 14 Jan. 2015. <<http://www.sec.gov/News/Speech/Detail/Speech/1370542588006>>.

¹⁴⁹ Financial Industry Regulatory Authority. *FINRA and MSRB Release Proposals to Provide Pricing Reference Information for Investors in Fixed Income Markets*. Financial Industry Regulatory Authority, 17 Nov. 2014. Web. 15 Jan. 2015. <<http://www.finra.org/Newsroom/NewsReleases/2014/P601684>>.

¹⁵⁰ *Pricing Disclosure in the Fixed Income Markets*. Regulatory Notice. Financial Industry Regulatory Authority, Nov. 2014. Web. 15 Jan. 2015.

<<http://www.finra.org/web/groups/industry/@ip/@notice/documents/notices/p601685.pdf>>.

TABLE 2: COMPARISON OF TRANSPARENCY BY MARKET

	Canada	US	Europe and UK
<i>Pre-Trade Transparency</i>	Nothing currently mandated in any jurisdiction, however widely available to institutional participants but fragmented by dealer network or access to platforms. Retail investors have access to limited consolidated information on select bonds.		
<i>Post-Trade Transparency (Price and Volume)</i>	CanPX provides post-trade prices on a subset of corporate bonds. ¹⁵¹ IIROC adopted Rule 2800C Transactions Reporting for Fixed Income Securities to mandate trade reporting to regulators only (there are no provisions related to transparency in Rule 2800C).	FINRA disseminates price and volume information on all corporate bond trades to the public within 15 minutes (most are reported in real-time).	TRAX collects aggregated trade reports from ICMA member dealers for UK, French and Dutch regulators to monitor bond activity (currently no post-trade transparency to the public). Most jurisdictions considering post-trade transparency for all bonds. ¹⁵²
<i>Post-Trade Transparency (Retail Markup)</i>	Brokers must disclose the total amount of mark-up, mark-down, commission, or other service charge, but do not have to provide details on the individual components. ¹⁵³	No mandated requirement to disclose fees to retail investors. ¹⁵⁴ US regulators are revisiting these requirements.	No mandated requirement to disclose fees to retail investors.

¹⁵¹ As of August 28, 2014 there were 336 listed on CanPX listed. See <http://www.canpxonline.ca/> for details.

¹⁵² Briefing Note: MIFID II and Fixed Income Transparency. Issue brief. Association for Financial Markets in Europe, 30 May 2014. Web. 20 Aug. 2014. <<http://www.afme.eu/WorkArea/DownloadAsset.aspx?id=8904>>.

¹⁵³ Canadian Securities Administrators. CSA Notice of Amendments to National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations and to Companion Policy 31-103CP Registration Requirements, Exemptions and Ongoing Registrant Obligations (Cost Disclosure, Performance Reporting And Client Statements). Ontario Securities Commission, 28 Mar. 2013. Web. 19 Jan. 2015. <https://www.osc.gov.on.ca/en/SecuritiesLaw_csa_20130328_31-103_notice-amendments.htm>. As of July 15, 2014.

¹⁵⁴ Abramowicz, Lisa, and Dave Michaels. "Bond Fee Disclosures Sought by SEC to End 38-Year Debate." Bloomberg.com. Bloomberg, 17 July 2014. Web. 29 Aug. 2014. <<http://www.bloomberg.com/news/2014-07-16/bond-fee-disclosures-sought-by-sec-to-end-38-year-debate.html>>.

APPENDIX I: ADDITIONAL BACKGROUND

MARKET DEPTH

THE CORPORATE BOND MARKET IS NOT DEEP

While most equities trade on public exchanges or ATSS, the majority of bonds trade OTC. In the US market, the most liquid for corporate bonds, less than 5% trade on the NYSE Bonds Trading Platform, which is the largest centralized exchange for US corporate bonds.^{155,156} In Canada, where the market for corporate bonds is significantly smaller, there is no centralized bond exchange, although a small portion of bond trades take place electronically on ATSS.

There are a number of reasons that corporate bond transactions take place in the OTC:

1. Corporate bonds are characterized by a high degree of heterogeneity compared to equities;
2. High marketing costs can make it expensive to sell bonds to a large number of investors; and
3. The market for corporate bonds is dominated by large institutional investors.¹⁵⁷

DIVERSITY OF SECURITIES

ONE ISSUER, MANY ISSUES

The market for corporate debt is extremely heterogeneous, "Corporate debt is characterized by heterogeneity. Indeed, most corporations obtain debt from both bank and non-bank sources, and structure their debt claims into priority classes with a variety of conditions and restrictions."¹⁵⁸ In 2013, the 50 largest issuers of debt in Canada had 517 issues outstanding; this represents over 5 debt issues per existing equity issue (Figure 23). According to a 2013 McKinsey study, in 2012 there were "37,000 publicly-traded, TRACE eligible bonds" outstanding the US corporate bond market, while the number of listed equities in the US stock market peaked at 8,800 in 1997.¹⁵⁹

Bonds are not fungible like equities, "Unlike common equity shares, which are fully fungible, bonds issued by a given corporation at different points in time are distinct contracts that differ in terms of promised payments and legal priority in case of default, and are traded separately."¹⁶⁰ There are two primary reasons that bonds are issued more frequently than stocks:

- 1) Firms typically issue multiple bonds with varying maturities; and
- 2) The rights of bondholders and issuer's obligations can differ considerably between offerings.

¹⁵⁵ The NYSE is the largest centralized corporate market in the US as of 7/10/2014. <See <http://www1.nyse.com/bonds/nysebonds/1095449059236.html>.>

¹⁵⁶ Edwards, Amy K., Lawrence E. Harris, and Michael S. Pivowar. "Corporate Bond Market Transaction Costs and Transparency." *The Journal of Finance* 62.3 (2007): 1421-451. Web. 24 July 2014. <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=593823>.

¹⁵⁷ Miville, Martin, and André Bernier. "The Corporate Bond Market in Canada." Bank of Canada Review: n. pag. Web. 24 July 2014.

¹⁵⁸ See http://www.ruf.rice.edu/~jgsfss/sufi_110907.pdf.

¹⁵⁹ Can e-trading revitalize corporate bonds?" McKinsey & Company. McKinsey & Company and Greenwich Associates, 9 Aug. 2013. Web. 24 July 2014. <http://www.mckinsey.com/insights/financial_services/can_e-trading_revitalize_corporate_bonds>.

¹⁶⁰ Bessembinder, Hendrid, and William Maxwell. "The Journal of Economic Perspectives." *Journal of Economic Perspectives*: n. pag. Web. 25 July 2014.

FIGURE 23: CANADA CORPORATE INDEX 50 LARGEST ISSUERS (AS OF 31 DEC 2013)

Rank	Issuer	Ticker	Rating	Sector	ParValue	MktValue	Issues	%Index	%Cum
1	Royal Bk Canada	RY	AA3*	Banking	30,150	30,897	21	7.87	7.87
2	Bank of Montreal	BMO	A1*	Banking	23,339	24,491	23	6.24	14.10
3	Bank Nova Scotia	BNS	AA3*	Banking	21,250	21,996	17	5.60	19.70
4	Can Imperial Bk	CM	A1*	Banking	17,960	18,876	13	4.81	24.51
5	Toronto Dom Bank	TD	A2*	Banking	15,345	16,751	15	4.27	28.78
6	Bell Canada	BCECN	BBB1*	Telecom - Integrated/Services	9,900	10,636	19	2.71	31.48
7	Gen Elec Cap Ca	GE	AA3	Cons/Comm/Lease Financing	8,800	9,557	12	2.43	33.92
8	Natl Bank Canada	NACN	AA3*	Banking	8,900	9,264	13	2.36	36.28
9	Hydro One Inc	HYDONE	A1	Electric-Distr/Trans	8,195	9,018	19	2.30	38.57
10	Greater Toronto	GTAAIR	A2	Transportation Excluding Air/Rail	7,019	8,200	15	2.09	40.66
11	Telus Corp	TCN	BBB1	Telecom - Integrated/Services	7,542	7,956	14	2.03	42.69
12	Rogers Comm Inc	RCICN	BBB1	Telecom - Wireless	6,650	7,246	9	1.85	44.53
13	Manulife Fin	MFCCN	A3*	Life/Health Insurance	6,150	6,664	11	1.70	46.23
14	Wells Fargo Can	WFC	A1*	Banking	6,000	6,106	6	1.56	47.78
15	HSBC Bank Canada	HSBC	AA3*	Banking	5,550	5,717	8	1.46	49.24
16	Trans-Canada Pl	TRPCN	A3	Gas Distribution	4,568	5,431	19	1.38	50.62
17	Union Gas Ltd	SE	BBB1*	Gas Distribution	4,696	5,329	25	1.36	51.98
18	Sun Life Financ	SLFCN	A3*	Life/Health Insurance	4,600	4,996	10	1.27	53.25
19	407 Intl Inc	ETRHWHY	A2*	Transportation Excluding Air/Rail	4,508	4,879	13	1.24	54.49
20	CU Inc	CUCN	A2	Electric-Integrated	4,400	4,755	22	1.21	55.70
21	Brookfield Asse	BAMACN	BBB1*	RealEstate Dev & Mgt	4,525	4,720	12	1.20	56.91
22	Loblaw Co Ltd	LCN	BBB2	Food & Drug Retailers	4,175	4,524	14	1.15	58.06
23	Shaw Communicat	SJRCN	BBB3	Media-Cable	3,900	4,346	5	1.11	59.17
24	Enbridge Inc	ENBNCN	BBB1	Gas Distribution	4,100	4,341	13	1.11	60.27
25	Terasen Gas Inc	FTSCN	A3*	Gas Distribution	3,540	4,106	25	1.05	61.32
26	Great-West Life	GWOCN	A2*	Life/Health Insurance	3,394	3,903	9	0.99	62.31
27	Altalink Lp	SNCCN	A3*	Electric-Distr/Trans	3,600	3,662	15	0.93	63.24
28	Enbridge Pipe L	ENBPIP	A3	Gas Distribution	3,060	3,344	14	0.85	64.09
29	Caisse Cent Des	CCDJ	AA3	Cons/Comm/Lease Financing	3,150	3,202	4	0.82	64.91
30	Goldman Sachs G	GS	A3*	Banking	2,900	3,044	5	0.78	65.68
31	Ford Cred Canada	F	BBB3	Auto Loans	2,800	2,941	5	0.75	66.43
32	Master Cred Car	MSTCCT	AAA	ABS Credit Cards	2,800	2,863	3	0.73	67.16
33	Capital Desjard	CAPDES	A2	Banking	2,600	2,806	4	0.72	67.88
34	Cadillac Fairview	CADF	AAA	RealEstate Dev & Mgt	2,600	2,767	3	0.71	68.58
35	Thomson Reuters	TRICN	BBB1	Media - Diversified	2,600	2,755	4	0.70	69.28
36	Enbridge Gas Di	ENBGAS	A3	Gas Distribution	2,175	2,434	11	0.62	69.90
37	Nav Canada	NAVCAN	AA3*	Transportation Excluding Air/Rail	2,000	2,271	6	0.58	70.48
38	Bell Aliant Reg	BACN	BBB2	Telecom - Integrated/Services	2,100	2,267	6	0.58	71.06
39	Cards II Trust	CARDS	AAA	ABS Credit Cards	2,200	2,257	3	0.58	71.63
40	Nova Scotia Pwr	EMACN	BBB1*	Electric-Integrated	2,000	2,216	9	0.56	72.20
41	Golden Cred Car	GOLCCT	AAA	ABS Credit Cards	2,100	2,186	2	0.56	72.75
42	PSP Capital Inc	PSPCAP	AAA	Investments & Misc Financial Services	2,100	2,143	3	0.55	73.30
43	Toyota Cred Can	TOYOTA	A1*	Auto Loans	2,000	2,028	5	0.52	73.82
44	Daimler Canada	DAIGR	A3	Automakers	1,975	2,014	5	0.51	74.33
45	Teranet Holding	TERANE	BBB1	Support-Services	1,900	2,003	4	0.51	74.84
46	VW Credit Canada	VW	A3	Auto Loans	1,875	1,903	6	0.49	75.32
47	Aeroports de Montreal	AERMON	A1	Transportation Excluding Air/Rail	1,634	1,853	7	0.47	75.80
48	Anheuser-Busch	ABIBB	A2	Beverage	1,800	1,808	3	0.46	76.26
49	JPMorgan Chase	JPM	A2*	Banking	1,750	1,794	2	0.46	76.71
50	Inter Pipeline	IPLCN	BBB1*	Gas Distribution	1,725	1,791	6	0.46	77.17

Note: Issuer data has been summarized by ticker. If multiple entities exist under the same ticker the name and sector shown are those of the largest member of the group. Similarly, if multiple ratings apply within a given ticker (denoted by an asterisk in the rating field) the rating shown is that of largest category for the issuer and does not represent the average of all ratings.

BONDS MATURE, EQUITIES DO NOT

One of the key differences between the equities and bonds is that bonds have a finite life. This means that a firm typically has multiple bonds outstanding, with varying maturities, at any single point in time.¹⁶¹ Corporate bonds are broadly classified into three buckets depending on their maturity:¹⁶²

1. Short-term (less than three years to maturity);
2. Medium-term (four to ten years); and
3. Long-term (ten years or greater).

Firms that issue corporate bonds take into account a number of factors when they structure an offering, particularly credit quality and duration, which are the two key determinants of the cost of issuing bonds.¹⁶³ Credit quality impacts the credit spread (or additional return) required to compensate investors for assuming credit (or default) risk, while duration impacts the yield investors take to assume interest-rate risk.

Duration primarily impacts the investor's interest-rate risk for holding a bond: the longer the maturity of the bond, the greater the interest-rate risk for investors (or higher the liquidity premium).¹⁶⁴ Conversely, short-term bonds are less risky for investors, but create rollover risk for the issuer (where the issuer is not able to replace maturing bonds with newer issues at the same or lower cost). Systemic events, which can freeze up credit markets and liquidity, also incentivize firms—even highly-rated issuers—to stagger their debt issues despite the increased cost of capital.¹⁶⁵ As a result, firms often split borrowing needs across multiple issues with different maturities.

¹⁶¹ Excluding perpetual bonds. These are a relatively small portion of the market.

¹⁶² United States. Securities and Exchange Commission. Office of Investor Education and Advocacy. Investor Bulletins. Securities and Exchange Commission, n.d. Web. 29 Aug. 2014. <http://www.sec.gov/investor/alerts/ib_corporatebonds.pdf>.

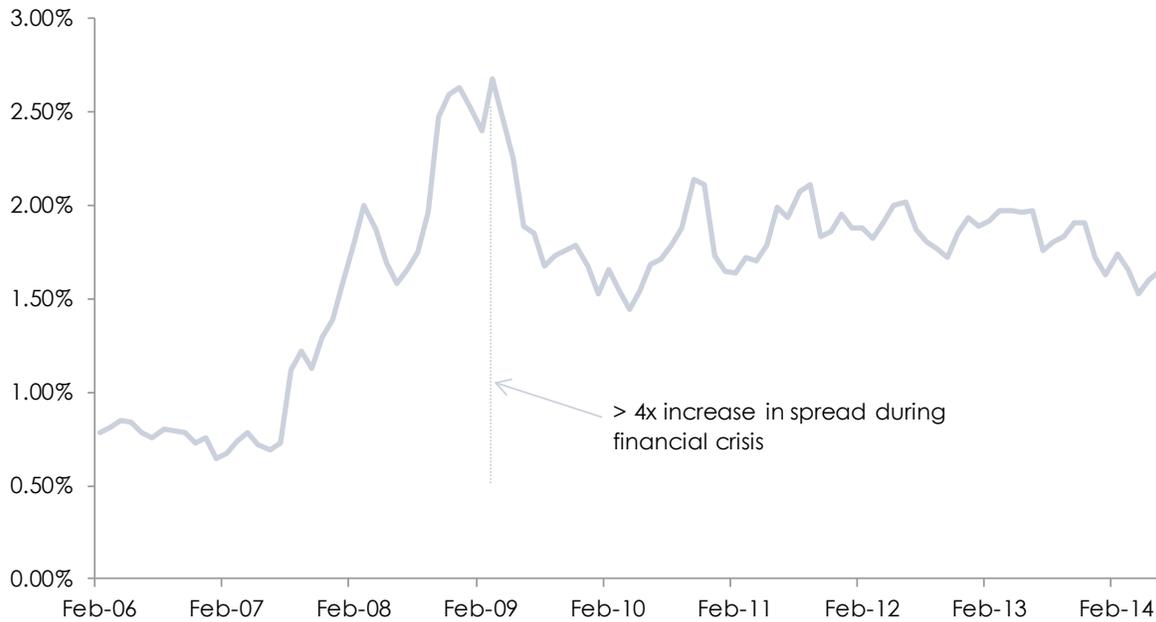
¹⁶³ This discussion excludes the value of maintaining control over the firm as that is considered to be a part of the debt vs equity discussion and the choice of optimal capital structure, which is out of scope for this paper. Another issue are the tax benefits of issuing debt (over equity), which is also out of scope.

¹⁶⁴ There is also a greater chance that longer-term bonds experience financial distress and losses for investors than a similarly -structured shorter-term bond, which can also result in a higher cost of capital. See He, Zhiguo, and Wei Xiong. "Rollover Risk and Credit Risk." *The Journal of Finance* 67.2 (2012): 391-430. Web. 29 Aug. 2014. <<http://onlinelibrary.wiley.com/doi/10.1111/j.1540-6261.2012.01721.x/abstract>>.

¹⁶⁵ Servaes, Henri, and Peter Tufano. "Corporate Debt Structure." *The Theory and Practice of Corporate Debt Structure* (2006): 19. Feb. 2006. Web. 28 July 2014.

FIGURE 24: AAA CREDIT SPREADS (2008 FINANCIAL CRISIS)

Aaa Corporate Bond Yield Relative to 10-Year Treasuries*



Source: US Federal Reserve

*Moody's Seasoned Aaa Corporate Bond Yield Relative to Yield on 10-Year Treasury Constant Maturity

RIGHTS AND OBLIGATIONS CAN VARY

Firms can alter the cost of issuing bonds by modifying a number of factors (other than the maturity date):¹⁶⁶

1. The method of interest payment (fixed, floating, or zero-coupon);
2. Seniority of the issue (or payment priority);
3. Collateralizing or securing the issue;
4. Covenants;
5. Embedding call or put options; and/or
6. Making it convertible to equity.

As a result, the cost to issue a corporate bond can vary based on a number of factors such as the term structure of interest rates, market perceptions of credit risk, and the issuer's financial leverage.

¹⁶⁶ This is not an exhaustive list and attempts to describe some of the major variants of corporate bond issues.

MARKETING AND DISTRIBUTION COSTS

UNDERWRITING SPREADS ARE INVERSELY RELATED TO DEAL SIZE

There is a large universe of corporate bonds, which combined with a general lack of standardization, makes it prohibitive to market (or distribute) these bonds to a large number of investors. Marketing to investors not only entails communicating information on the issuer—it requires educating potential investors about the product's specific features and increases search costs.

The larger the size of a bond offering, the lower the underwriting spread, "bond spreads decline monotonically [constantly decreasing] as proceeds expand, consistent with an economies of scale interpretation".^{167,168}

Marketing and distribution costs can vary significantly by offering. Underwriters weigh the search costs of finding suitable investors against the potential benefit increase in demand (and lower yield) for an issue; in practice this means the underwriter has an incentive to minimize costs by focusing on large investors that take sizeable positions.

TABLE 3: COSTS OF A PLAIN VANILLA DOMESTIC BOND ISSUE (IN US\$)¹⁶⁹

Cost Category	Face Value Issued (1000s US\$)				
	10,000	20,000	50,000	100,000	200,000
Investment Banking Fees	200,000	400,000	500,000	1,000,000	2,000,000
Legal Fees	50,000	50,000	50,000	50,000	50,000
Regulatory fee	5,576	6,336	6,336	6,336	6,336
Taxes	160,800	321,600	804,000	1,608,000	3,216,000
Stock exchange registration	2,498	4,784	6,367	7,200	7,200
Bond Market Rep	11,520	11,520	11,520	11,520	11,520
Printing	8,576	8,576	8,576	8,576	8,576
Road Show	8,640	8,640	8,640	8,640	8,640
Rating Agency (2 in total)	27,960	27,960	27,960	35,000	35,000
Total Costs	475,570	839,416	1,423,399	2,735,272	5,335,272
% of Issue Size	4.76%	4.20%	2.85%	2.74%	2.67%

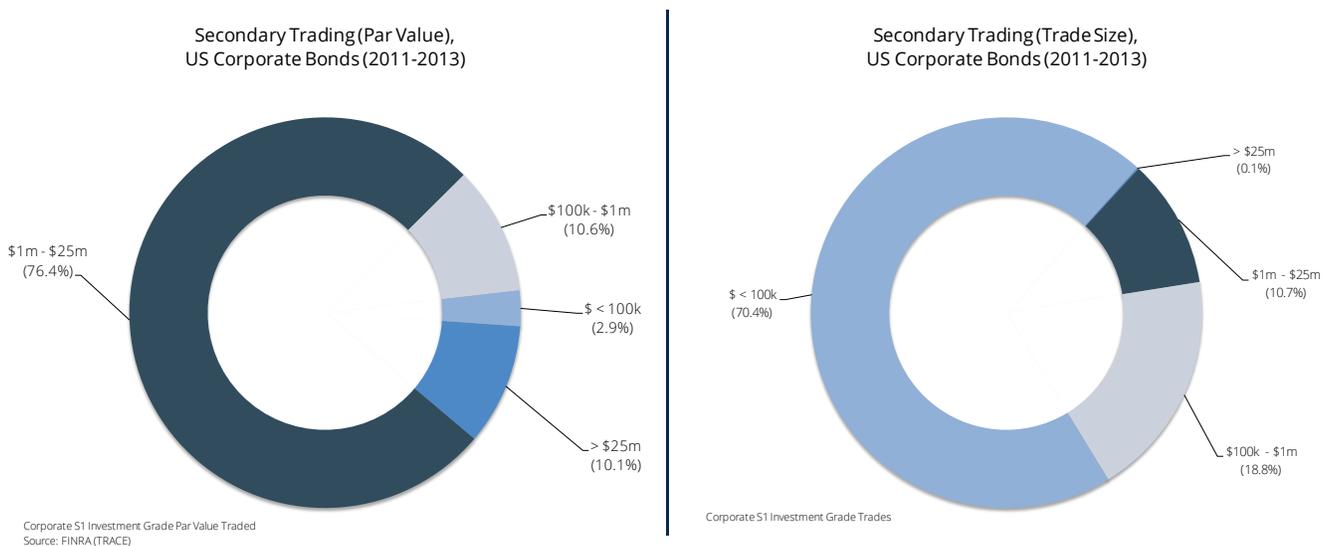
¹⁶⁷ The underwriting spread is the compensation paid to the underwriter for the bond offering. It is calculated as a percentage of total capital raised for the issue.

¹⁶⁸ Altinkihc, Oya. "Are There Economies of Scale in Underwriting Fees? Evidence of Rising External Financing Costs." *The Review of Financial Studies* 13.1 (2000): 191-218. Web. 28 July 2014. <<http://www.tulane.edu/~rsweb/Altinkihc,Hansen,RFS,2000.pdf>>.

¹⁶⁹ Zervos, Sara. and World Bank. Financial Sector Operations and Policy Department. The transactions costs of primary market issuance: the case of Brazil, Chile and Mexico / Sara Zervos World Bank, Financial Sector Operations and Policy Dept Washington, D.C 2004 <<http://www.econ.worldbank.org/view.php?type=5&id=39216>>. Based on Chilean issues listed in the US market.

Bonds can be issued privately or via a public offering, but only public offerings can be marketed to and traded by retail investors. Public offerings can be conducted via competitive or negotiated sale. The former process involves well-known issuers that are advertised for sale, while the latter involves the use of an underwriter to help determine the optimal terms.¹⁷⁰ Both competitive and negotiated sales favor institutional investors. In both circumstances underwriters need to market the issue to potential buyers. This is consistent with studies on secondary bond trading in the US, "Institutional investors account for the majority of the ownership and most of the trading volume of corporate bonds".¹⁷¹ By volume, trades greater than \$1m represented over 85% of US corporate bond market activity (Figure 25).

FIGURE 25: FINRA SECONDARY TRADING STATISTICS, US CORPORATE BONDS (2011-2013)



In the case of competitive bids, underwriters receive lower fees, providing them an incentive to pre-sell the issues quickly and reduce the risk of holding inventory.¹⁷² Focusing on institutional investors minimizes the amount of marketing effort for the underwriter.

INSTITUTIONAL SIGNALING CONTRIBUTES TO PRICE DISCOVERY

Marketing to institutional investors is also likely to provide valuable signaling information because institutional investors are prone to herding, "a trading pattern where institutional investors buy or sell the same set of securities at the same time",¹⁷³ and herding is more prevalent in the fixed income market than it is in the equity market (based on a study of the US corporate bond market). While competitive offerings are more standardized than negotiated sales (thus more likely to attract retail interest) they are also generally larger in size. This means that there is a lower markup for institutional investors because they take large positions and reduce the underwriter's marketing costs.

¹⁷⁰ See the primary issue process section for additional details.

¹⁷¹ Han, Song, and Xing Zhou. "Informed Bond Trading, Corporate Yield Spreads, and Corporate Default Prediction." *Management Science* 60.3 (2013): 675-94. Management Science: INFORMS. Web. 28 July 2014. <<http://pubsonline.informs.org/doi/abs/10.1287/mnsc.2013.1768>>.

¹⁷² "Competitive vs Negotiated Sale of Debt." *Issuer Briefs* (1992): n. pag. California Debt and Investment Advisory Commission. Web. 28 July 2014. <<http://www.treasurer.ca.gov/cdiac/issuebriefs/091992.pdf>>.

¹⁷³ Cai, Fang, Song Han, and Dan Li. "Institutional Herding in the Corporate Bond Market." *Institutional Herding in the Corporate Bond Market*. Board of Governors of the Federal Reserve System, n.d. Web. 28 July 2014. <<http://ideas.repec.org/p/fip/fedgif/1071.html>>.

Signaling also favors informed investors in a negotiated sale. Because the terms of issuance in a negotiated sale can be flexible, these offerings well suited for informed investors who can perform the requisite due diligence under different scenarios (especially since information needed for comparative analysis and valuation requires specialized expertise).

FINANCIAL INSTITUTIONS BENEFIT FROM CROSS-SELLING

The leading underwriters in the fixed income market are also typically the leading underwriters in the equity market and the largest investors in the fixed income market are also typically the largest investors in the equity market. Consequently there are potential synergies for an underwriter who cross-markets primary bond offerings to investors in prior equity offerings due to signaling effects:

"We find that the investment banker[sic] awards more shares to bidders who reveal information through limit prices than he does to similar bidders who submit quantity bids without price limits. Similarly, bidders who revise their bids—which can be interpreted as providing information as it arises over time—receive more favorable treatment in the allocation of shares"¹⁷⁴

In addition, investment banks tend to increase their allocations to institutions that are buy-and-hold equity investors.¹⁷⁵ These institutions favor debt offerings given their different need for liquidity. There is also empirical evidence to support the notion that underwriters cross-sell different types of offerings to their clients:

...There is substantial crossover in relationships across transactions of different types. While prior equity, debt, and M&A relationships have a larger impact on future roles of the same type, these relationships also carry over to transactions of different types...these results suggest that IB [investment banking] relationships include a strong firm-wide component that encompasses equity and debt underwriting as well as M&A advising. In addition, our results suggest that both the firm-wide component of IB relationships and the link between IB relationships and lending have become more important over time.¹⁷⁶

RETAIL INVESTORS HAVE LIMITED ACCESS TO FOREIGN DEBT ISSUES

Finally, a significant number of corporate bonds are issued abroad, mainly in the US. Consequently, most of these bonds are issued in a foreign currency, so they may not be suitable for most Canadian retail investors and smaller institutions (foreign issuances are targeted to foreign institutional investors and large Canadian institutional investors such as CPPIB that allocate portions of their portfolios to foreign assets). As noted earlier, almost half all Canadian corporate bonds are issued abroad (Figure 2). These foreign-issued corporate bonds generally would involve a foreign lead (or co-lead) underwriter who would not have the ability to distribute securities in Canada to retail investors.

¹⁷⁴ Cornelli, Francesca, and David Goldreich. "Bookbuilding and Strategic Allocation." *The Journal of Finance* 56.6 (2001): 2337-369. Web.

¹⁷⁵ Ibid.

¹⁷⁶ Corwin, Shane A., and Mike Stegemoller. "The Changing Nature of Investment Banking Relationships." N.p., Apr. 2014. Web. 28 July 2014. <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2354565>.

HOLDERS OF CORPORATE BONDS

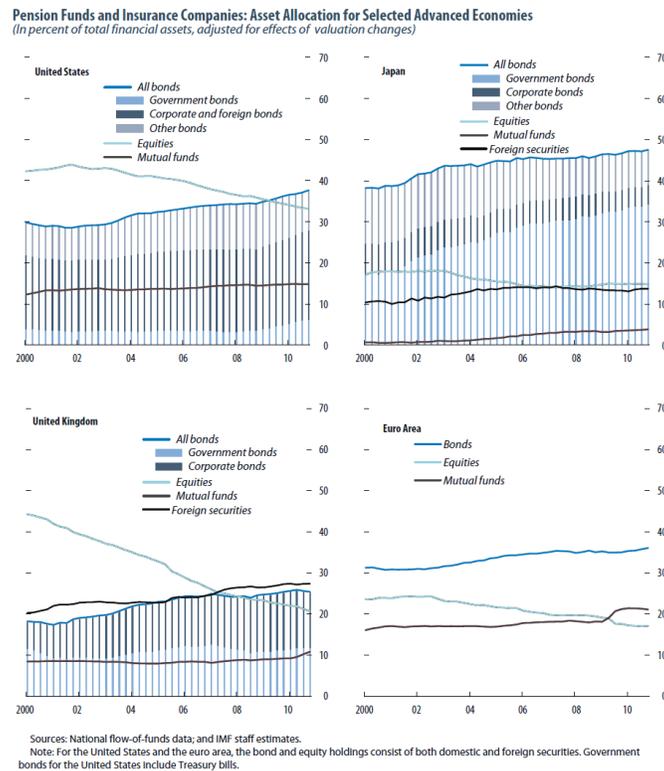
Institutional investors, insurance companies, pension funds, and investment funds tend to hold the majority of bonds. There are a number of features of bonds that make them attractive to institutional investors, but not most retail investors:

1. A large number of institutional investors are buy-and-hold investors that are attracted to assets that provide stable and predictable cash flows;
2. Institutional investors have significantly lower trading costs than retail investors due to economies of scale; and
3. They are better able to perform requisite credit analysis and evaluation, which is more complex than public equity analysis.

MANY LARGE INSTITUTIONS ARE BUY-AND-HOLD INVESTORS WITH PREDICTABLE LIABILITIES

Pension funds and insurance companies tend to be large holders of fixed income securities around the world. In the US, insurance companies are the largest holders of corporate debt, "...insurance companies, the largest institutional holder of corporate and foreign bonds. According to the U.S. Flow of Funds Accounts, in 2010, their holdings represented \$2.3 trillion, or more than bond holdings of mutual and pension funds taken together".¹⁷⁷

FIGURE 26: GLOBAL PENSION AND INSURANCE COMPANY HOLDINGS¹⁷⁸



¹⁷⁷ Becker, Bo, and Victoria Ivashina. "Reaching for Yield in the Bond Market." National Bureau of Economic Research, Mar. 2013. Web. 28 July 2014. <<http://www.nber.org/papers/w18909>>. Working paper.

¹⁷⁸ "Chapter 2 Long-Term Investors and Their Asset Allocation: Where Are They Now?" Global Financial Stability Report. Washington: International Monetary Fund, 2011. N. pag. *Global Financial Stability Report*. International Monetary Fund. Web. 28 July 2014. <<https://www.imf.org/external/pubs/ft/gfsr/2011/02/pdf/text.pdf>>. Data not available for Canada.

Insurance companies and pension funds incorporate bonds in their portfolios because “[both types of investors] share the important feature that they hold large investment portfolios backing primarily long-dated liabilities”.¹⁷⁹ Because these liabilities are long-dated in nature, bonds play an important role in asset-and-liability-matching—ensuring that assets are sufficient to meet liabilities when they come due. Bonds help investors meet two goals:

1. Construct a balanced portfolio that maximizes risk and return; and¹⁸⁰
2. Execute a liability-driven investment (LDI) strategy, where the investor uses bonds (and in some cases derivatives) to try to for duration matching, an “approach mirrors the characteristics of the cash flow liabilities by matching the interest rate sensitivities of assets and liabilities” or cash flow matching, “matching liabilities with assets whose cash flows are identical by aligning interest rate and inflation sensitivity along the full term of the liability profile.”¹⁸¹

Because a large portion of these investors intend to hold bonds until they mature, these investors are less affected by the lack of liquidity for these assets in the secondary market. The lack of liquidity in the corporate bond market is also not unique to Canadian markets: “In 2012 [in the US], 38 percent of the 37,000 TRACE-eligible issues did not trade even once, with another 23 percent trading only a handful of times, as compared to the 1 percent that traded every day.”¹⁸²

Bonds also qualify as a part of an insurer’s mandatory regulatory capital.¹⁸³ As a result, insurers must devote a portion of their assets to fixed income securities to meet regulatory requirements that do not apply to pension or investment funds, “Whereas insurance companies face capital requirements imposed by regulators based on credit ratings, this is not the case for mutual and pension funds”.¹⁸⁴

Finally, insurance companies, pension funds, and (most) investment funds are also tax-exempt investors, while retail investors can only defer taxes in the non-registered portion of their portfolios.¹⁸⁵ As a result, there is a disincentive for retail investors to allocate bonds in the taxable portion of their investment portfolio that does not apply to these institutional investors. Preferential treatment for capital gains and dividends (from Canadian corporations) means this is not necessarily the case for retail investors in the equity market.

LARGE INVESTORS BENEFIT FROM ECONOMIES OF SCALE WITH REGARD TO TRADING COSTS

The costs of trading bonds in the secondary market is important to retail investors because they are generally do not participate in the primary market (as noted above). As expected, larger bond issues are more liquid than smaller issues since they are more conducive to large trades, “Institutional investors such as pension and mutual funds typically favor larger bond issues because they usually offer greater liquidity and are easier to trade”.¹⁸⁶

¹⁷⁹ “Fixed Income Strategies of Insurance Companies and Pension Funds.” *Fixed Income Strategies of Insurance Companies and Pension Funds*. Bank for International Settlements, July 2011. Web. 28 July 2014. <<http://ideas.repec.org/b/bis/biscgf/44.html>>.

¹⁸⁰ Markowitz, Harry. “Portfolio Selection.” *The Journal of Finance* 7.1 (1952): 77-91. JSTOR. Web. 28 July 2014. <<http://www.jstor.org/stable/2975974>>.

¹⁸¹ “Fixed Income Strategies of Insurance Companies and Pension Funds.” *Fixed Income Strategies of Insurance Companies and Pension Funds*. Bank for International Settlements, July 2011. Web. 28 July 2014. <<http://ideas.repec.org/b/bis/biscgf/44.html>>.

¹⁸² “Can e-trading revitalize corporate bonds?” McKinsey & Company. McKinsey & Company and Greenwich Associates, 9 Aug. 2013. Web. 24 July 2014. <http://www.mckinsey.com/insights/financial_services/can_e-trading_revitalize_corporate_bonds>.

¹⁸³ http://www.mckinsey.com/insights/financial_services/-/media/mckinsey/dotcom/insights/financial%20services/can%20e-trading%20revitalize%20corporate%20bonds/corporate%20bond%20trading%20%20same%20game%20new%20playing%20field.ashx.

¹⁸⁴ “Minimum Continuing Capital and Surplus Requirements (MCCSR) for Life Insurance Companies.” Office of the Superintendent of Financial Institutions, Dec. 2012. Web. 28 July 2014. <<http://www.osfi-bsif.gc.ca/eng/fi-if/rg-ro/gdn-ort/gi-lid/pages/mccsr2013.aspx#ToCChapter3AssetDefaultCRisk>>.

¹⁸⁵ Becker, Bo, and Victoria Ivashina. “Reaching for Yield in the Bond Market.” National Bureau of Economic Research, Mar. 2013. Web. 28 July 2014. <<http://www.nber.org/papers/w18909>>. Working paper.

¹⁸⁶ Investment firms are structured to pass their tax liabilities to the fund owners, though there are some small exceptions.

¹⁸⁶ Altstedter, Ari. “Bankers Go Small to Counter Corporate Issue Drop: Canada Credit.” Bloomberg.com. Bloomberg, 16 Apr. 2014. Web. 28 July 2014. <<http://www.bloomberg.com/news/2014-04-16/bankers-go-small-to-counter-corporate-issue-drop-canada-credit.html>>.

There are significant economies of scale when trading corporate bonds. Transaction costs decrease as trade sizes increase, large investors can utilize derivatives to hedge different elements of investment risk (and manage reinvestment risk), and only large institutions have access to private placements where transactions costs are lower.¹⁸⁷

Trade size and transaction cost are inversely related. A 2010 study by Interactive Data Corporation found that dealer spreads fell by more than 20 times for trades larger than \$500,000 for purchases and almost 10 times for sales [see Table 4: Spreads by Trade Size – Corporate Bonds (November 2008-April 2010)]. This is consistent with prior studies that show transaction costs fell significantly when trade sizes were increased, "...round-trip transaction cost estimates range from about 150 basis points (bps) for the smallest trade sizes to about 3 bps for the largest trade sizes".¹⁸⁸ Given that search costs are high in OTC markets, it is reasonable to expect that some of the discount for large purchases stems from reduced search costs as "most major corporate bond markets are over-the-counter, and search problems are prevalent".¹⁸⁹ This is also consistent with pricing in the OTC equity market, even for high interest issues like Alibaba prior to its IPO, "The prices [of Alibaba shares on OTC markets, prior to its IPO] vary widely in part because each trade is privately negotiated, rather than centered around a single exchange or market. The prices also vary depending on the size of the trade on offer, with larger trades coming at lower prices."¹⁹⁰

¹⁸⁷ Edwards, Amy K., Lawrence E. Harris, and Michael S. Piwowar. "Corporate Bond Market Transaction Costs and Transparency." *The Journal of Finance* 62.3 (2007): 1421-451. Web. 24 July 2014. <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=593823>.

¹⁸⁸ Ibid.

¹⁸⁹ Duffie, D., N. Garleanu, and L. H. Pedersen. "Valuation in Over-the-Counter Markets." *Review of Financial Studies* 20.6 (2007): 1865-900. Web. 28 July 2014. <<http://rfs.oxfordjournals.org/content/20/6/1865.abstract>>.

¹⁹⁰ Demos, Telis, Juro Osawa, and Wei Gu. "Alibaba Valued as High as \$150 Billion in Private Trades." *The Wall Street Journal*. Dow Jones & Company, 15 July 2014. Web. 28 July 2014. <<http://online.wsj.com/articles/alibaba-valued-as-high-as-150-billion-in-private-trades-1405460159>>.

TABLE 4: SPREADS BY TRADE SIZE – CORPORATE BONDS (NOVEMBER 2008-APRIL 2010)¹⁹¹

Spread is defined as the log percentage point difference between the trade price and the next unpaired interdealer trade, adjusted for intervening changes in the general bond market, as captured by the exchange-traded fund with ticker LQD (for investment-grade) or JNK (for high-yield bonds). TRACE truncates reported trade sizes at \$1 million for high-yield bonds and \$5 million for investment-grade bonds.

Trade size	Purchases by dealers			Sales by dealers			Two-way spread	
	Bond*days	Mean spread	Median spread	Bond*days	Mean spread	Median spread	Means	Medians
1k	72,781	-1.00	-0.54	67,990	1.38	1.17	2.37	1.71
2-4k	202,246	-0.85	-0.47	185,341	1.13	0.79	1.98	1.26
5-9k	296,606	-0.81	-0.51	548,873	1.31	1.04	2.13	1.54
10-19k	473,734	-0.86	-0.61	1,157,941	1.33	1.09	2.19	1.69
20-49k	514,360	-0.81	-0.58	1,175,644	1.25	1.01	2.06	1.59
50-99k	235,344	-0.66	-0.48	459,539	1.06	0.81	1.73	1.29
All < \$100k	1,795,071	-0.82	-0.54	3,595,328	1.26	1.01	2.07	1.55
100-499k	328,933	-0.37	-0.26	549,920	0.75	0.48	1.12	0.74
> \$500k	537,492	-0.03	-0.10	605,949	0.35	0.18	0.38	0.28

Institutional investors also have a greater degree of bargaining power because they will have access to a larger number of dealers and counterparties than smaller investors, which translates into more power (and favorable) pricing relative to smaller investors: In order to trade OTC derivatives with a bank, for example, a customer must have, among other arrangements, an account and a credit clearance. Smaller customers often have an account with only one, or perhaps a few, banks, and therefore have fewer search options. Hence, a testable implication of a version of this model with investors of heterogeneous search intensities is that investors with fewer search options (typically, small unsophisticated investors) receive less competitive prices.¹⁹² The OTC market provides large institutions an absolute advantage over smaller investors because they benefit from greater pricing power, while mitigating the costs of reduced transparency...on the OTC market, and especially for large blocks, institutions could negotiate the compensation of the intermediary. In contrast, on the exchange, commissions were regulated, and could not be negotiated. Furthermore, the professionalized management and relatively frequent presence in the market of institutions makes transparency less important to them than to less sophisticated small investors who trade infrequently. The repeated interaction that dealers and institutions have with each other renders them less vulnerable to the opportunities which a lack of transparency affords other participants to profit at their expense on a one-time basis.¹⁹³

¹⁹¹ Ciampi, Peter, and Eric Zitzewitz. "Corporate Bond Trading Costs During the Financial Crisis." (n.d.): n. pag. Interactive Data, Aug. 2010. Web. 28 July 2014. <<http://www.interactivedata.com/uploads/File/2010-Q4/prd/WhitePaper-201008.pdf>>.

¹⁹² Duffie, D., N. Garleanu, and L. H. Pedersen. "Valuation in Over-the-Counter Markets." *Review of Financial Studies* 20.6 (2007): 1865-900. Web. 28 July 2014. <<http://rfs.oxfordjournals.org/content/20/6/1865.abstract>>.

¹⁹³ Bruno Biais & Richard C. Green. "The Microstructure of the Bond Market in the 20th Century". *GSIA Working Papers 2005-E57*, Carnegie Mellon University, Tepper School of Business.

Institutional investors also have access to a variety of hedging tools to manage their corporate bond exposure. They manage interest rate risk through swaps, forwards, and futures. Managing reinvestment risk is also more tenable for institutions (than for retail investors) because they have access to hedging tools and more easily reinvest coupon payments. This would be difficult (if not impossible) for most retail investors because the aggregate value of individual coupon payments would be too small to reinvest in a cost-feasible manner. As a result, corporate bonds are more attractive to institutions because they are able to design investment strategies that retail investors cannot.

Institutional investors have an advantage with regard to trading corporate bonds because of information asymmetry. This information asymmetry increases as credit risk increases "Information asymmetry exhibits additional explanatory power for corporate yield spreads after controlling for liquidity costs, credit risks, and other relevant factors in bond pricing."¹⁹⁴ Informed investors, as a result, can take advantage of information asymmetry and negotiate better prices (than retail investors) when trading the same security. In contrast to equity markets, where informed investors may break trades into smaller trades spread over time to reduce impact and transactions costs, "To minimize the price impact, an agent would choose to trade patiently and split his order into many small pieces".¹⁹⁵ In the fixed income market, higher transaction sizes reduce (or even eliminate) the incentive to break trades into smaller pieces. This is exacerbated because corporate bond markets are relatively illiquid thus the investor risks that in the time it takes to execute the smaller trades they provide a price signal to the market that reduces the value of arbitrage. The corollary is that even if a retail bond investor is able to obtain this information, they cannot profit from it due to transaction costs or because the value of this information may dissipate by the time they locate a willing counterparty.

CREDIT ANALYSIS AND EVALUATION IS COMPLEX AND REQUIRES A SPECIALIZED SET OF SKILLS

Institutional investors have also been shown to make better use of public information than retail investors and can negotiate more favorable prices. In equity markets, "analysis suggests that the majority of the advantage institutions possess reflects their attention to publicly available information. Institutions are more likely to invest in the types of firms that tend to perform better, and they earn higher returns as a result. Individuals have access to the same information, but they appear to either disregard or misinterpret its relevance for firm value."¹⁹⁶ While studies show that the implementation of TRACE has reduced spreads, a research indicates that retail investors do not take full advantage of this information, consistent with their behavior in equity markets.¹⁹⁷

¹⁹⁴ Han, Song, and Xing Zhou. "Informed Bond Trading, Corporate Yield Spreads, and Corporate Default Prediction." *Management Science* 60.3 (2013): 675-94. Management Science: INFORMS. Web. 28 July 2014.

¹⁹⁵ Bertsimas, D. and Lo, A.W. (1998) Optimal control of execution costs, *Journal of Financial Markets* 1, 1-50.

¹⁹⁶ Field, Laura Casares, and Michelle Lowry. "Institutional versus Individual Investment in IPOs: The Importance of Firm Fundamentals." *Journal of Financial and Quantitative Analysis* 44.3 (2009): 489-516. ProQuest. Web. 11 Jan. 2015. <<http://search.proquest.com/docview/37303791/abstract/embedded/R1LXXCK4QRIL7U4D?source=fedsrch>>.

¹⁹⁷ Goldstein, Michael A., and Edith S. Hotchkiss. *Dealer Behavior and the Trading of Newly Issued Corporate Bonds*. Working paper. N.p.: American Finance Association, 2009. SSRN. Web. 28 July 2014. <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1022356>. Requires permission to be quoted.

Studies also indicate that credit ratings, a retail investor's primary source of information about a particular issue, may not be an accurate indicator of credit quality and that ratings can inflate or deflate the likelihood of default, which is the primary driver of corporate bond spreads (over risk-free securities).¹⁹⁸ The spread on credit default swaps (CDS), an instrument traded exclusively by institutional investors, has been found to be a better indicator of default risk than credit ratings, affording these investors an absolute informational advantage over the typical retail investor, "the CDS spread has been confirmed as an instrument that can be used to predict, or at least foresee, default. A significant change occurs is the CDS spread CAAR of defaulted firms in this study between 25 and 22 days prior to default. This in turn implies that the holder of the underlying bond of this CDS can partially avoid the losses associated with default by observing movements in the CDS market".¹⁹⁹ Moody's Analytics found that "The higher the rating category, the bigger a role the market price of risk plays in determining spreads"; studies on CDS spreads have found that they "reflect not only pure credit risk of the reference entity, but also macro market factors that affect a company's likelihood of default."^{200,201}

¹⁹⁸ Ayadi, M., Densmore, M., Lazrak, S. and Welch, R. *The Informative Quality of Corporate Credit Ratings* - FMA Conference, Chicago, United States of America, October, 2013.

¹⁹⁹ Gottschalka, Katrin, and Paddy Walker. *The Timeliness of CDS Spread Changes in Predicting Corporate Default, 2004-2008*. Rep. N.p., June 2011. Web. 28 July 2014. <<http://www.efmaefm.org/OEFMAMEETINGS/EFMA%20ANNUAL%20MEETINGS/2011-Braga/papers/0309.pdf>>.

²⁰⁰ Hamilton, David. *Lessons Learned and Lessons Applied From the Financial Crisis*. Presentation. Moody's Analytics, May 2011. Web. 28 July 2014.

<<http://www.moodyanalytics.com/~media/Insight/Quantitative-Research/Credit-Valuation/2011/2011-05-05-Lessons-Learned-Lessons-Applied-From-Financial-Crisis>>.

²⁰¹ Jacobs, Michael, Jr., Ahmet K. Karagozolu, and Carissa M. Peluso. *Measuring Credit Risk: CDS Spreads vs. Credit Ratings*. Presentation. Financial Management Association International, Jan. 2010. Web. <http://michaeljacobsjr.com/JKP_CDS_1-10.pdf>.

APPENDIX II: TRACE SYSTEM

The TRACE System was rolled out in three separate phases so regulators could assess its impact:

“During Phase I, effective on July 1, 2002, public transaction information was disseminated immediately upon receipt for the larger and generally higher-credit quality issues: (1) Investment-Grade debt securities having an initial issue of \$1 billion or greater; and (2) 50 Non-Investment-Grade (High-Yield) securities disseminated under FIPS that were transferred to TRACE. Under these criteria, FINRA disseminated information on approximately 520 securities by the end of 2002.

Phase II, fully effective on April 14, 2003, expanded public dissemination to include transactions in smaller Investment-Grade issues: (1) all Investment-Grade TRACE-eligible securities of at least \$100 million par value (original issue size) or greater rated A3/A- or higher; and (2) a group of 120 Investment-Grade TRACE-eligible securities rated Baa/BBB and 50 Non-Investment-Grade bonds. As Phase II was implemented, the number of disseminated bonds increased to approximately 4,650 bonds.

In Phase III, fully effective on February 7, 2005, approximately 99 percent of all public transactions and 95 percent of par value in the TRACE-eligible securities market were disseminated immediately upon receipt by the TRACE System. However, transactions over \$1 million in certain infrequently traded Non-Investment-Grade securities were subject to dissemination delays, as were certain transactions immediately following the offering of TRACE-eligible securities rated BBB or below.

Since January 9, 2006, all transactions in public TRACE-eligible securities have been disseminated immediately upon receipt.

Effective March 1, 2010, TRACE began requiring the reporting of transactions in US Agency debentures, as well as primary market trades transactions in TRACE-eligible securities. Primary market transactions are subject to dissemination, with the exception of list or fixed offering price and takedown transactions.

Effective May 16, 2011, the TRACE system began to collect information for transactions in asset-backed and mortgage-backed securities. Since November 2012, to-be-announced (TBA) transactions are disseminated to the public, and since July 22, 2013, MBS transactions also became subject to dissemination.”^{202,203}

²⁰² The Fixed Income Pricing System (FIPS) and the FIPS 50 were 50 Non-Investment-Grade securities designated under the now rescinded FIPS Rules for limited price dissemination.
²⁰³ 2013 TRACE Fact Book. FINRA Factbook. Financial Industry Regulatory Authority, Mar. 2014. Web. 13 Aug. 2014.

APPENDIX III: TABLES, FIGURES, AND BOXES

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