



Invested in America

Brent J. Fields
Federal Advisory Committee Management Officer
Securities and Exchange Commission
100 F Street, NE
Washington, DC 20549

January 8, 2018

In regard to File No. 265-30

SIFMA¹ commends the Commission and Chairman Clayton on the formation of the FIMSAC. It is absolutely appropriate for the SEC to seek input from market participants on key fixed income market structure and liquidity issues. We hope the FIMSAC will be successful in helping the Commission sort through key issues facing the fixed income markets.

One important regulatory issue confronting the corporate and municipal bond markets are the rules adopted by the Financial Industry Regulatory Authority (“FINRA”) and the Municipal Securities Rulemaking Board (“MSRB”) that will require dealers to begin reporting to retail customers the amount of markup and markdown on certain fixed income transactions (see FINRA Regulatory Notice 17-08 and MSRB Regulatory Notice 2016-28). Both rules take effect on May 14, 2018. We have very serious concerns about the ability of dealers subject to the rule to be able to be fully compliant with the rule on the effective date. There are a number of issue at play, including key open compliance questions that require guidance from FINRA and the MSRB. Most important is that some dealers may not be able to complete and fully test compliance solutions that will allow firms to automate the process of determining the amount of markups and markdowns based on the terms of the FINRA and MSRB rules. Without these automated compliance solutions, many firms may not be able to comply fully with the FINRA and MSRB rules. Our members fully understand the importance of this new rule and want to ensure that retail clients are provided with accurate and meaningful information in a consistent manner. Additional time will help prevent any potential customer confusion or inconsistencies in disclosure caused by compliance solutions that have not benefitted from rigorous review. At the extreme, some firms may be unable to execute client trades if they are not ready to populate the confirmation with the required information.

We have asked FINRA and the MSRB to extend the compliance deadline for the markup disclosure rule by six months. This extension would allow dealers to finish and test compliance systems, ensure all the various

¹ SIFMA is the voice of the U.S. securities industry. We represent the broker-dealers, banks and asset managers whose nearly 1 million employees provide access to the capital markets, raising over \$2.5 trillion for businesses and municipalities in the U.S., serving clients with over \$18.5 trillion in assets and managing more than \$67 trillion in assets for individual and institutional clients including mutual funds and retirement plans. SIFMA, with offices in New York and Washington, D.C., is the U.S. regional member of the Global Financial Markets Association (GFMA). For more information, visit www.sifma.org.

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connections between front office trading systems on through to confirmation systems are properly linked, develop supervisory and surveillance systems, and help ensure that the industry is fully compliant when the rules take effect. We urge the Commission to support extending the effective date for the FINRA and MSRB markup rules by six months.

More generally, we also support a re-examination of SEC, FINRA and MSRB rules to address areas where regulations may be hampering market liquidity. One area we feel deserves consideration relates to block trades in corporate bonds. Under FINRA rules, dealers must report the terms of trades in most corporate bonds to the FINRA TRACE system as soon as practicable, but no later than within 15 minutes of the time of execution. Although the current TRACE framework masks the actual size of block trades, the dissemination of transactions within 15 minutes of the time of the trade can negatively impact the facilitation of large block trades and the liquidity of the corporate bond market generally. Dealers, who provide the primary source of liquidity for block trades, risk their capital until they can locate a willing buyer or seller on the other side of the trade.

The market signal provided by the block trade report, together with the dealer buy and dealer sell indicator, reduces the dealer's ability to cost effectively intermediate the transaction. Dealers may even find it difficult to hedge their risk effectively to allow for more time to locate willing buyers and sellers. Thus, the current reporting structure can serve to reduce dealers' appetite to facilitate block trades. The frictions caused by the current framework can raise search costs and transaction costs for market participants and do not serve to promote efficient, liquid and orderly markets. While the current framework that provides for masking of block trade size was clearly created with some recognition of these frictions, changes to liquidity conditions and market structure warrant a reconsideration of the existing framework. We encourage the SEC and FINRA to consider a recalibration of the current corporate bond reporting structure for block trades to better support and balance the desire for transparency and the need to promote liquidity, including additional delays beyond the 15-minute threshold for reporting.

We have enclosed two documents that reflect SIFMA's views on key issues surrounding fixed income market structure. The first is testimony we provided last year to the U.S. House of Representatives Committee on Financial Services Subcommittee on Capital Markets, Securities, and Investment. The second "Understanding the U.S. Fixed Income Markets," is a paper published by Greenwich Associates in cooperation with SIFMA that provides an overview of how the bond markets work and the benefits to the economy of well-functioning fixed income markets.

We again commend the SEC on the formation of the FIMSAC. We look forward to working with the Commission as the work of the FIMSAC continues.

Best,



Randolph Snook
Executive Vice President



Written Testimony of Randolph Snook

Executive Vice President

Securities Industry and Financial Markets Association

before the U.S. House of Representatives

Committee on Financial Services

Subcommittee on Capital Markets, Securities, and Investment

Hearing entitled “A Review of Fixed Income Market Structure”

July 14, 2017

Chairman Huizenga, Ranking Member Maloney, and distinguished members of the Subcommittee, thank you for providing me the opportunity to testify today on behalf of the Securities Industry and Financial Markets Association (SIFMA)¹ and to share our views on the structure and health of the U.S. fixed income securities markets. SIFMA represents a broad range of financial services firms active in the fixed income markets and is dedicated to promoting investor opportunity, access to capital, and an efficient market system that stimulates economic growth and job creation. The U.S. fixed income markets are a fundamental tool for raising investment for businesses, homebuyers, and the federal government itself. This Subcommittee's oversight of the fixed income markets and the regulatory framework that supports them is critical to protecting market efficiency and access to capital.

This testimony will go into more detail on each asset class but let me state up front that the U.S. fixed income markets are truly without parallel. Total outstanding fixed income debt is almost \$40 trillion dollars, with new issuance in the range of \$6 to \$7 trillion per year over the last 5 years. On average \$775 billion of securities are traded each and every day.

This central role played by the U.S. capital markets, and the fixed income markets in particular, contrasts with other major economies, where a far greater proportion of consumer and commercial finance is provided by traditional bank lending.

Changes in the capital markets since the financial crisis, be they changes in risk appetites or regulatory approach, have heightened concerns that our capital markets are not providing the necessary funding to our businesses, individuals, and governments in the most efficient way possible. Private credit extended to households and nonfinancial businesses has grown at a slower pace than in all recoveries in the past 60 years.² Small businesses in particular have found it difficult to obtain credit.³ In its recent report on banks and credit unions, the Treasury Department pointed out that real gross domestic product is only 13% higher than in 2007 and lags previous recoveries.⁴

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² Zheng Liu & Andrew Tai, Slow Credit Recovery and Excess Returns on Capital (Fed. Reserve Bank of San Francisco Economic Letter 2016-28, Sept. 26, 2016)

³ Fed. Reserve Banks of Atlanta, Boston, Chicago, Cleveland, Dallas, Kansas City, Minneapolis, New York, Philadelphia, Richmond, St. Louis & San Francisco, Small Business Credit Survey (Apr. 2017)

⁴ U.S. Treasury, A Financial System That Creates Economic Opportunities – Banks and Credit Unions (June 2017), at 6 and 44.

As an example, corporate debt markets have seen robust overall issuance but most of this has been in large deals and the number of smaller new debt issues coming to the market has fallen.⁵ Previous SIFMA testimony to this Committee explained that as of a year ago:

- 1) the average size of an investment grade corporate debt transaction approached \$1 billion;
- 2) the number of deals sized above \$2 billion had doubled (since 2010),
- 3) the number of smaller deals had fallen by nearly 50%.⁶

The fact that smaller firms are challenged in effectively financing themselves in the debt market has many potential implications for the economy. Similar difficulties are faced by smaller broker-dealers who play a critical role in the financial markets. Sand has been thrown in the gears of economic growth by regulation such as the Volcker Rule, among other things, and the impact has been disproportionately felt by smaller participants in the market – issuers and market makers alike.

The economy is not functioning as well as it should be at this point in the recovery, and SIFMA believes that policymakers have the ability to improve this situation through tailored recalibration of regulations affecting fixed income markets. This commonsense recalibration could help jumpstart the economy without sacrificing financial stability.

Impact of Post-Crisis Regulation

As SIFMA has frequently stated, we believe that the Volcker Rule as drafted and implemented has impaired beneficial activities (such as permitted market making) and has led many firms to scale back their trading operations as well as their inventories of financial assets. In order to avoid any doubt, firms take a more conservative approach to building inventory or facilitating customer activity than required by the rule. We believe that the Volcker Rule remains a policy prescription in search of a problem and would be better off repealed. However, if it is retained, a more focused approach to definitions of important concepts, such as market making and inventory accumulation, with a review of the compliance regime to better tailor requirements with each firm’s business profile would be appropriate.

In addition, while SIFMA supports many of the post-crisis regulatory reform efforts in the area of capital and liquidity and believes that these efforts have enhanced the overall resiliency of the capital markets, now is the time to review how these rules work together—for example by examining how the liquidity requirements work with leverage requirements-- with a particular emphasis on determining where they may be impeding liquidity by targeting the same risk in multiple ways. A review should include these liquidity and leverage requirements but also look at the effects of and interactions with CCAR, Basel III capital rules, and single counterparty credit limits. We firmly believe this sort of clear review of the potential costs of additional requirements which could limit the capital available for lending against any incremental benefits of resiliency should be undertaken

⁵ See, e.g., “The Two-Speed Economy Still Runs on Two Tracks”, The Clearing House, available: <https://www.theclearinghouse.org/research/banking-perspectives/2017/2017-q1-banking-perspectives/two-speed-economy>

⁶ See testimony of Ronald Kruszewski on behalf of SIFMA, Mar. 29, 2017 (available here: <http://www.sifma.org/issues/item.aspx?id=8589965576>)

with respect to capital and liquidity regulation, and are pleased that policymakers have begun to move in that direction.⁷

At the highest level, SIFMA believes that:

- The U.S. fixed income markets are unparalleled in their size and importance. They are the largest source of financing for America's homeowners, consumers, and businesses.
- Fixed income markets continue to adapt to changes in technology, the regulatory environment, and market participant needs.
- Notwithstanding this adaptation, fixed income markets face challenges in continuing to provide the deep liquidity and capital that consumers, businesses, and investors require.
- In order to ensure the continued depth and diversity of the fixed income markets, policymakers should review the myriad regulatory and prudential actions taken since the crisis with a goal to eliminate overlapping or conflicting regulation, capital requirements, and unnecessary activity restrictions.
- This review should include the Volcker Rule, liquidity requirements, leverage requirements, and other rules and regulations that have impaired market efficiency and capital formation.
- Regulators must move very cautiously when considering new requirements and restrictions on activities and participants in the fixed income markets.

Overview of the U.S. Fixed Income Markets

As of the end of 2016 there were almost \$40 trillion of fixed income securities issued in the U.S. outstanding in the market.⁸ These include U.S. Treasury securities issued by the federal government to finance operations, securities issued by Ginnie Mae, Fannie Mae, and Freddie Mac to provide mortgage financing for homebuyers, bonds issued by corporations to finance capital investment, and bonds issued by state and local governments to build infrastructure, among others. The fixed income markets also provide an important source of income-producing investments for individual and institutional investors. The steady, predictable income generated by most bond investments is where the fixed income markets get their name.

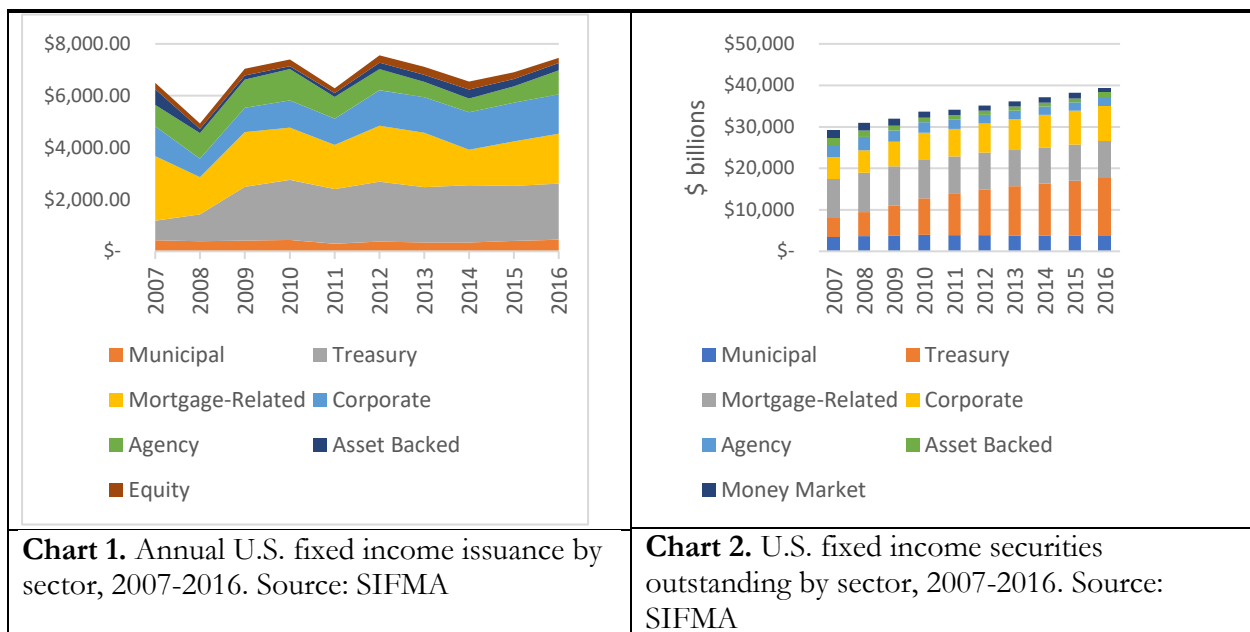
The fixed income markets are generally segmented by sector according to the category of issuer. The Treasury or government securities market includes debt issued by the federal government. The corporate bond market includes debt securities issued by businesses. The mortgage- (MBS) and asset-backed securities (ABS) markets include securities issued to finance home mortgages, car loans, or other types of loans extended to consumers and businesses. Many but not all MBS are issued and/or guaranteed by Ginnie Mae, Fannie Mae and Freddie Mac. Government agency securities are debt securities issued by government agencies, including Fannie Mae, Freddie Mac, Federal Home Loan Banks, the Farm Credit System and others to carry the missions of the agencies. The municipal

⁷ See, e.g., <https://www.treasury.gov/press-center/press-releases/.../A%20Financial%20System.pdf>

⁸ SIFMA, "US Bond Market Issuance and Outstanding" (June 5, 2017), available at: <http://www.sifma.org/uploadedFiles/Research/Statistics/StatisticsFiles/CM-US-Bond-Market-SIFMA.xls?n=33672>, June 5, 2017.

securities market includes bonds issued by state and local governments to finance investment in infrastructure.

Attributable primarily to the low interest rate environment, issuers sold more than \$7.3 trillion of new fixed income securities in the U.S. market in 2016, the third highest year on record. (See Chart 1) This contrasts sharply with the \$197 billion of equity securities issued in the same year.⁹ Issuance in the bond markets occurs practically every day. Companies and governments depend on ready access to capital to respond quickly to business opportunities. For example, it is not unusual for a well known company to issue billions of dollars of fixed securities to finance a new investment with only a few days notice if market conditions are favorable. This kind of ready access to capital promotes growth and is a cornerstone of our economy.



As shown in Chart 2, at the end of 2016 there were \$40 trillion of fixed income securities outstanding in U.S. markets. By comparison, U.S. equity market capitalization at the end of 2016 was approximately \$30 trillion.¹⁰

Holdings of fixed income securities vary by sector, but generally include both individual investors and institutions like mutual funds, pension funds, insurance companies and others. Some sectors feature significant participation by individual investors (e.g. municipal securities), whereas others are primarily institutionally based (e.g. Treasuries and securitized products). Data on holdings of the Treasury and municipal bond markets are presented below. (See Charts 3 and 4) These charts show the distinct investor bases of the two markets.

⁹ Source: SIFMA

¹⁰ Source: Nasdaq and NYSE.

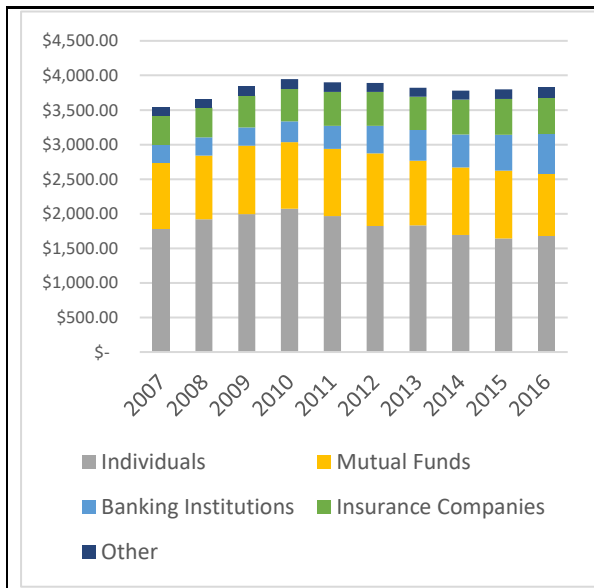


Chart 3. Holdings of municipal securities by investor category, 2007-2016. Source: Board of Governors of the Federal Reserve.

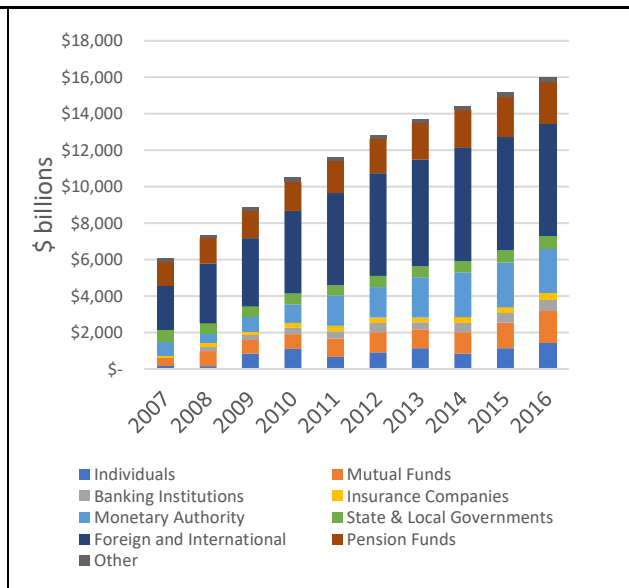


Chart 4. Holdings of Treasury securities by investor category, 2007-2016. Source: Board of Governors of the Federal Reserve.

In 2015 fixed income investment comprised 28% of institutional investors' portfolios. (See Chart 5 below)

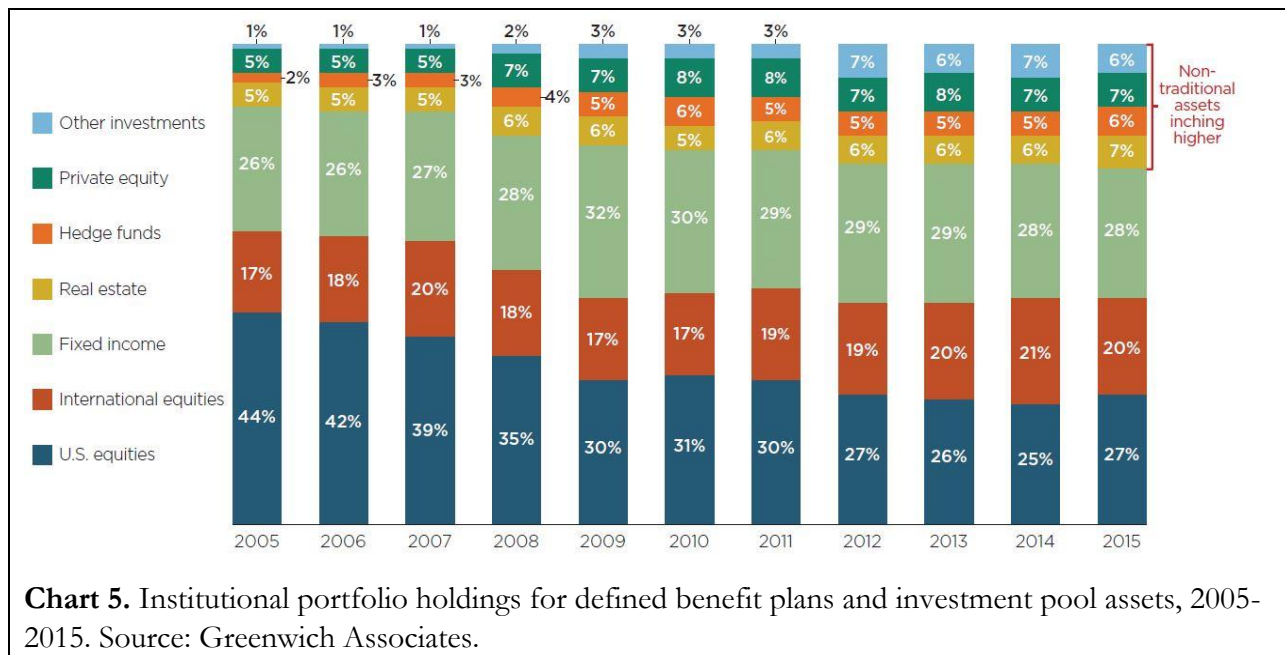


Chart 5. Institutional portfolio holdings for defined benefit plans and investment pool assets, 2005-2015. Source: Greenwich Associates.

Fixed Income Market Structure Overview

Most fixed income securities have a stated maturity that can range from a week or less to 30 years or more. Investors often buy fixed income investments with a targeted maturity in mind. A life insurance company, for example, may want to match the length of their investments with the timing of claims expected to be paid in the distant future. Families may save for an anticipated future expense like college tuition. However, circumstances change, and sometimes investors may want to exit their fixed income investments before they mature. The “secondary market” exists so that investors who want to sell bonds before they mature can find ready buyers.

The secondary market for fixed income securities differs in important respects from the secondary market for equities. The most important difference is that most fixed income securities trade not on an exchange or national market system but over the counter. While some very small cap companies’ stock also trades over the counter, this accounts for only a tiny portion of all stock transactions. This means that unlike the stock market, where shares are often traded directly between two investors, trading in fixed income securities almost always includes an intermediary, generally a bank or broker-dealer, that buys bonds from one investor and resells them to others.

The over the counter nature of the fixed income market has been its defining structural characteristic and contrasts with the structure of the equity markets. At the end of 2016 there were 5,204 companies whose stock was listed on a U.S. exchange.¹¹ Each company generally has just one class of common stock outstanding, and most listed equities trade actively. Market makers and specialists ensure that there are active, two-way (buy and sell) quotations available for every listed stock throughout the trading day. In the U.S. municipal bond market, by contrast, almost one million individual bonds outstanding have been issued by tens of thousands of states, cities, towns, school districts, authorities and other state and local “political subdivisions.” Each issuer may have hundreds or, for large, active issuers, thousands of individual bonds outstanding. It is simply not possible for dealers to provide active quotes for the approximately one million municipal bonds at all times as most issues do not actively trade. Similarly, there are over one million corporate bonds and mortgage-backed and asset-backed securities outstanding. The vast majority of fixed income securities do not trade every day. Many bonds go months or even years without trading at all. Indeed, in some cases an investor may buy a bond when it is newly issued and never trade the bond at all before it matures.

That is not to say, however, that the fixed income markets are illiquid. When investor wants to sell a bond, it should be possible to get executable price quotes from one or several dealers on request. Dealers buy bonds directly from customers and keep them in their inventory while they search for a buyer, either an investor or another dealer. In addition, underwriters of fixed income securities typically make markets in securities that they underwrite. While the dealer owns the bond in its inventory, the firm is exposed to the risk that the price of the bond will fall before the dealer finds a buyer. While many dealers use products and strategies to hedge that risk, hedging comes with costs, and hedges are not always perfect. In addition, under banking and securities rules, firms must commit capital against trading positions to provide a “cushion” against any losses. In any case,

¹¹ Source: World Federation of Exchanges

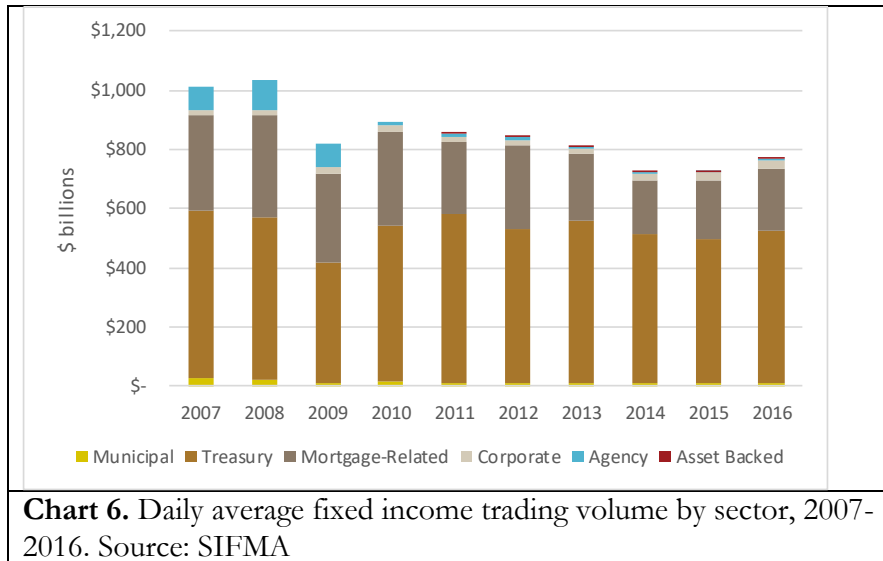
liquidity in the fixed income markets generally depends on the ability and willingness of dealers to commit capital and take on risk in order to buy bonds from customers who want to sell.

Another difference between equity and fixed income trading is how dealers are compensated. In the stock market, many trades are brokered. Dealers match buyers and sellers of securities but usually do not take shares into inventory or take on any market risk and earn commissions for executing trades for customers. In the fixed income markets, by contrast, dealers rarely earn commissions for secondary market transactions. Instead, a dealer buys a bond from a customer at one price, the “bid,” and resells the bond at a slightly higher price, the “offer” or “ask.” In simplistic terms, this difference between the bid and ask prices, known as the “markup,” is a reference point for the dealer’s compensation for executing the transactions and taking the market risk associated with the position. Conversely, for the customer selling their bond to a dealer, the dealer’s compensation is known as a “markdown.” The difference between the bid and ask prices, the “bid-ask spread,” can also be an indication of market liquidity. The more liquid the instrument and the less risk the dealer takes on, the smaller the bid-ask spread.

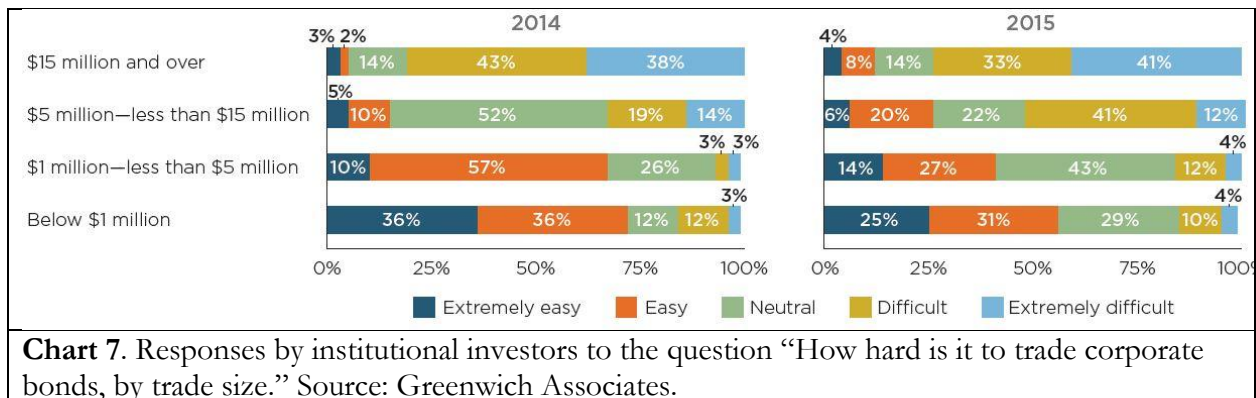
The best example over an active and deep fixed income market is the “on-the-run” market for Treasury securities. On-the-run Treasuries are the most recently issued of the various securities the Treasury Department sells regularly (4-, 13-, 26- and 52-week bills, 2-, 3-, 5-, 7-, and 10-year notes, 2-year floating rate notes, 30-year bonds, and 5-, 10-, and 30-year Treasury Inflation Protected Securities, or TIPS). The market for on-the-run Treasuries is very large and active and is dominated by large institutional investors, investment funds, banks and others. Around 2/3 of all fixed income trading volume in the U.S. is in the Treasury market, and the vast majority of that activity is in on-the-run issues. The on-the-run Treasury market is the most active and liquid securities market in the world. Bid-ask spreads for round-lot institutional trades are near zero, meaning there is virtually no cost to transacting on-the-run securities. Also, because this segment of the market is so liquid and active, alternative forms of electronic trading have evolved that allow investors to trade directly with each other without dealer intermediation.

Market Liquidity

One way to define liquidity is in relation to the ability to execute a large secondary market transaction at a reasonable cost and without significantly affecting the price of the security. Indications of liquidity can be measured by various indicators, including trading volume, bid-ask spread, dealer inventories and other measures. However, the ultimate measure of liquidity is in part subjective and depends on market participants’ perceptions of the ease and cost of executing institutional size trades.



In 2014 and 2015 surveys of corporate bond investors, Greenwich Associates asked about the ease of trading corporate bonds by size.¹² In each year of the survey, over 75% of investors found it “difficult” or “extremely difficult” to trade larger-size blocks of corporate bonds. (See Chart 7 below.) by trade size.” Source: Greenwich Associates.



A number of factors affect market liquidity, and market liquidity can improve or deteriorate depending on these factors. These include, among others:

- **Regulation.** Regulation of dealer activity can affect liquidity. For example, the Volcker Rule limits on trading by banks in some cases constrain dealers’ ability to take on trading positions and build inventory necessary for market making. Capital and leverage rules also limit dealers’ ability to finance positions held in inventory, and can clearly limit their ability to commit to customer trades.
- **Monetary policy.** In the wake of the financial crisis and the 2008-2009 recession, the Federal Reserve undertook an aggressive policy of “quantitative easing” whereby it purchased

¹² Greenwich Associates, “Understanding the US Fixed Income Markets” Oct. 2016, at 9.

significant volumes of Treasury securities and Agency MBS. One goal of this effort was to reduce yields in the markets for the securities that are purchased and drive investment from these safe haven markets into other markets, such as corporates, through the so-called portfolio balance channel. Importantly, the Federal Reserve is a buy-and-hold investor, so bonds it purchases are effectively removed from tradeable float. Accordingly, from a whole-market perspective impacts on liquidity of these operations are mixed – in some markets (e.g., TBA MBS where Federal Reserve ownership approached one-third of available securities the market), Federal Reserve activity would crowd out other investment and have the effect of reducing liquidity for participants, while it would simultaneously increase demand and liquidity in other markets as investors shift their activity to them.

- Market activity. When many investors attempt to sell bonds in the secondary market at the same time, liquidity usually suffers. Dealers have a limited balance sheet capacity to absorb customer requests to sell bonds, and when significant trade flow imbalances arise, dealers may be constrained in their ability to provide liquidity to the market. Since liquidity in most sectors depends heavily on dealers committing capital and taking risk positions, dealers withdrawing from the market necessarily dampens liquidity. This affect may be exacerbated in a market where prices are declining, since neither dealers nor investors want to be exposed to market risk under those conditions.
- Dealer risk management. While regulations and capital requirements can dramatically affect liquidity, non-regulatory changes in dealer behavior can also affect liquidity. Since the financial crisis many dealers have reduced the sizes of their balance sheets and, as a matter of prudent risk management, limited their own exposure to market risk, which can limit their ability to absorb customer positions.

Fixed Income Market Regulation

The U.S. fixed income markets are strongly regulated with ten federal agencies and self-regulatory organizations involved in rulemaking or enforcement regarding fixed income securities and related products. SIFMA believes that a wave of new laws and regulations implemented after the financial crisis, that were designed to address financial stability concerns and not targeted directly at fixed income markets, have nonetheless constrained dealers' ability to provide liquidity. These include, among others: CCAR, Basel III capital rules, leverage ratio, liquidity coverage ratio, single counterparty credit limits and the Volcker rule. We have not yet seen how the combined effects of these regulations will affect fixed income liquidity in a truly stressed market environment but many market commentators and policymakers have expressed concerns. As mentioned above, we believe the time is right for a review of the effects of these rules and requirements.

What follows is a brief outline of how fixed income markets are regulated.

- All broker dealers who participate in the fixed income markets are required to be registered with the U.S. Securities and Exchange Commission (SEC) and one or more self-regulatory organizations (SROs) such as the Financial Industry Regulatory Authority (FINRA) or the Municipal Securities Rulemaking Board (MSRB). The SEC also oversees mutual fund

companies and registered investment advisors and Automated Trading Systems (ATs). The SEC and FINRA also regularly examine bond dealers to check for regulatory compliance.

- Bank regulators, including the Federal Reserve Board (the “Fed”), the Office of the Comptroller of the Currency (OCC) and the Federal Deposit Insurance Corporation (FDIC) make rules that impact bank and bank holding company participation in the markets, including areas such as capital and liquidity.
- The U.S. Treasury Department is the primary rule maker with regard to the market for U.S. government securities.
- The Commodity Futures Trading Commission and the National Futures Association oversee the markets for fixed income derivatives.
- The Federal Reserve Bank of New York exercises oversight of the primary dealers.
- Finally, the Department of Labor oversees entities that manage investments that fall under the Employee Retirement Income Security Act of 1974 (ERISA).

In the area of investor protection, U.S. regulators have several areas of focus. FINRA and the MSRB have rules in place that require dealers to have a “reasonable basis to believe” that investments they recommend to customers are suitable. In addition, dealers are required to provide investor customers with prospectuses, official statements or other key disclosure information at the time they recommend an investment. FINRA and the MSRB also have rules in place to help ensure that investors pay or receive fair prices for the securities they buy or sell and rules that require dealers to report relevant information about an investment to a customer at the time of a transaction, as well as certain best execution obligations. The SEC oversees mutual fund companies and registered investment advisors to ensure that investors receive clear information about investments in their funds and that asset managers adhere to a fiduciary duty with regard to customers’ investments.

The SEC has a panoply of disclosure rules in place that (among other things) require an issuer of registered securities to produce a prospectus at the time that bonds are offered for sale. SEC rules also require corporate securities issuers to publish annual, audited financial statements, quarterly financial statements and notices of certain events that could affect the value of their securities.

Securities are also issued in non-registered forms, most notably in the so-called Rule 144A market. While these securities are not registered with the SEC, and not necessarily subject to disclosure rules applicable to registered offerings, they remain subject to the SEC’s anti-fraud regulations such as rule 10b-5 and other requirements that provide investor protections. SIFMA members believe that, in some sectors, burdensome and unnecessary increases in registration requirements have increased risk to issuers and underwriters, driving issuance into the unregistered markets (e.g., private-label MBS).

Disclosure rules in the municipal bond market do not apply directly to issuers. However, the SEC has rules in place designed to help ensure that both at the time of issuance and on an ongoing basis, investors have ready access to issuer financial and risk information. Financial information from corporate issuers is available to investors free on the SEC’s EDGAR platform, and municipal bond information is available on the MSRB’s EMMA platform.

In the area of price transparency, both FINRA and the MSRB have rules in place that require dealers to report the prices of most agency, corporate, mortgage- and asset-backed, and municipal bond

transactions to a central repository. This trade information is publicly disseminated for most of these markets through FINRA's TRACE system and the MSRB's EMMA platform, in real-time in the case of agency, corporate and municipal securities.

Prudential regulation is mostly the purview of the SEC (for broker-dealers) and the federal banking agencies, the Fed, the OCC and the FDIC (for banks). These agencies have in place rules that require broker-dealers and banks to hold minimum levels of capital against the investments they hold, providing a "cushion" against losses the bank may suffer if positions they hold perform poorly. The bank regulators' "risk-based" capital rules account for the relative risks of various categories of investments, and in general require banks to hold more capital against riskier positions. Banking agencies also have rules in place to limit leverage and to help ensure that banks have sufficient liquid investments that they can sell quickly if the need arises. In addition, the "Volcker Rule," a provision of the Dodd-Frank Act, prohibits banks from engaging in "proprietary trading" of many categories of investments, including certain fixed income securities.

Corporate Bond Market Overview

The corporate bond market provides the means for businesses to raise capital to finance investment in new capital assets. The primary market is active and in recent years and has experienced significant growth given the interest rate and economic climate with both a rise in annual issuance (together with a rise in the average deal size) and a commensurate rise in the dollar volume of bonds outstanding. For example, investment grade corporate bond issuance in grew from \$1,032 billion in 2012 to \$1,286 billion in 2016 (a 24.6% increase) while the size of the overall corporate bond market or dollar volume of bonds outstanding was approximately \$8.5 trillion in 2016, a 21% increase since 2012 (i.e. \$7 trillion). In 2016 average daily trading volume in U.S. corporate bonds was \$30.0 billion. By comparison, average daily stock market trading volume in 2016 was \$273 billion. Looking at trading in relation to the size of the market, in 2016 average daily corporate bond trading volume represented 0.35% of total volume outstanding at the end of the year. In the equity market, trading volume represented 0.94% of end-of-year market capitalization.¹³

As discussed in the introduction, access to the market for smaller issuers has declined in recent years, as growth (or decline) in issuance is clearly correlated to issuer size. (See Chart 8)

¹³ Derived from SIFMA statistics, available at <http://www.sifma.org/research/statistics.aspx>

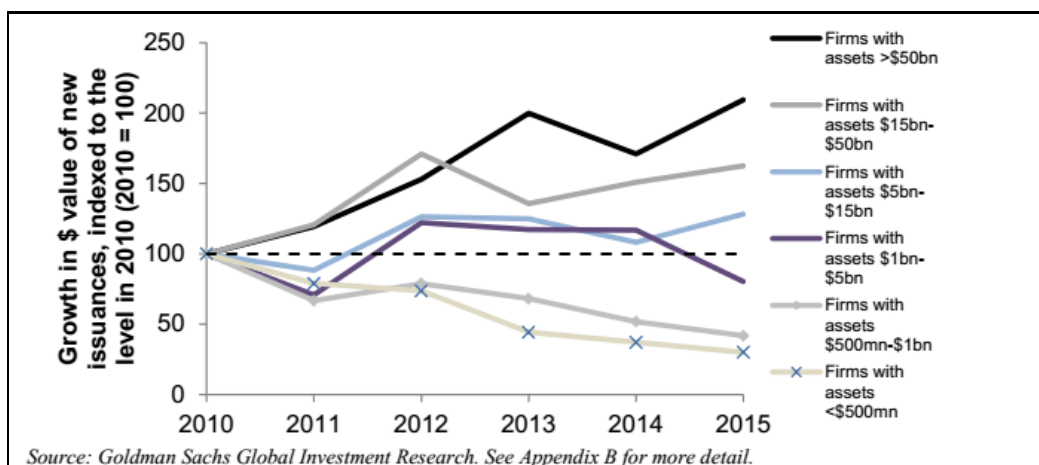


Chart 8. Source: SIFMA Report “Rebalancing The Financial Regulatory Landscape, April 28, 2017, at 9.

Secondary market trading volume in most fixed income markets is unsurprisingly dominated by trading in newly issued securities. Corporate bonds tend to trade very actively in the weeks immediately following a new issuance and trading activity wanes considerably as bonds come to rest with more buy-and-hold investors. Similar to the municipal securities market, it is not uncommon for individual bonds to trade very infrequently in the secondary markets which can make price discovery more challenging.

Market structure for corporate bonds, which had historically relied heavily on dealer intermediation over the phone, has been evolving in recent years to adapt to a host of regulatory and market forces. Importantly, there has been significant competition and innovation in electronic trading platforms and increased investment in data aggregation and client connectivity among market participants. There are now likely to be upwards of 20 operational electronic platforms serving the corporate bond space compared to only a handful in 2010¹⁴ and the electronic trading of investment grade corporate bonds has grown from approximately 8% in 2013 to 20% in 2015¹⁵. A number of new electronic trading platforms have functionality that allows any market participants, dealers or investors, to trade directly with each other. While adoption of electronic trading has been incremental, the growth in electronic trading platforms for corporate bonds will most certainly change the way many corporate bonds trade over time even with some or even significant continued reliance on dealer intermediation. Electronic trading has been dominant in retail-size transactions, but institutional market participants have [begun] increased their use of new trading mechanisms as well, albeit slowly. The market share of the top 10 dealers in what FINRA categorizes as “more active” corporate bonds is 69%, while the same measure is 56% in what they classify as “less active” corporate bonds.¹⁶

¹⁴ SIFMA, 2016 Electronic Bond Trading Report, (Feb 2016), available at: <http://www.sifma.org/issues/item.aspx?id=8589958906>

¹⁵ Greenwich Associates, “The Continuing Corporate Bond Evolution”, (Q4 2015). Please note that Greenwich Associates interviewed 1,063 US Institutional Investor active in Fixed Income between February and April 2015 to gather the information on Corporate Bond electronic trading.

¹⁶ FINRA, Analysis of Securitized Asset Liquidity, (June 2017), at 14.

There has been also been an increasing focus among corporate bond market participants on better data capture and more efficient use of trade data to aid in price discovery and in finding ready buyers, and a marked increase in the availability and utilization of pricing systems in that regard to both price bonds and measure best execution.

New market regulations, especially the Volcker Rule and rules governing capital and liquidity, have affected dealers' willingness to make markets and readily commit capital in corporate bonds. Unsurprisingly, the New York Federal Reserve Bank's Liberty Street Economics team recently summarized a separately published study that found that institutions more affected by post-crisis regulation are less able to intermediate customer trades.¹⁷ Compressed bid-ask spreads are often cited as evidence of continued strong liquidity and an efficient market. However, liquidity can be measured in a number of ways and one metric won't give an accurate picture of the health of the marketplace as a whole. As the Greenwich Associates survey result shown in Chart 7 suggests, a significant percentage of survey participants believe larger trade sizes are difficult to execute. A 2015 FINRA Analysis on Corporate Bond Liquidity also indicated there is evidence that finding liquidity is now associated with smaller trade sizes, more transactions and larger dealer networks and while the absolute number of block trades continues to increase, the proportion of block trades to total volume is also falling as is the average trade size.¹⁸ Importantly, these reference points may reflect a market in transition where liquidity is more dynamic and where market participants are trying to adapt.

Corporate Bond Market Policy Questions

New market regulations, especially the Volcker Rule and rules governing capital and liquidity, have affected dealers' willingness to make markets and readily commit capital.

Recently published data shows that the Volcker Rule has impacted firms' ability to make markets and provide market liquidity—particularly in times of stress. A recent Federal Reserve staff paper concluded that “the Volcker Rule has a deleterious effect on corporate bond liquidity and dealers subject to the Rule become less willing to provide liquidity during stress times.”

This adverse impact on market liquidity will cause the greatest problems in times of stress. During times of stress, financial institutions will be disincentivized from providing liquidity, precisely when it is most needed, if trading in a stressed environment subjects them to regulatory risk and potential second-guessing resulting from the unclear and complex standards of the current Volcker Rule.

Also of relevance to this discussion is the recent FINRA proposal to modify Rules 2241 and 2242 governing investment research.¹⁹ FINRA's proposal would to create a limited safe harbor for specified brief, written analysis distributed to eligible institutional investors that comes from sales

¹⁷ New York Fed's Liberty Street Economics blog published on the Capital Markets page: Dealer Balance Sheets and Corporate Bond Liquidity Provision, (May 2017), available at <http://libertystreeteconomics.newyorkfed.org/2017/05/dealer-balance-sheets-and-corporate-bond-liquidity-provision.html>

¹⁸ FINRA published an Analysis on Corporate Bond Liquidity, available at: https://www.finra.org/sites/default/files/OCE_researchnote_liquidity_2015_12.pdf

¹⁹ FINRA Regulatory Notice 17-16, “Desk Commentary Safe Harbor,” April 2017.

and trading or principal trading personnel but that may rise to the level of a research report, known as “desk commentary”. The proposed safe harbor would be subject to conditions, including compliance with a number of the Rule 2241 or Rule 2242 provisions to mitigate research-related conflicts. In addition, the proposed safe harbor would require firms to include a “health warning” on desk commentary and to obtain negative consent from eligible institutional investors to receive such commentary.

In our response to the FINRA proposal we argued that that certain “conflict management” provisions relating to investment banking should be eliminated and modified because these provisions, as currently contemplated, would preclude sales and trading personnel who author eligible desk commentary from engaging in many ordinary course activities.²⁰ These restrictions may be particularly onerous for smaller firms that have limited resources and are less likely to have dedicated investment banking personnel with certain structuring expertise that exists in sales and trading.

While we provided substantive and constructive comments to the proposal, we are not aware of any substantial investor concerns that have arisen from historical or existing desk commentary content or perceived conflicts of interest to warrant the proposal and we remain concerned that valuable communication tools could be unnecessarily stifled to the detriment of the marketplace. We believe that most desk commentary does not risk technically being considered a research report. From our perspective, most desk commentary lacks analysis and to the extent desk commentary contains analysis, it would not be sufficient to make an investment decision.

Finally, FINRA recently issued a request for comment as part of its FINRA360 initiative intended to streamline FINRA’s rules that affect the access to capital among securities issuers.²¹ In our response²² we argued, based on our member firms’ experience, that FINRA’s debt research rule has eroded the frequency and quality of interactions between debt research and trading desk personnel, putting both at a significant information disadvantage. Given the relative complexity of the debt market and the breadth of debt security classes, debt research analysts need access to current market information from traders, and traders need research analyst input to accurately price positions for clients and manage firm risk.

This issue is particularly acute when significant news stories or corporate events are announced, and the absence of guidance from an analyst can prejudice a trader’s ability to price debt securities in real time. Additionally, the absence of this information negatively affects investors’ ability to make informed decisions on debt securities in their portfolios, constraining market liquidity in less liquid securities or during times of market stress.

Although FINRA permits certain interactions between research and trading, the boundary of permitted and prohibited interactions is confusing and does not go far enough to give firms comfort that certain communications are appropriate, thus discouraging debt analysts from engaging

²⁰ Letter from Sean Davy, SIFMA, to Jennifer Piorko Mitchell, FINRA, on Desk Commentary Safe Harbor from FINRA Equity and Debt Research Rules, May 31, 2017.

²¹ FINRA, Regulatory Notice 17-14, “Capital Formation” (April 2017).

²² Letter from Sean Davy, SIFMA, to Jennifer Piorko Mitchell, FINRA, on Request for Comment on FINRA Rules Impacting Capital Formation (June 6, 2017).

in even permissible interactions. FINRA should revise the rule or otherwise issue guidance to provide both clarity and greater flexibility to the interactions between research and trading to avoid these unnecessary impediments.

Treasury Market Overview

The importance of the U.S. Treasury market to the national—indeed, the global—economy cannot be overstated.²³ This market is unique and provides key functions that underlie financial markets throughout the world.

The U.S. Treasury market, the largest segment of the fixed income market, continues to function well in its role providing the benchmark risk-free rate for the global economy. This unique, resilient, and robust market serves multiple roles including as the transmission mechanism for monetary policy, as a safe-haven investment particularly during times of financial stress, and, most importantly, as the source of stable and efficient and low-cost funding for the Federal government. Treasury securities also underpin the new prudential regulatory framework for liquidity of U.S. and many other global financial institutions that has made our financial system significantly more resilient. Recent reviews of the changes in this market have noted the participation of new types of participants and a significant move to electronic dealing.

Given the importance of this market, continued study and review of these changes is necessary to ensure that the Treasury market remains the efficient centerpiece of the economic framework. Any changes to regulation should be carefully calibrated to support both the resiliency and the role of the Treasury market and recognize the unique structure and auction process that has allowed the Treasury to finance government activity at a low cost to taxpayers. We note recent market improvements, most notably the collection, set to begin in July 2017, of secondary market transaction data for use by Treasury and the regulators and supervisors. Additional changes, including public dissemination of secondary market transaction data, need further careful study to ensure that no harm comes to this market.

Treasury's ability to borrow to finance the federal government's debt is built around a truly unique, principal-based market structure, one that is not easily (or appropriately) comparable with more traditional agency (e.g., equities) markets. The fundamental starting point of this market rests in the Treasury auction process.

Treasury has structured the auction process to minimize government costs by promoting broad, competitive bidding. Primary dealers—banks and broker-dealers that have been approved to trade in U.S. Treasuries with the Federal Reserve Bank of New York (New York Fed)—have traditionally constituted the largest group of buyers in such auctions (bidding on behalf of their own accounts or

²³ Our description of the Treasury market is drawn from the SIFMA/ABA letter, dated April 22, 2016, in response to the Treasury's 2015 Request for Information. The letter is available at <http://www.sifma.org/comment-letters/2016/sifma-submits-comments-to-the-treasury-in-response-to-rfi/>. For a comprehensive description of the market and market participants, see "Emerging Issues in the Functioning of the US Treasury Market," April 22, 2016, published by Promontory Financial Group and available at http://www.promontory.com/Articles/Insights/4/22/16_-_Emerging_Issues_in_the_Functioning_of_the_US_Treasury_Market/?terms=treasury%20market.

on behalf of identified customers).²⁴ Other direct auction bidders include investment funds, pensions and retirement funds, insurance companies, foreign accounts and others. Primary dealers are, however, the only market participants who are obligated to participate in all auctions of U.S. government debt, with all bids to be made (at a minimum), for an amount of securities representing their pro rata share of the offered amount.

The New York Fed further expects primary dealers to act as “responsible counterparties and market participants in their overall conduct and support of market efficiency and liquidity.” The obligation to support market liquidity extends not only to on-the-run securities, but also to a host of less liquid off-the-run securities. In meeting those obligations set forth by the New York Fed, and in attempting to satisfy market and client demands, primary dealers are frequently required to commit capital in significant size. Principal trading activity in the “when-issued” market, during auctions, in the aftermarket of auctions, and in the secondary market (including with respect to off-the-run securities) correspondingly requires these dealers to hedge their positions with other treasury products (both in the specific security and other related securities) on a confidential basis. The ability of primary dealers to do so is critical to the overall functioning of the U.S. Treasury market and to helping maintain appropriate levels of liquidity in this market.

Other market participants are not similarly bound by the market-making obligations that put primary dealers in a position of providing both buy and sell quotes on a more-or-less continuous basis. Corporate hedgers and hedge funds, for example, seek to hedge specific business risks but do not serve clients as in a typical broker-dealer business model, and are generally liquidity takers, rather than liquidity providers. Principal trading firms (PTFs) similarly do not serve clients, but play a more pronounced role in providing liquidity, trading for their own accounts and in volume to maximize profit on all trades, for which very limited capital is committed. Asset managers, by contrast, serve investors and clients as fiduciaries, on a low-leverage, long term investment basis, and while they have the capacity to provide liquidity, their primary obligation is to serve their clients and investors, making them predominantly liquidity takers. At the same time, each of these non-primary dealer market participants contributes in unique and important ways to the liquidity profile of the U.S. Treasury market.

A wide range of market participants—including bank portfolio and asset managers, fixed income and swaps dealers, bond underwriters, and mortgage bankers and servicers—rely on Treasury securities to actively assume interest-rate risk or to manage the rate risk inherent in their business activities. Each of these participants will have a unique risk profile—by term and duration, scale, and variability. Collectively, they rely on the availability of Treasury securities across an extensive term structure for their investment and hedging needs.

The characteristics of the market also vary significantly across product segments, particularly with respect to the on-the-run and off-the-run segments, with the on-the-runs trading much more frequently and electronically (i.e., typically on many-to-many platforms in both the cash and futures markets).

²⁴ The New York Fed currently recognizes 23 primary dealers. The primary dealers list is available at <https://www.newyorkfed.org/markets/primarydealers>.

Significant differences among market participants may also be seen in their business models, functions, trading practices and strategies. Some factors and forces that have been reshaping the Treasury market have enhanced liquidity and stability, and others have had more negative effects. In addition, the suggestion by some that cash Treasuries trading activity may be shifting toward the futures market, or other markets, increases the importance of understanding the reasons for these changes, and how an appropriate regulatory response could enhance market operations while facilitating greater liquidity.

Treasury Market Policy Questions

Official sector data repository

SIFMA fully supports increasing official sector (*i.e.*, market and prudential regulators) access to data related to U.S. Treasury market transactions. We strongly believe that the official sector must have access to the data necessary to carry out its various regulatory functions, to develop a more comprehensive understanding of U.S. Treasury market activity and to improve Treasury's ability to oversee market liquidity, resiliency and efficiency. SIFMA has been working with its members as they prepare to begin reporting secondary market Treasury transactions to FINRA through the TRACE reporting engine. We believe once fully implemented this will materially increase the official sector's ability to fulfill its market surveillance duties. To enhance the data available to regulators, consideration should be given to including market participants who are not currently subject to TRACE reporting requirements.

Public dissemination of Treasury transaction data

With respect to further public dissemination of Treasury secondary market activity, SIFMA's feedback from members indicates that there is an abundance of publicly available information sufficient to allow market participants to obtain information needed to trade in a competitive, fair and efficient manner. Indeed, the unique nature of the Treasury market and the Treasury auction process, with the need for primary dealers to be able to hedge their positions on a confidential basis, counsels extreme caution in moving forward with additional public disclosure.

For the most liquid segment, on-the-run securities, executions and a range of other data are observable by monitoring information available from the primary execution venues for these products. Specifically, we believe there is considerable price transparency in the on-the-run market through trading platforms such as BrokerTec and NASDAQ Fixed Income (previously known as eSpeed) and the futures markets, where indicative bids and offers are available and executable, and, for customers, through direct access to dealer franchises. With respect to less liquid products (*e.g.*, off-the-run securities), indicative pricing and other market data are available from Tradeweb and Bloomberg, and customers also have multiple options for direct access to dealer franchises that can also provide indicative bids for less liquid products.

We do not believe that increased reporting of Treasury transactions to the public would have any net positive effect on improving market functionality or liquidity. Specifically, we believe that there are significant identifiable and predictable risks to market diversity, liquidity and resiliency that arise

from the prospect of mandatory increased public disclosures that outweigh any potential—as yet unidentified—benefits. Two aspects should be considered in this context: (i) large positions/client accommodation, and (ii) primary dealers’ ability to hedge.

We believe that a range of market participants would be inhibited in their investing activity if they deemed the detail and frequency of public data dissemination too high, particularly for the off-the-run market and large trades across market segments (which also require time to hedge). Parts of the Treasury market are very concentrated and transactions occur in large sizes.²⁵ Third-party investors, particularly those providing the principal-based liquidity that is so critical to this market, have a legitimate and well-established interest in maintaining the confidentiality to be able to trade without concern that too much public information will hurt bilateral price formation.

Similarly, the ability of primary dealers to hedge their positions around Treasury market auctions and in meeting counterparty demand in the secondary market, which is critical for such market participants to continue serving as principal-based liquidity providers for a diverse investor base, would be compromised if they were unable to do so on a confidential basis. Without this ability, it would be materially more difficult for primary dealers to commit significant amounts of capital to satisfy market and client demands, and to meet their obligations set forth by the New York Fed. Given the importance of primary dealers’ role in the auction process, and for maintaining liquidity in the market, SIFMA believes that the prospect of losing confidentiality for these market participants would have serious consequences for their critical role and the market more broadly.

Mandatory Central Clearing

Additionally, SIFMA supports the further investigation and study, to be led by Treasury, of the potential costs and benefits of implementing a mandatory central clearing requirement for the cash Treasury market, and we believe this study should consider all potential forms of a clearing requirement that could be implemented across the cash Treasuries product ecosystem (*i.e.*, on and off-the run issues, the when-issued market, repos, etc.). We also support further study and evaluation of the costs and benefits of mandatory centralized repo clearing.

Capital and Liquidity

As noted above, liquidity and capital requirements have had a material impact on banks’ traditional role as primary dealers and their associated market-making function in the Treasury market and their willingness and ability to hold inventory. Specifically, SIFMA believes that the measurable reduction in primary dealer inventory and market-making capacity that is potentially affecting Treasury market liquidity can be tied, at least in part, to banks’ responses to the implementation of new prudential regulations. The new rules increase the amount and quality of capital that banks have to hold and introduce a minimum leverage ratio requirement designed to limit excessive

²⁵ See Joint Staff Report at 52.

leverage in the banking sector.²⁶ We are supportive of the capital and liquidity regulations that have been put in place since the crisis to improve the safety and soundness of banking institutions. We are concerned, however, that the resulting reduction in primary dealer inventory and market-making capacity being driven by what is, in some cases, non-harmonized capital rules that target the same risk numerous times, may be hampering the ability of other market participants to execute trades, particularly in stressed environments. This is because as the mandate of the franchise business is narrowed by external regulatory requirements, the ability to service customers is constricted.

The requirement for bank-affiliated primary dealers to hold High Quality Liquid Assets (HQLA) illustrates our concern. As banks, such primary dealers are required to hold a buffer of HQLA, *e.g.*, Treasuries, to meet the requirements of the Liquidity Coverage Ratio (LCR) rules. The increased demand for HQLA has decreased their supply (and has decreased the level of inventory that may otherwise be available). Relatedly, higher capital charges on banks for low yielding assets have increased the banks' need to hold higher yielding collateral and decreased their ability to act as dealer or market makers in low yielding assets such as Treasuries. At the same time, the cost of financing capital has increased. Banks traditionally use repo markets to finance trading and market-making activity. Because repos were traditionally assigned low risk weights, since they are normally fully collateralized with high quality collateral, banks only needed to allocate limited capital to repo positions. However, banks now face higher capital charges to account for counterparty credit risk from repo exposures.²⁷

As the capital constraints on banking institutions continue to increase due to recent proposed changes to capital and leverage ratio calculations, banks' willingness to engage in such low margin businesses will likely come under increased pressure and their ability to step in and support the market during times of stress will be challenged. The liquidity being provided by PTFs has filled the liquidity void under normal market conditions to some extent, but market depth has become more fleeting in general. Moreover, less diversity in liquidity providers leads to less resiliency, particularly during stress periods.

We believe that a review of the coherence of the current regulatory regime is timely and should include, among other assessments, an evaluation of several issues, including, for example, how the Treasury market is impacted by the LCR. As described above, under the LCR, banks are on one hand forced to hold HQLA, such as Treasuries, and on the other hand they are forced to hold more capital as a result of holding these very same assets. We urge a review and assessment of these concerns by examining duplicative and overly burdensome capital and liquidity regulations on market participants, and determining whether they are having the unintended effect of reducing or weakening market liquidity.

²⁶ PricewaterhouseCoopers LLP, "Global Financial Markets Liquidity Study (Aug. 2015) (GFMA Study) at 36, available at <http://www.pwc.se/sv/pdf-reports/global-financial-markets-liquidity-study.pdf>.

²⁷ *Id.* at 39.

Municipal Securities Market Overview

Municipal securities are issued by state and local governments to finance investment in schools, roads, airports, water and sewer systems, and all manner of infrastructure. Approximately 75% of the nation's infrastructure is financed, built and maintained by states and localities, and nearly all of that was financed with municipal bonds.

Municipal securities are unique in several respects. First, unlike stocks and corporate bonds, municipal securities are exempt from registration from the SEC, meaning that municipal bond issuers are not directly required to produce prospectuses for new bond issues or file them with the SEC. Instead, SEC rules require dealers to obtain and distribute official statements (OSs), which are similar to prospectuses in some respects but do not require SEC approval. Also, municipal issuers must produce a new OS for each new bond deal—there is no concept of “shelf registration” in the municipal market. Continuing disclosure for municipal issuers—rules governing the dissemination of disclosure information after bonds have been issued—is also quite different in the municipal market. As the SEC does not have statutory authority to regulate municipal issuer disclosure directly, the disclosure rules in the municipal market are implemented through dealers.

Second, the interest on most municipal securities is exempt from federal and, in many cases, state and local income taxation. This feature significantly reduces borrowing costs for state and local government. However, the tax-exempt nature of municipal interest effectively prevents market participants from “shorting” municipal securities, which is a common hedging strategy across the capital markets. Hedging positions in municipal securities must be accomplished by shorting Treasury securities or using derivative products that are tied to non-municipal securities, like Treasury futures contracts. However, because these hedges may not mirror the underlying long position in the bonds, the hedges are inefficient and may not offer much protection against market losses. The tax-exemption for municipal bond interest, while important for reducing state and local borrowing costs, effectively makes the municipal market a long only market by preventing shorts. This in turn negatively affects market liquidity since dealers often cannot perfectly hedge trading positions.

The use of electronic trading platforms as a price discovery tool²⁸ has become more prevalent in recent years. Two platforms in particular have established significant footholds in the market, TMC Bonds and Tradeweb Direct. TMC Bonds provides a means for dealers to post executable offerings of bond positions. Buyers can execute trades directly on screen. Participants can see full depth of market with visibility of prices, yields, spreads and sizes of all orders. Users can search and execute orders by CUSIP, direction, price, yield, spread and size with an option to define minimums, increments, and minimum balance remaining. All orders are live and executable. Tradeweb Direct offers a means for users to solicit bids for bonds they may want to sell. The platform supports both dealer-to-dealer and dealer-to-investor (mid-size institutional users). Dealers often use the platform to solicit quotes for their retail customers. A number of other platforms, including electronic interfaces operated by traditional voice brokers' brokers, also offer the ability to discover prices and

²⁸ The MSRB has warned selling dealers that they should not use the bid wanted process for price discovery if they have no intent to sell the bonds, as it harms the integrity of the bid-wanted and offering processes.

execute trades in municipal securities, and the use of electronic trading in the municipal market is likely to grow in the future.

Municipal Securities Market Policy Questions

Several actions by regulators in recent years have threatened to hamper municipal and corporate bond market liquidity. In 2012, the SEC published a comprehensive report on municipal securities market structure and regulation.²⁹ In the report, which was unanimously endorsed by all SEC commissioners at the time, the SEC discusses two general areas of focus, municipal disclosure regulation and municipal market structure. SEC Chair White accelerated the push for an examination of both the corporate and municipal bond market structure in 2014 with focus on markup disclosure, best execution and increased pre-trade transparency.³⁰ The best execution rules have been implemented, the markup disclosure rules are pending implementation, and consideration of pre-trade transparency requirements continues.

Markup Disclosure

Dealers are in favor of disclosure of relevant transaction data to retail investors, as such transparency supports investor trust and confidence in the markets. However, although the markup rule will not take full effect until May 2018, it is already raising concerns among market participants as firms develop the systems needed to implement the new rule. The MSRB and FINRA rule changes will require dealers to begin disclosing the amount of markup and markdown they earn on same-day trades where at least one leg of the trade involves a retail customer. In other words, if a dealer buys a bond from a customer and resells the same bond to another customer on the same day and at least one of those investors is an individual, then beginning in May 2018, the firm must begin reporting the amount of markup/markdown to the retail customer.

Markup and markdown are defined as the difference between the price charged to the customer and the interdealer price for the bond at the time of the customer trade. Determining the markup is easy when a dealer buys and sells a bond simultaneously, sometimes called a “riskless principal” transaction. The markup is simply the difference between the price the dealer bought the bond from another dealer and the price the dealer sold the bond to the customer. However, if some hours have passed between the dealer’s purchase and sale, market prices may have moved. The rules in these cases will require the dealer to calculate the markup based not on their acquisition price but on the “prevailing market price” at the time the dealer sells the position.

Because the vast majority of municipal and corporate bonds trade infrequently, determining the prevailing market price in a moving market when there may not have been many or any recent interdealer transactions in the bond can be difficult. Both the FINRA and MSRB rule specify a prescriptive list and priority of factors that dealers must step through in determining prevailing market price under these circumstances, referred to as a “waterfall.” These factors include the prices of any contemporaneous inter-dealer trades, institutional trades, or quotations. If those factors are

²⁹ Securities and Exchange Commission, “Report on the Municipal Securities Market,” (July 31, 2012).

³⁰ SEC Chair Mary Jo White, Intermediation in the Modern Securities Markets: Putting Technology and Competition to Work for Investors (June 20, 2014), available at: <http://www.sec.gov/News/Speech/Detail/Speech/1370542122012>

not available, the rules specify additional factors dealers must review to establish prevailing market price, including prices, or yields calculated from prices, of contemporaneous inter-dealer trades in a specifically defined “similar” security, institutional trades, or quotations;

The rule includes some indicators for determining whether another bond is “similar” to the bond in question. If these factors involving “similar” bonds are not available, the MSRB and FINRA rules specify that dealers must use “economic models” to determine prevailing market price, and if that is unreliable, the dealer should look to customer transactions and make “adjustments” to calculate prevailing market price.

As it should appear, the process for determining prevailing market price on days when the market has moved during the time between transactions is complex, nonspecific and subjective. In a market where many bonds trade infrequently, determining the value of a bond at any point in the day can be both art and science. Experienced bond traders are adept at determining bond prices. However, the overly specific nature and order of the steps prescribed in the rules create very significant compliance burdens, given the shift from a historical focus on a range of reasonableness of markups to the accuracy of a very specific data point derived from subjective analysis. Moreover, there are serious questions regarding the kind of documentation firms must maintain to demonstrate that they followed the waterfall precisely in determining prevailing market price. Perhaps most importantly, the prescriptive yet subjective waterfall does not lead itself to automation in an environment that is increasingly adopting electronic trading with less human intervention. Market participants have asked for more flexibility in the implementation standards but there appears to be an unwillingness to better balance multiple objectives while not significantly compromising the objective of increased transparency. Even in light of the recent guidance, we remain concerned about unintended consequences of the rules. For example, if dealers face unmanageable compliance risks and significant implementation costs, they may reduce their market activity in ways that ultimately diminish market liquidity.

Pre-trade Price Transparency

In its 2012 paper on the municipal securities market, the SEC made two recommendations to enhance “pre-trade” price transparency in the municipal market:³¹

- “The Commission could consider amendments to Regulation ATS to require an alternative trading system (ATS) with material transaction or dollar volume in municipal securities to publicly disseminate its best bid and offer prices and, on a delayed and non-attributable basis, responses to ‘bids wanted’ auctions;” and
- “The MSRB could consider rules requiring a brokers’ broker with material transaction or dollar volume in municipal securities to publicly disseminate the best bid and offer prices on any electronic network it operates and, on a delayed and non-attributable basis, responses to “bids wanted” auctions.”

Both FINRA and the MSRB have been exploring ways to further the development of a pre-trade transparency regime consistent with the above recommendations. SIFMA strongly supports reasonable efforts to improve price transparency in the municipal and corporate securities markets.

³¹ SEC, pages 143-144.

The dealer community has supported the MSRB's Real-time Trade Reporting System (RTRS), the MSRB's EMMA platform, and FINRA's Trade Reporting and Compliance Engine (TRACE). These are the mechanisms for collecting and accessing trade prices and other trade information, but the MSRB systems also provide for the collection of disclosure information and other related municipal market information and data. We continue to support the ongoing development and operation of these systems through the fees our industry pays. However, we are concerned that a pre-trade price transparency regulatory initiative could be expensive to develop and implement while yielding limited useful information for investors. We believe that regulators need to carefully and thoroughly assess the costs and benefits of any pre-trade transparency proposals.

Part of the SEC's analysis leading to its recommendations was based on an academic study published 11 years ago, using data that is now 17 years old.³² Policymakers should be cognizant that the transparency of the market has improved significantly since that time from both further development of the post trade reporting regime and forthcoming regulatory requirements on markup disclosure, as well as by market driven efforts.

While we support improvements to market transparency, we urge the SEC, MSRB and FINRA to allow the best execution and markup disclosure rules to take full effect so as to permit additional time to reevaluate the issue of retail price transparency and trade execution. After monitoring the effect of those rules and with the benefit of the additional observations and data, regulators will be better positioned to weigh the cost and benefits of any initiatives while taking into account the cumulative impact of more recent rule changes.

Securitization Market Overview

Securitized products are bonds that are collateralized by cash flows from transactions such as loans or leases. The issuer of a mortgage-backed security ("MBS") or asset-backed security ("ABS") assembles a pool of assets such as mortgage loans and sells securities to investors backed by the cash flows on the underlying assets. When a homeowner whose mortgage has been securitized makes her monthly mortgage payment, the principal and interest she pays is passed through to MBS investors. The securitization markets funded 60% of consumer lending in 2016.³³

The securitization markets can be generally divided into three distinct but broad markets. The MBS market can be divided into agency and non-agency markets. The agency market is those for MBS issued and/or guaranteed by Fannie Mae, Freddie Mac, or Ginnie Mae. The non-agency market is for MBS issued by private-sector institutions. ABS markets are markets for securitized consumer debt, auto loans and leases, commercial loans and leases, credit cards, and other types of securitizations.

³² Lawrence E. Harris and Michael S. Piwowar, Secondary Trading Costs in the Municipal Bond Market, J.FIN. (June 2006), page 1361.

³³ Federal Reserve Bank of New York, Quarterly Report on Household Debt and Credit, (Feb. 2017).

Agency MBS Market

Agency MBS are MBS issued and/or guaranteed by Fannie Mae, Freddie Mac, or Ginnie Mae. These MBS carry a guaranty of timely payment of principal and interest that is backed by the full faith and credit of the US government in the case of Ginnie Mae, and a significant US Treasury capital commitment in the case of Fannie Mae and Freddie Mac. This means that investors in these markets are not exposed to credit risk – instead, they focus on interest rates and the prepayment risk of the securities. Prepayment risk is the risk that a mortgage borrower will repay some or all of their mortgage before it is due. This can be good or bad for the MBS investor, depending on the price they paid for the bond and the current level of interest rates. Importantly, investors in Agency MBS do not want to be exposed to credit risk – similar to Treasury investors, they are “rates” investors.

The largest portion of the agency MBS market is the “To-Be-Announced” (TBA) market. In a TBA trade, bonds are sold and bought on a forward basis—settlement is typically 30-60 days out from the day of the trade—and the exact identity of securities to be delivered is not known. Securities in the TBA market are subject to “Good Delivery Guidelines” and are considered fungible. Market standards, settlement conventions, and trading practices in the TBA market were developed by market participants under the auspices of SIFMA’s predecessor organization the Public Securities Association, and have been organized and maintained by SIFMA since the early 1980s. There is a separate TBA market for each of Fannie Mae, Freddie Mac, and Ginnie Mae. This may change in 2019 if the Federal Housing Finance Agency (FHFA) and government-sponsored enterprises implement their single-security project, which is designed to merge the Fannie and Freddie TBA markets into one single market.

The TBA markets are very liquid, although less liquid than in prior years. In 2016, an average of \$210 billion of TBA trading took place on a daily basis, second only to US Treasuries, and bid-ask spreads average 4 basis points.³⁴ It attracts investment capital from around the world – foreign investors provide important funding to US mortgage borrowers. The main benefits of this market are: (1) the ability of lenders to provide 30-60 day rate locks to borrowers at low or no cost since they are able to sell loans on a forward basis, locking in prices, (2) the ability of banks to economically underwrite freely prepayable 30 year mortgages, (3) the ability of lenders and servicers to hedge risk, (4) the ability of investors to access liquid, safe, and long-term investment markets, and (5) lower cost of mortgages due to immense liquidity.

TBA market liquidity has declined somewhat in recent years. Factors driving this include the shrinking of balance sheets by capital-constrained dealers, the low interest rate environment, which has driven investors into other higher-yielding sectors, and a FINRA rule requiring most MBS and ABS trades to be reported in real time to FINRA’s Trade Reporting and Compliance Engine (TRACE), which has made harder for participants to transact in larger blocks of securities. The market share of the top 10 dealers in the TBA market is 81%, according to FINRA data.³⁵

There is a significant volume of trading on electronic platforms in the TBA sector particularly among larger dealers. SIFMA members have reported up to 75% or more of TBA trading taking place on an electronic platform. Similarly, some firms have estimated that a significant proportion

³⁴ FINRA, Analysis of Securitized Asset Liquidity, at 12.

³⁵ Id., at 14.

of dealer to customer trading takes place on platforms, possibly as much as half. This trend may vary by institution.

The vast majority of dealer-to-dealer TBA trading is cleared at the Fixed Income Clearing Corporation (FICC). Clearing and settling trades involves the process of matching trade details between two counterparties and moving securities and cash from one owner to another. A smaller proportion of customer trading is directly cleared through FICC, but many customers clear through an FICC participant so that their trading may be netted and cleared. FICC also operates an electronic pool notification system, which is how the majority of market participants notify one another of the actual pools that will be delivered to fulfill the TBA contract.

Non-TBA Agency MBS

The other parts of the Agency MBS market are the specified pool and Collateralized Mortgage Obligation (CMO) markets. The specified pool market is where MBS trade on a specified basis and where the specific security to be delivered at settlement is known at the time of trade. CMOs are structured bundles of Agency MBS.

Liquidity in specified pools and CMOs is far lower than in the TBA market. FINRA reports average daily trading volume of approximately \$20 billion and \$3.3 billion, respectively, for specified pools and Agency CMO.³⁶ There is far less electronic trading in this market than in the TBA market, although some members report increasing electronic trading in specified pools. The market share of the top 10 dealers in the specified pool market is 67%, and in the CMO market 62%, according to FINRA data.³⁷

Non-Agency MBS / Private Label MBS

Non-Agency, or Private Label MBS are MBS issued by private entities such as banks or finance companies. These MBS do not carry a government guarantee, and investors are exposed to both credit risk and prepayment risk. Due to a variety of issues, the non-agency MBS markets have seen very low issuance of securities backed by new mortgage loans since 2007. In 2005-2006, these MBS represented almost half of total MBS issuance, whereas today they represent less than 5% of MBS issued. Today's non-agency MBS new issuance market is defined by securitizations of reperforming loans, defaulted loans, and loans that were originated a number of years ago.

Non-agency mortgage securities markets are far less liquid than TBA. The average age of a non-agency MBS that traded in 2016 was over 10 years,³⁸ which is indicative of the lack of new issuance, and average daily trading volumes are just under \$3 billion.³⁹ The market share of the top 10 dealers in the non-agency MBS market is 67%, according to FINRA data.⁴⁰

³⁶ Id., at 9.

³⁷ Id., at 14.

³⁸ Id., at 6.

³⁹ Id., at 9.

⁴⁰ Id., at 14.

Asset-backed securities

A broad range of cash flowing instruments are securitized in the ABS markets. They range from credit cards and auto loans to trade receivables to equipment loans and leases to the cash flows from entire businesses (i.e. whole business securitization, used by franchises such as Dunkin Donuts and Wendy's). The most liquid sectors are those for debt issued by large, regular issuers of credit card and auto loan debt (e.g., Capital One, Ford Motor Credit), where bid-ask spreads averaged 4 basis points in 2016.⁴¹ All together, about \$2 billion of ABS trade on a daily basis.⁴² The market share of the top 10 dealers in the mainstream ABS sectors (credit cards, auto loan/lease, and student loans) ranges from 83-84%. Other types of ABS see a top 10 share of 74%.⁴³

Securitization Market Policy Questions

It has been estimated that had the capital requirements for securitization been rationalized, the complexity of disclosure been limited to what was reasonable, and other related securitization and lending regulations been similarly tailored, approximately \$1 trillion of additional residential mortgage loans would have been made over the last five years, resulting in 0.5% higher GDP growth in each of those years.⁴⁴

Capital requirements are increasingly risk-insensitive while both capital and liquidity requirements are excessively conservative and do not adequately consider the effects on financial market activity. There are a number of flaws in the capital and liquidity rules covering securitization, the overall effect of which has been to diminish the participation by banking institutions in the securitization process both as investors and as originators, thereby decreasing the availability of funding to the real economy. These include the CCAR rules for calculating capital to address defined shocks to the system for securitizations are excessive and should be revised for securitization positions. In addition, the recent Basel III revisions to securitization capital requirements that have not yet been applied to the risk-based capital requirements in the United States, should not be adopted, or, if they are adopted, their deficiencies should be addressed so that in either case the U.S. risk-based capital requirements for both the banking book and trading book are more rational.

Under the rules as now written, required capital may exceed the maximum possible loss on the position, i.e., a total write-off. GSE MBS and asset-backed securities should receive more equitable treatment under the LCR. If capital requirements were rebalanced, and securitization's liquidity characteristics more sensibly recognized, growth and employment would follow without any material diminution in safety or liquidity.

⁴¹ Id., at 12.

⁴² Id., at 9.

⁴³ Id., at 14.

⁴⁴ Letter from Jamie Dimon, Chair of the Board and CEO, JP Morgan Chase, to shareholders, April 4, 2017.

Regulation AB II

Regulation AB II is overly burdensome and has effectively shut down registered markets for non-agency residential mortgage-backed securities and has significantly curtailed registered issuance for smaller or more infrequent asset-backed securities issuers. While private offerings—unregistered, often relying upon Rule 144A—remain viable, they face the risk of proposed similar regulation and, by definition, are constrained sources of capital and funding since the investor base is far smaller than that for registered transactions. This regulation has effectively constrained real economy activity that public offerings of securitization transactions could more efficiently fund.

Credit Risk Retention Rules

The credit risk retention rules are very lengthy, detailed, and complex yet fail to adequately reflect important characteristics of the different kinds of securitization transactions that finance distinct asset classes, such as mortgage loans, auto loans, and commercial loans. In some cases, the rules require an excessive amount of risk retention by failing to make any adjustment for the related funding and non-credit risks, for example, market and interest rate risk, or to give appropriate credit for other forms of risk retention. The rules are overly prescriptive regarding the manner in which the required retention must be held and for many asset classes require that the retention be held well beyond the period in which weak underwriting, or other similar moral hazard, would be expected to become evident.

Margin Requirements for Uncleared Swaps

Many securitization transactions employ swaps to match or hedge the cash flows that arise from the assets that collateralize the transaction to those which are required to be paid to investors in the liabilities issued by the transaction. These regulations fail to reflect the fact that special purpose entities are different from typical counterparties on flow-traded swaps. Special purpose entities are not operating companies, and they contain special structural features designed to mitigate counterparty risk. As a practical matter, special purpose entities will find it difficult if not impossible to comply with the margin and clearing requirements as implemented and will either have to forego derivatives and their risk mitigating benefits or find a way to comply which will not be efficient for the transaction. Either way, the rules will have a harmful effect on the cost and availability of securitization as a financing tool hindering the vibrancy of the financial markets.

Qualified Mortgage Standards

While the CFPB published the lengthy and detailed QM rules and their Appendix Q in an effort to provide guidance to lenders on how to underwrite loans in compliance with the law, the practical impact has been that the requirements are complex, inflexible and fail to properly take into account differing circumstances of particular types of borrowers. At the same time, despite their complexity, the rules and their appendix lack important clarity on critical aspects of the lending process. For example, how a lender may rely on borrower bank statements or document the income of self-employed borrowers remains unclear years after the rules were enacted. Lenders, securitizers and investors have found it difficult to obtain written guidance on these and similar issues upon which they can be comfortably relying.

Volcker Rule Impact on Securitization

The agencies responsible for implementing the Volcker Rule created an overly inclusive definition of covered fund that subjects many securitization entities to the Volcker Rule's restrictions, even though they are clearly not private equity or hedge funds. The compliance burden for banking organizations that hold or trade securitization transactions is significant, with no or few corresponding benefits. We believe the Volcker Rule's definition of covered fund should be narrowed to ensure that only those investments (particularly in hedge funds and private equity funds) intended by Congress to be captured are captured.

TILA-RESPA Integrated Disclosure Rule (TRID)

TRID is the CFPB's rule which combines the previously separate TILA and RESPA disclosure forms. It is very detailed and prescriptive, yet unclear. Lingering misperceptions and technical ambiguities in the regulations have resulted in significant market disruptions. Many market participants are reporting very high TRID fail rates on closed loans delivered for sale. Moody's recently reported that approximately 90% of one sample of loans did not fully comply with TRID requirements.⁴⁵ If these conditions persist, many lenders will experience liquidity issues as unsold or repurchased loans clog warehouse funding lines and balance sheets. Further, although some lenders may have multiple investor options, investors often have different standard for TRID compliance. As a result, originators are not always able to deliver loans to the investor with the best price, and hence the best rate for the consumer, and instead must deliver based on investors' TRID interpretations. For consumers, these dynamics will increase both the costs of origination and the interest rates they pay.

Conclusion

Traditional bank lending often receives considerable consideration by policymakers, much of it appropriate. But to exclusively focus on those policy questions ignores the more significant source of financing that drives our economy---our capital markets. Bonds finance everything from home mortgages and car loans to highways and schools to factories and equipment as well as the very federal government itself. The bond markets set interest rates for commercial and consumer lending and provide a safe and predictable investment for millions of Americans.

While the fixed income markets are fundamentally healthy today, there are significant uncertainties about whether our economy is operating at full efficiency. Most important, a plethora of financial regulations has been adopted since the crisis and the cumulative effects have not been measured or analyzed sufficiently. In the fixed income markets, liquidity depends on the ability and willingness of dealers to commit capital to market making. Accordingly, policymakers need to calibrate existing and future rules to ensure they do not unduly impede the ability of the market to provide the capital needed to finance strong growth in the economy.

⁴⁵ Moody's Investor Service, U.S. Mortgage Lenders Face Difficulties Complying with New Rules, a Credit Negative for RMBS, December 10, 2015.

We appreciate the opportunity to present our views and we look forward to working with the Congress, the Administration, and the independent agencies and regulators to help ensure that the bonds markets continue to perform their vital functions and operate safely and efficiently to move America forward.

Q3 2016

Understanding the U.S. Fixed-Income Market



CONTENTS

- 2 Executive Summary
- 3 Introduction
- 5 Fixed-Income Products
- 9 Trading in Fixed-Income Markets
- 17 Rules, Regulations and Their Impact
- 19 Moving Forward
- 20 Conclusion

THE FIXED INCOME MARKET
ALLOWS CORPORATIONS
TO GROW, GOVERNMENTS
TO FINANCE THEMSELVES
EFFICIENTLY, COMMUNITIES
TO BUILD INFRASTRUCTURE,
AND YOUNG FAMILIES TO
BUY HOUSES

AT THE END OF 2015,
OUTSTANDING U.S.
BONDS WERE WORTH

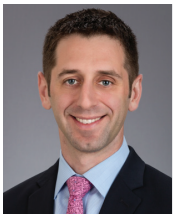
\$40

TRILLION

Executive Summary

The fixed-income market is all about borrowing money to finance capital investments, allowing those that need it to borrow it from those that have it. From their early beginnings over 400 years ago, bonds have helped the global economy expand faster than would have been possible otherwise.

The demands of an ever-expanding base of borrowers, lenders and investors have driven growth and diversity in the fixed-income market. Better understanding how the market began, how it has evolved, the various ways it fuels the real economy, and how it is overseen is critical to helping guide it forward.

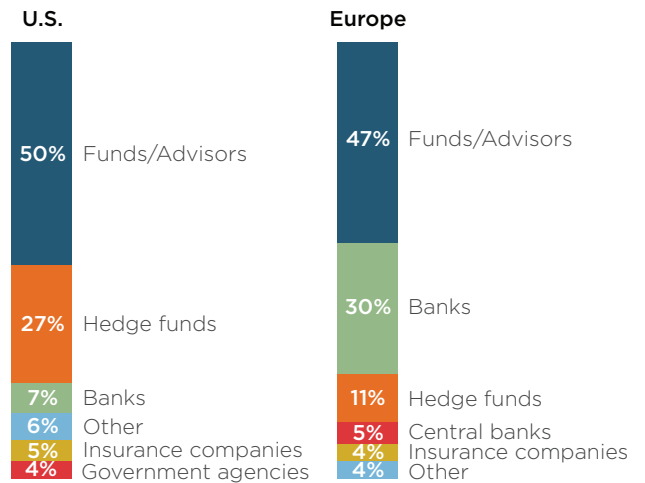


Kevin McPartland is the Head of Research for Market Structure and Technology at Greenwich Associates.

METHODOLOGY

Throughout 2015, Greenwich Associates interviewed 3,933 institutional investors active in fixed income globally, including 1,065 investors in the U.S., 1,210 in Europe and a total of 1,658 active in Asia, Canada and Latin America.

Interview topics included trading and research activities and preferences, product and dealer use, service provider evaluations, market trend analysis, and investor compensation. Analysis for this study was performed in the first half of 2016.

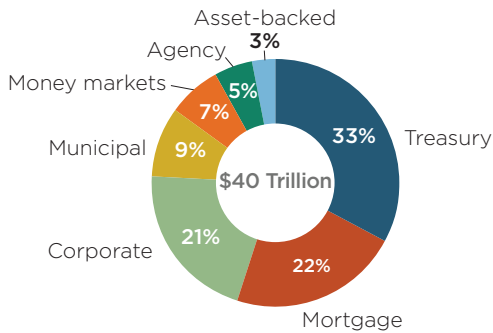


Note: Based on 1,065 respondents in the U.S. and 1,210 in Europe.

Introduction

The fixed-income market is the picture of diversity. Case-in-point, the Greenwich Associates annual Global Fixed-Income Investor Study examines 17 different underlying product categories that make up the global fixed-income market. The markets, products and market participants create an ecosystem that allows corporations to grow, governments to finance themselves efficiently, investors to gain fixed returns with lower risk, communities to build infrastructure, young families to buy houses, and you to buy your cup of coffee in the morning.

U.S. BOND MARKET SIZE AND COMPOSITION



Source: SIFMA 2015

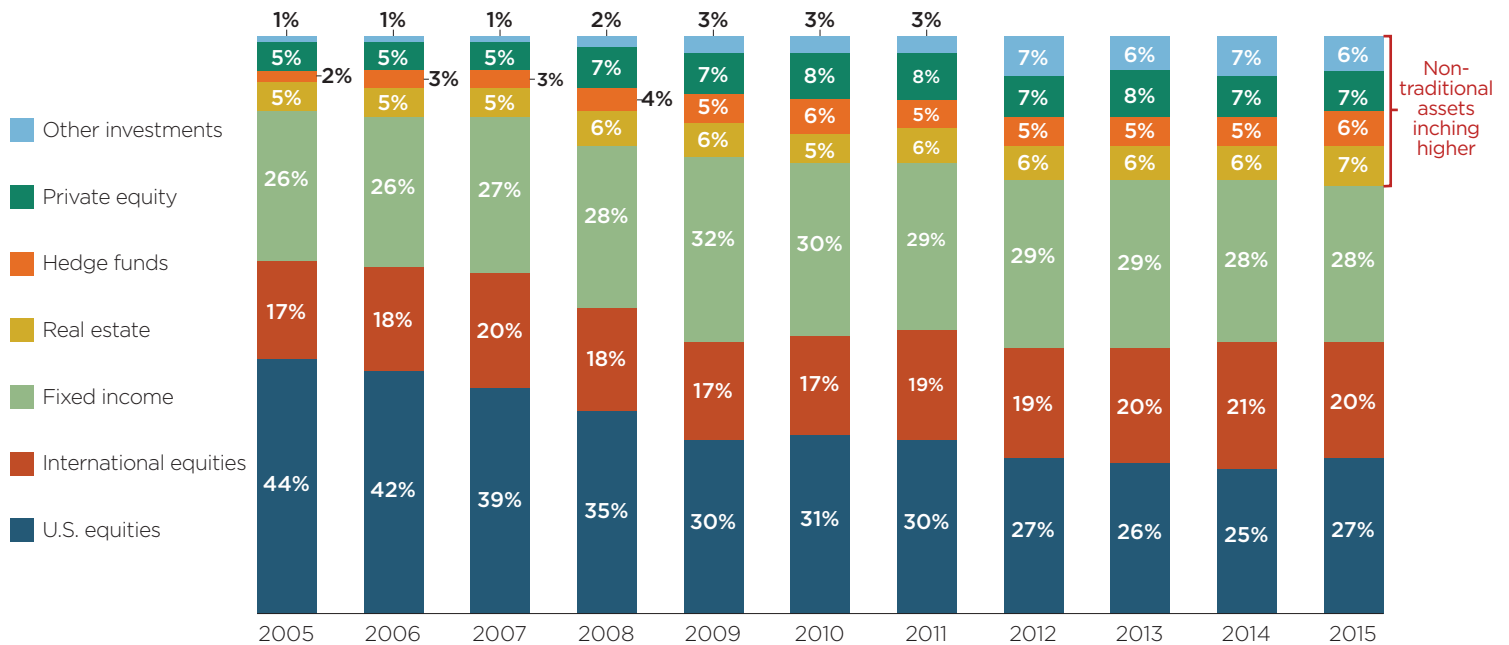
The foundation of this activity is the U.S. bond market, which was worth nearly \$40 trillion at the end of 2015. Over the past 10 years, this market has consistently accounted for one-quarter to one-third of invested fixed-income assets around the world.

DEFINING FIXED INCOME

Fixed-income markets are so called because holders of bonds often receive a fixed income, or “coupon” payments, for the life of the bond. The market’s growth over the past few decades has left this label a bit of a misnomer, however, as floating-rate bonds, inflation-protected bonds, mortgage-backed securities and various derivatives create income streams that are not exactly fixed.

That said, the fundamental tenet of the fixed-income market remains intact. Money is lent from those with funds to invest to those who need capital, with the former profiting from taking bank-like lending risk and the latter able to move forward in a way they wouldn’t have otherwise. Those transfers occur differently than they once did, of course. It is those changes, and their impacts on the market, that we will explore in depth here.

U.S. INSTITUTIONS’ ASSET MIX OF DEFINED BENEFIT PLANS AND INVESTMENT POOL ASSETS



Note: Based on 851 respondents in 2005, 908 in 2006, 945 in 2007, 924 in 2008, 888 in 2009, 884 in 2010, 852 in 2011, 680 in 2012, 595 in 2013, 600 in 2014, and 500 in 2015. Percentages are weighted in U.S. dollars and projected to the Greenwich Associates universe of U.S. institutional investors. Projections based only on the assets of institutions disclosing their specific asset allocation. Results are for corporate and union DB plans, public fund DB plans, healthcare defined benefit, defined contribution and operating assets, endowment and foundation investment pools and insurance general account assets. Other investments include multi-asset, commodities, and money market. Results exclude outlier allocations.
Source: Greenwich Associates 2015 U.S. Institutional Investors Study

Fixed-income derivatives are also an important part of the market's foundation. Derivatives are tradable contracts that “derive” their value from underlying assets such as bonds. They are critical to keeping the bond market efficient and allowing the necessary transfer of risk.

The Bank for International Settlements reported nearly \$400 trillion of derivatives contracts outstanding at the end of 2015. Market structure changes have resulted in a decline from nearly \$600 trillion at the end of 2013. The growth of central clearing, for instance, has allowed market participants to use the instruments more efficiently because it has promoted standardization and position netting.

Notably, these numbers represent the gross value of all contracts outstanding, as opposed to the lower net exposure. Furthermore, the amount of money at risk is in most cases well below the face value of the contract. For instance, a standard \$100 million fixed-floating interest-rate swap which exposes the holder to movements in U.S. interest rates would see a loss or gain of only \$500 thousand if interest rates moved one-half percent (50 basis points).

Fixed-income markets include a wide array of products, from government bonds to corporate bonds, and interest-rate swaps to securitized debt. For good reason, each sub-market or sector has its own market structure suited to its participants, liquidity, and overarching regulations.

Some sectors appeal more to institutional investors, such as banks and pension funds. Others, including the municipal bond market, attract more retail investors, requiring a higher level of oversight to ensure that a family investing their rainy-day fund is fully aware of the potential risks and rewards.

Grasping how each of those markets works and how they interact with one another is no small task. To that point, in some cases quite complex topics are oversimplified here. However, by recognizing the utility of these markets to the real economy, the goals of the market participants involved, how regulators help protect investors, and how the markets have evolved over time, the path forward becomes increasingly clear.

A standard \$100 million fixed-to-floating interest-rate swap which exposes the holder to movements in U.S. interest rates would see a loss or gain of only \$500 thousand if interest rates moved one-half percent (50 basis points).

GREENWICH ASSOCIATES FIXED-INCOME PRODUCT COVERAGE

| Interest Rates | Credit | Securitized | Derivatives |
|---|--|---|----------------------------------|
| Agency bonds | Corporate Bonds: | Asset-backed securities (ABS) | Interest-rate derivatives (IRDs) |
| U.S. Treasuries: | <ul style="list-style-type: none"> ▪ Investment-grade bonds ▪ High-yield bonds | Mortgage-backed securities (MBS): | Futures |
| <ul style="list-style-type: none"> ▪ Bills/Notes (short-term) ▪ Bonds (long-term) | Distressed debt | <ul style="list-style-type: none"> ▪ Commercial mortgage-backed securities (CMBS) ▪ Residential mortgage-backed securities (RMBS) | Options |
| | Emerging markets debt | | Structured credit |
| | Municipal bonds | | Credit-default swaps |
| | Syndicated loans | Collateralized loan obligations (CLOs) | |

Fixed-Income Products

A Brief History

The fixed-income market, simply put, is a means of borrowing money, allowing those that need capital to borrow from those that have it, with the lender being compensated through interest payments. Unlike equity markets, fixed-income markets require the borrower to return the money to the lender at a pre-agreed point in the future.

For example, a tire manufacturer takes out a loan from a commercial bank to buy rubber. The bank wires the money to the manufacturer, and the manufacturer makes periodic payments that include both principal (actually repaying the loan) and interest (the fee charged by the bank for lending the money). The bank makes money from the interest charged, and the principal loan amount allows the tire manufacturer to make more, hopefully profitable, tires.

Having only two counterparties in a transaction doesn't always work, however, which is how the bond market evolved. The bond market allows a corporation, government or other entity to borrow by selling bonds to many investors that, in aggregate, lend the amount of money the entity needs to borrow.

Bond market transactions both increase the pool of money available to the borrower and spread the resulting credit risk across a wide range of investors (rather than leaving it all with a single bank). Using the above tire manufacturer as an example, the industrial sector issued \$97 billion in corporate bonds in 2015 alone.

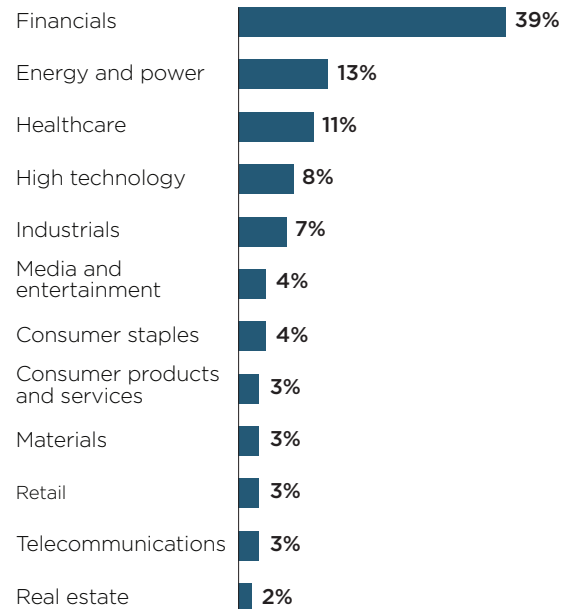
This idea has a long history. In fact, the first government bonds were issued by the Bank of England in the late 1600s to finance a war against France. American colonies and the Continental Congress issued bonds to finance the Revolutionary War. After independence, the newly formed American government issued bonds to redeem outdated Continental currency. The modern U.S. government bond market got its start about 100 years ago during World War I.

U.S. Treasury and Federal Agency Securities

Today, the U.S. government bond market has evolved into one of the most liquid and efficient markets in the world. The interest rate paid by the U.S. government to its borrowers is considered to be the "risk-free" rate and is a benchmark for millions of securities and transactions around the world.

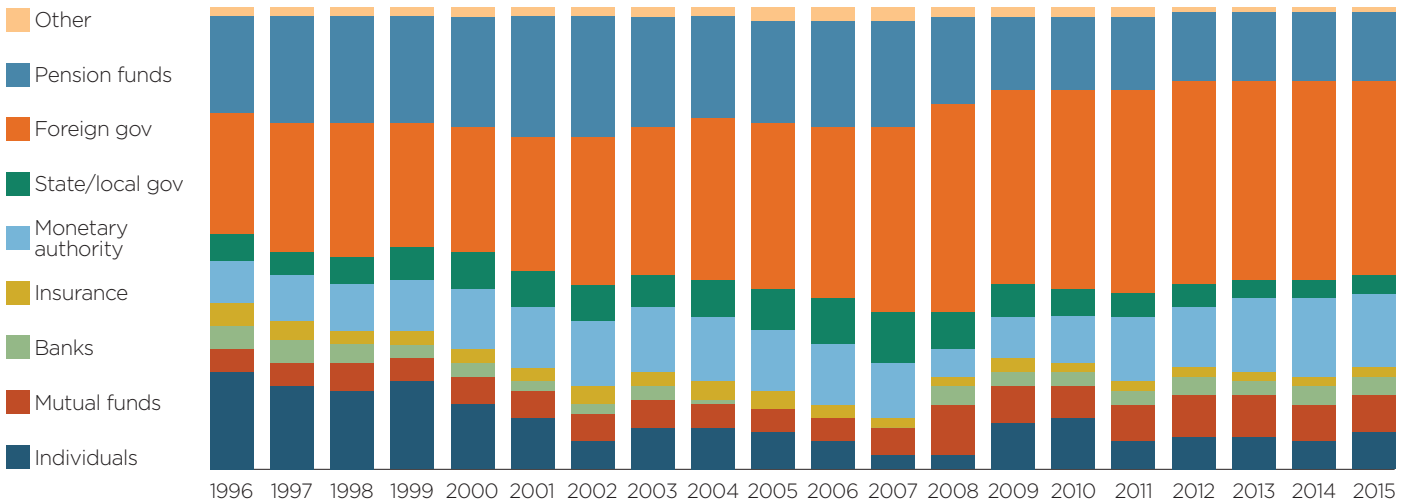
The \$14 trillion currently lent to the U.S. government comes from a diverse set of investors. Foreign governments and monetary authorities (including the U.S. Federal Reserve) hold nearly 60% of this amount,

CORPORATE BOND ISSUANCE BY SECTOR



Source: Thomson Reuters 2015

U.S. TREASURY HOLDINGS



Source: Federal Reserve System, SIFMA 2015

with private investors, both institutional and retail, holding about a third. While this makeup has changed over time along with interest rates and global economic conditions, large governments and individual investors around the world continue to see U.S. government debt as a sure thing, hence the status of U.S. Treasury rates as the risk-free rate.

Credit Market

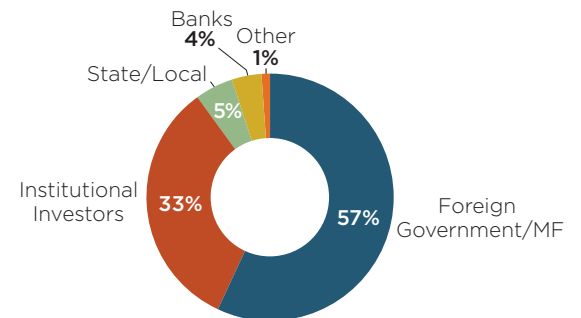
The U.S. government and agency debt markets are referred to as the “rates” markets, as the primary risk faced by bond holders is interest-rate risk. The government debt of other major markets around the world (e.g., the United Kingdom, Germany, Japan) also falls into this category.

Holders of most other bonds, including corporates, municipals, private mortgage- and asset-backed, and some sovereign bonds, must manage not only the risk of interest rates moving, but also the probability of the borrower defaulting—or credit risk.

Credit markets are critical to the growth of the U.S. economy. This is where corporations, municipalities, finance companies, banks, and others borrow money to expand their businesses. Credit markets generally provide higher yields than rates markets, as these bonds expose investors to credit risk. This risk/reward interaction between borrowers and investors incentivizes lending to both lower- and higher-risk entities.

Municipal bonds are issued by state and local governments and by government agencies and authorities principally to finance investment in infrastructure such as schools, roads, airports, transit systems, water and sewer systems, public hospitals, and similar projects. With more than one million distinct municipal bonds outstanding, the efficiency of the municipal market allows governments to borrow for long terms at low interest rates, saving money for tax- and rate-payers. A key feature

U.S. TREASURY DEBT HOLDINGS—2015



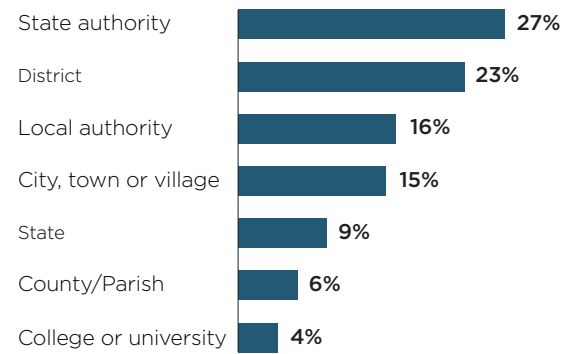
Source: SIFMA 2015

of most municipal securities is that the interest earned by investors is exempt from federal, and in some cases state and local income tax. This further lowers the borrowing cost for municipal issuers.

Corporate borrowing via the credit market is done through several different vehicles. Greenwich Associates interviews with nearly 300 treasurers of large U.S. corporations show more than three-quarters of debt outstanding is in corporate bonds, with the balance in the loan market. European corporations tend to favor the loan market, with more than a third of debt outstanding done via private credit agreements, although this regional difference is starting to normalize as the market adapts to the post-credit crisis world.

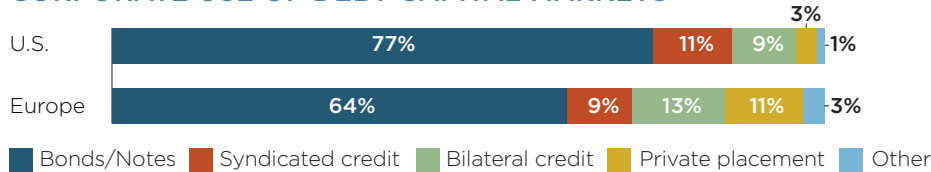
In both cases, corporate treasurers work with financial institutions to bring a “new issue” to investors via the primary market, where institutional investors can express their interest in lending money to the issuer.

MUNICIPAL BOND ISSUANCE—2015



Source: SIFMA 2015

CORPORATE USE OF DEBT CAPITAL MARKETS



Note: May not total 100% due to rounding. Based on 285 interviews in 2015.
Source: Greenwich Associates 2015 Debt Capital Markets Study

Securitized Products

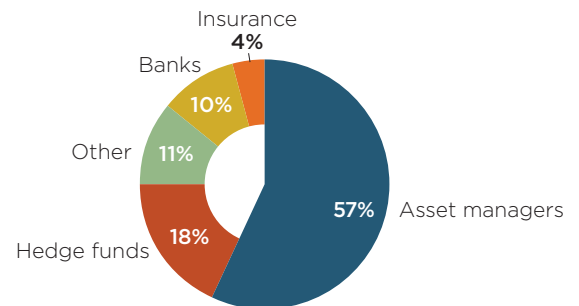
While bond and loan markets work well for larger entities borrowing large sums, these markets are not efficient for borrowing at the retail level. A \$1,000 loan made via a credit card isn't all that interesting to an investor, as the cost of buying the loan would likely be higher than the return.

However, hundreds or thousands of smaller loans in aggregate can appeal to investors as an attractive risk/reward profile and offer the opportunity to diversify their portfolios beyond traditional corporate and government bonds. These securitized loans, packaged and sold as bonds, are easily traded and held by institutional investors, allowing retail consumers to get reduced-cost access to the credit they need.

Securitized products come in as many varieties as the underlying debt that they help to fund. Fannie Mae and Freddie Mac, for instance, securitize mortgages and guarantee payments to investors (also known as agency mortgage-backed securities, or agency MBS), which ultimately lowers mortgage rates for home buyers. Ginnie Mae does not securitize loans, but instead guarantees payment of principal and interest from approved issuers of qualifying loans, also helping to keep mortgage rates down.

Major banks fulfill a similar function, but also securitize student loans, car loans, credit card debt, and others in addition to mortgages. These products, while not guaranteed by the U.S. government, reduce

SECURITIZED PRODUCT TRADING VOLUME—GLOBAL BUY SIDE

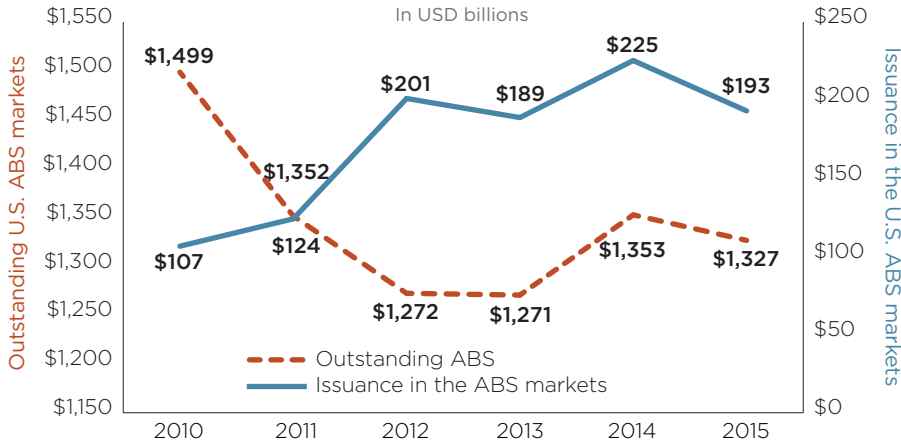


Source: Greenwich Associates 2015 Global Fixed-Income Study

borrowing costs for the end consumer by increasing the number of investors interested and able to lend them money. Securitization provides funding for commercial borrowers as well.

Despite recent declines, overall issuance of securitized products is up over the past five years, with stricter underwriting standards and a more stringent ratings process leaving investors more comfortable with the products. Since the financial crisis, however, issuance of certain private mortgage-backed securities remains low.

ASSET-BACKED SECURITIES



Source: SIFMA 2015

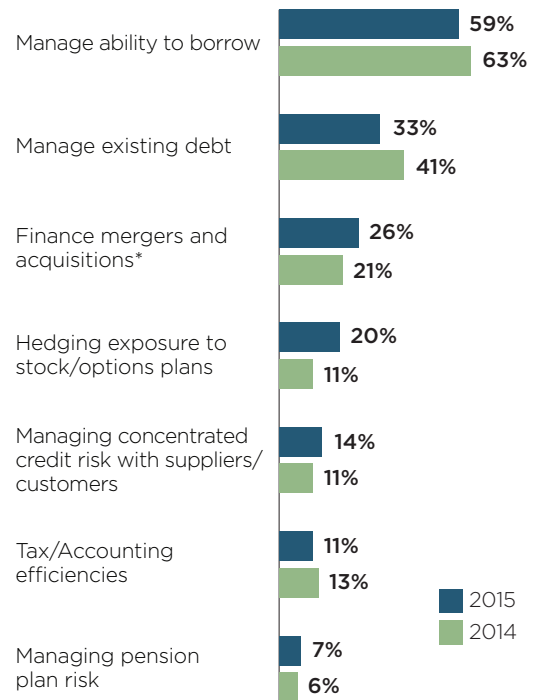
Greenwich Associates research also shows that asset managers now make up nearly 60% of investors trading in these products globally, reflecting their place in the market as a solid source of stable, low-risk returns for everyday investors.

Derivatives

Interest-rate and credit derivatives are financial instruments closely related to bonds. While this research is focused primarily on the bond portion of the fixed-income market, it is important to understand the critical role that derivatives play in the real economy. Swaps, futures and options are used by companies and financial institutions mainly to hedge risk. For financial institutions, who are the largest users of fixed-income derivatives, this could mean managing the interest-rate exposure of a mutual fund, for example. Corporations might use derivatives to lock in pension plan obligations or to manage the interest rates associated with one or more of their bond offerings.

An interest-rate swap, for example, is an agreement between two counterparties to exchange interest-rate cash flows, such as a fixed rate for a floating rate. Interest-rate swaps are used by corporations around the world for debt management and managing interest-rate risk and pension plan liabilities. Greenwich Associates believes the price of goods in the U.S. would rise if corporations were not able to access the fixed-income derivatives market, as the risk of an interest rate move or counterparty ratings downgrade would then be priced into the underlying product.

CORPORATE USE OF DERIVATIVES



Note: *Includes deal-contingent derivatives. Based on responses from 160 global top-tier interest-rate derivatives users in 2014 and 152 in 2015. Source: Greenwich Associates 2015 Global Treasury Services Study

Trading in Fixed-Income Markets

Primary to Secondary

Fixed-income products such as bonds, loans, and asset-backed securities help borrowers find lenders. But the needs of investors and borrowers often change over the life of a security. It is possible that a borrower will no longer have the same need for capital and may choose to pay back the loan (or repurchase the bond issue) early. Or the investor may no longer want the interest-rate or credit exposure. This is where the secondary market enters the picture.

If the primary market is where borrowers find their initial set of lenders, the secondary market allows current and prospective lenders to come in and out of fixed-income securities positions throughout the life of those instruments. It is here in the secondary market that the liquidity discussion begins.

Liquidity

Ensuring that capital and risk can be exchanged safely and efficiently as the needs of market participants change is key to the global economy. Furthermore, the ability to buy and sell a security at a reasonable cost when needed lowers risks for investors and, therefore, the cost of capital for the borrower. This is why global regulators, legislators and market participants continue to focus on the quality of secondary market liquidity.

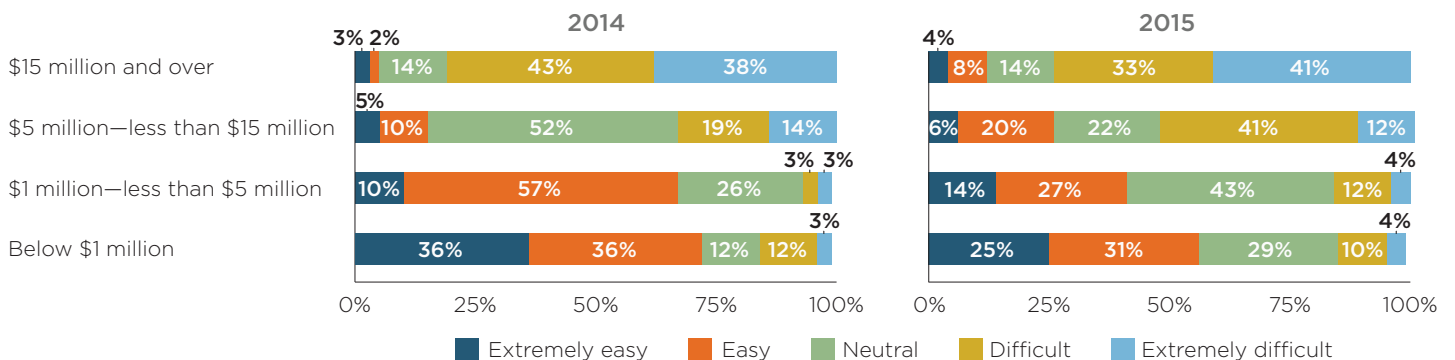
Liquidity is simultaneously abstract and quantifiable. A market's liquidity is commonly defined as the ability to execute an order at the given price, with as little market impact as possible. While details about trades can, in fact, be quantified and tracked over time, how each market participant defines "large order," "right price" and "limited market impact" can vary greatly. Put simply—liquidity is in the eye of the beholder.

AN EXAMPLE OF LIQUIDITY

Liquidity refers to the ability to buy or sell a security easily and at a reasonable cost.

The more standardized and widely held a security, the more liquid that security tends to be. For instance, 10-year U.S. Treasuries are well understood and readily available for any investor that wants to include those bonds in their portfolio. As such, the bid-ask spread—the difference between the purchase and sales price—is narrow, the number of bonds available at those prices is high, and the impact of doing that trade on the market is minimal.

HOW HARD IS IT TO TRADE CORPORATE BONDS, BY TRADE SIZE?



Note: Based on 58 fixed-income respondents in 2014 and 51 in 2015.
Source: Greenwich Associates 2015 Trading Desk Optimization Study

For example, Greenwich Associates recently examined these differing views of corporate bond market liquidity in the Q1 2016 report *In Search of New Corporate Bond Liquidity*. While many institutional investors felt that executing corporate bond trades over \$5 million had become easier over the past year, others still saw these trades as difficult to complete. This, of course, does not take into account quantitative measures of liquidity, such as bid/ask spreads and market volumes, and so may not reflect the state of bond market liquidity day-to-day. However, given the level of sophistication of our research participants and their differing views, the perception of market participants offers critical insight into the state of market liquidity.

The Fixed-Income Marketplace

When evaluating fixed-income market liquidity, it is first important to understand the makeup of the market participants and how they interact with one another. The process begins as borrowers work with financial institutions to bring new securities to the market in the form of bonds, loans, etc.

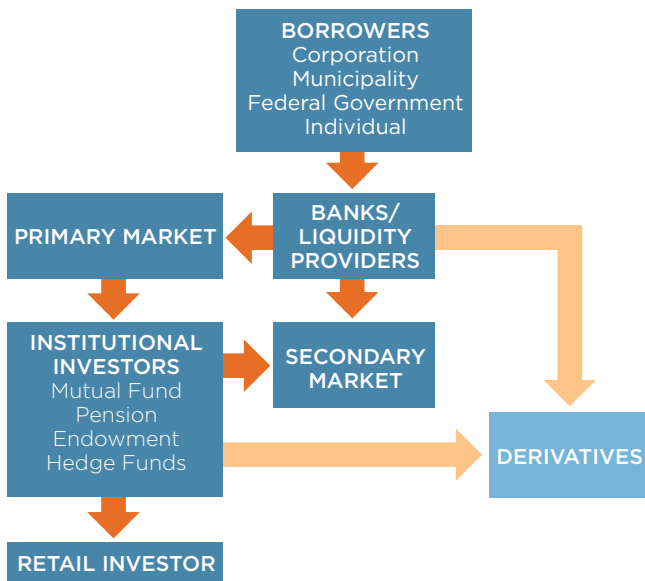
With some important exceptions, most retail investors in the U.S. access the market through professional asset managers, who may suggest mutual funds, exchange-traded funds (ETFs) or separately managed accounts as vehicles to invest for retirement, education or a new car.

Institutional investors then work closely with banks, trading securities and derivatives to ensure that corporates and governments are funded, and that retail investors can put money in and take money out based on their individual needs. As such, ensuring this trading occurs seamlessly and safely is critical to the long-term growth and function of the fixed-income market.

While much of the fixed-income market is institutional in nature, individual investors do play a role. Mortgage borrowers, for instance, can obtain lower interest rates due to investor demand for mortgage-backed securities (MBS). In addition, individuals often lend to state and local development projects through municipal bonds, which offer tax-free interest and returns.

Bond markets operate primarily via an organized over-the-counter (OTC) market, with bonds moving from the buyer to the seller directly, rather than via a centralized marketplace such as an exchange. When an institutional bondholder wants to sell a bond, they contact one or more dealers who will, for the right price, buy those bonds into their own account and hold them for seconds, or in some cases, months until a buyer comes along. To do this, the dealer buys the bonds with its own money and takes the risk that the market will move against it before it is able to sell.

INTERACTIONS OF FIXED-INCOME MARKET PARTICIPANTS



Source: Greenwich Associates 2016

The breadth of the market means that it is uncommon that one investor wants to buy the exact bond another investor wants to sell at the exact same time. Unlike the equity market, which generally offers a single way to invest in a public corporation, the fixed-income market can offer dozens of opportunities to lend to that same corporation, with bonds of different structures, maturities and coupons available to buy. This is where dealers with the ability to commit capital work to keep the markets moving.

Bilateral Relationships

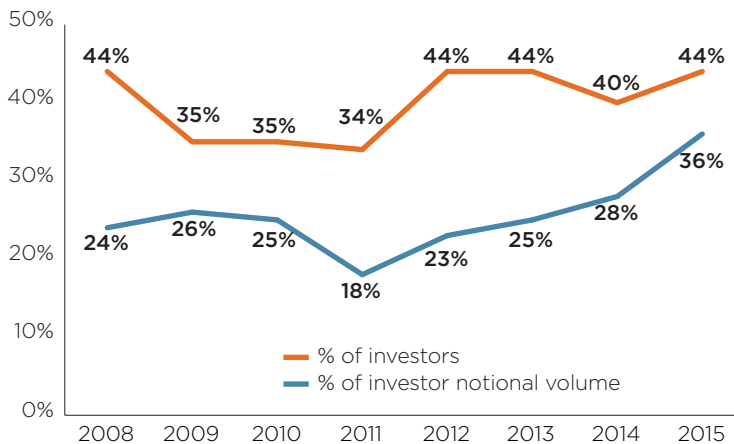
Fixed-income trading between investors and dealers takes many forms. The majority of bond trading, particularly of those products that trade either less frequently (i.e., some high-yield corporate bonds) or are more complex (i.e., some securitized products) continues to take place primarily over the phone. The same holds true for larger (where the definition of “large” differs by product type) and more sensitive trades where the dealers helping hand is seen as particularly beneficial.

This is not a bad thing, nor unusual. Think about buying a specialized product, such as a part for your car: You can buy one online and have it delivered directly to your house. However, buying without an expert first diagnosing the problem, confirming the exact part needed and the ability to install it properly is unwise. Furthermore, when that car part needs maintenance a few months later, that mechanic will likely provide that service for a lower fee or, in some cases, at no cost—something no online retailer will offer. The same holds true for complex, large or hard-to-value transactions in the fixed-income market.

Electronic Channels

The use of electronic channels, however, has grown sharply over the last five years. Greenwich Associates research shows that in 2011 only 18% of global fixed-income trading by notional volume was executed electronically. Today, 36% of fixed-income trading by notional volume between institutional buyers and sellers is done “on the screen” via electronic execution, with well more than half of trades executed electronically (not weighted by volume).

GLOBAL FIXED-INCOME E-TRADING



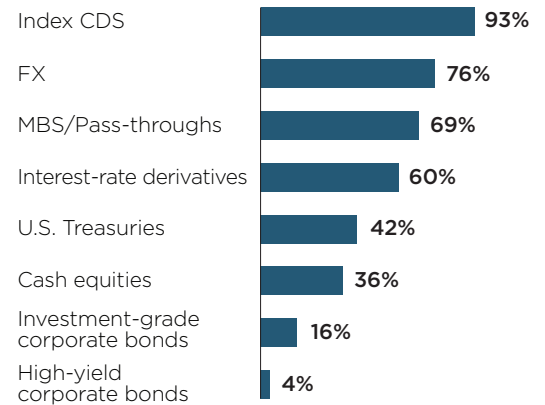
Source: Greenwich Associates 2015 Global Fixed-Income Study

The jump has been driven by a combination of new regulations (e.g., CFTC swaps trading rules) requiring trading of certain products on electronic trading venues and the organic evolution of both investors and fixed-income dealers to a more efficient way of doing business.

Each product within the fixed-income spectrum can trade differently based on the counterparties to the trade and liquidity of the given instrument. For instance, when institutional investors electronically trade U.S. Treasury bonds with bond dealers, they often do so via the request for quote (RFQ) model. This allows investors to request one or more quotes from specific counterparties in search of the right price for that order. Knowing which dealers to include based on past activity, knowledge and trust is key to this process.

When dealers trade U.S. Treasury bonds with one another, a practice now used most commonly to manage risk arising from trading with clients, a central limit order book (CLOB) is often used. This style of trading tends to move more quickly, with order sizes often smaller than those executed via RFQ or over the phone. A CLOB can be defined as a list of everyone in the marketplace willing to buy or sell a bond and the quantity and price they seek. If another market participant wants to trade at the price and size listed, they can simply point and click to execute that trade. Benchmark U.S. Treasuries trade this way, with three separately owned venues operating active central limit order books.

U.S. INSTITUTIONAL TRADING VOLUME EXECUTED ELECTRONICALLY



Source: Greenwich Associates 2015 North American Equity Investors Study, the 2015 North American Fixed-Income Study, and the 2015 Global Foreign Exchange Study

EXCHANGE-LIKE TRADING

Exchanges, whether for futures, stocks or options, are registered trading venues. The majority of trading on exchange is done via a central limit order book (CLOB), where market participants can post their intentions to trade and others can accept the prices and sizes that are offered.

Over-the-counter markets do not require a registered exchange for trading. However, electronic trading venues do exist that allow trading of some OTC products, such as U.S. Treasuries and some corporate bonds, in a CLOB or via some other structure.

While the trading protocol in both cases is similar, the rules and market structure surrounding each can be quite different.

In some cases this style of inter-dealer trading includes a voice component as well, often referred to as the hybrid model. Here, the matching of buyers and sellers is done both via point-and-click trading and phone conversations with an inter-dealer broker.

Electronic trading will continue to grow beyond current levels, having brought tremendous benefits to the market. However, it also is important to acknowledge the importance of the expert advice and guidance gained through trusted relationships when trading in the fixed-income market. Greenwich Associates research consistently shows that, other than the obvious metric of execution quality, sales and research service provided by a fixed-income counterparty is the top consideration when an investor determines where to trade.

Pricing Beyond Bond Math

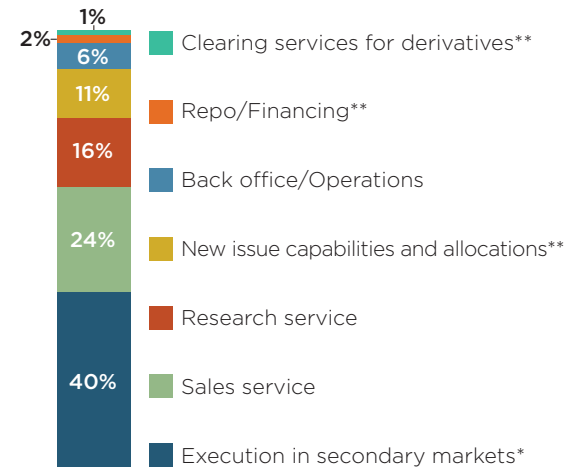
Size also plays a part in the pricing of fixed-income instruments. At first blush this might sound unfair, as the value of a given security should be based solely on its underlying economics. However, it is important to realize that financial markets work similarly to nearly every other industry, with wholesale and retail transactions handled differently.

When Target buys cereal, it buys millions of boxes at once. Because such a large transaction locks in revenue for General Mills, limits the sales work required to sell those boxes separately and ultimately provides General Mills with wider distribution than they can get on their own, they are willing and able to sell those boxes to Target at a cheaper price than they would sell a single box to an individual consumer.

In the bond market, similar dynamics apply. Trading between institutions, which most often occurs with wholesale-like order sizes over \$1 million, allows dealers to offer slightly better prices than they could for small retail trades, while still ensuring profitably.

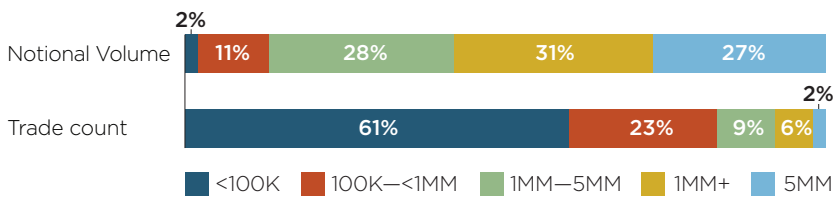
This does not mean retail consumers are paying the wrong price for their bonds. Servicing thousands of customers trading in \$1,000 increments is much more costly to the dealer than servicing a handful of large institutions trading \$1 million or more at a time. Furthermore, retail investors can, in fact, get access to institutional pricing via mutual funds and other similar investment vehicles, thereby leveling the playing field.

FACTORS IN BUY-SIDE BROKER SELECTION



Note: Based on proportion of total volume allocated to given factors. *Including using capital to provide liquidity. **Asked in selected products. Based on responses from 727 fixed-income investors in the United States, 997 fixed-income investors in Europe and 864 fixed-income investors in Asia excl. Japan in 2015. Source: Greenwich Associates 2015 Global Fixed-Income Studies

U.S. CORPORATE BOND TRADING VOLUME



Note: May not total 100% due to rounding. As of May 2, 2016. Source: FINRA, MarketAxess 2016

Connecting Buyers and Sellers

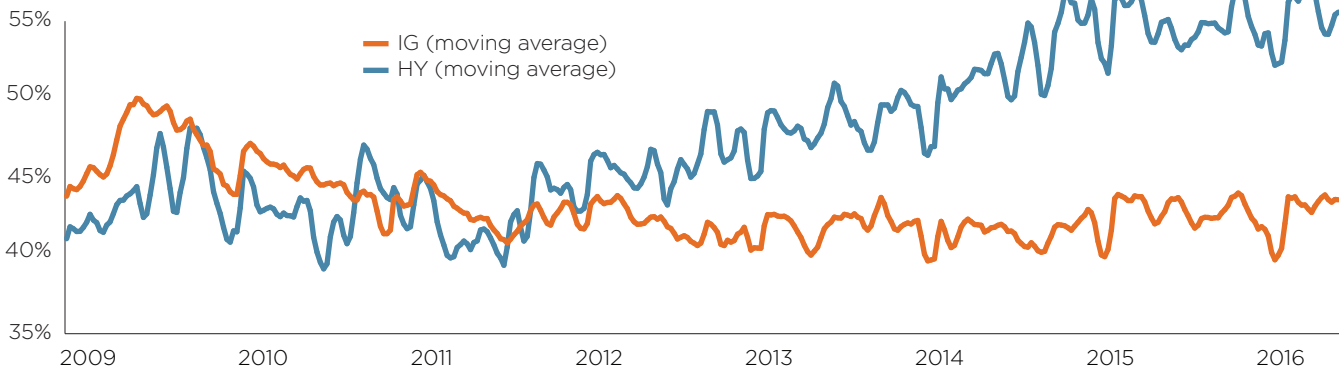
While relationships will remain critical to the fixed-income market, a combination of challenging market conditions, new regulations and innovative technology are beginning to shift the ways in which fixed-income market participants interact with one another.

Through most of fixed-income market history, dealers were the primary buyers from and sellers to the investment community. Investors were willing to pay for this service, with dealers buying and holding the bonds they wanted to sell, often until another investor could be found to take on that position—sometimes days and sometimes months later. Bridging this time gap between supply and demand was and is a key role of bond dealers.

Due to new banking regulations and bank investors demanding a higher return on equity, holding bonds for customers is considerably more expensive and less profitable than it was 10 years ago, discouraging the practice. Therefore, dealers are more inclined to find both the buyer and the seller simultaneously, known as “crossing bonds” or “riskless principal” trading, removing the requirement that they hold the bonds on their balance sheet.

RISKLESS PRINCIPAL/AGENCY VOLUME

(as a % of total corporate bond volume)



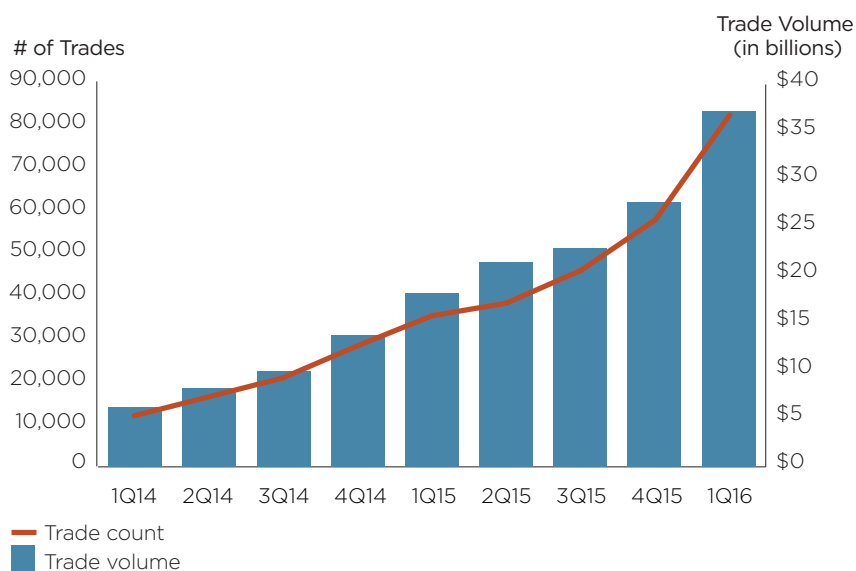
Note: As of April 11, 2016
Source: MarketAxess 2016

This change has limited the speed with which investors can buy and sell securities, and requires investors to bear additional market risk while the dealer searches for the other side of the trade. While it is unclear exactly how much volume is traded via this riskless principal/agency model, reported corporate bond trading data does provide a strong indicator of its growth.

All-to-All Trading

The growth of riskless principal/agency trading in the bond market has encouraged the creation of new electronic trading venues that, unlike the incumbent platforms, do not specify dealers as liquidity providers and clients as liquidity takers, but instead allow all market participants to trade with one another directly—often referred to as all-to-all trading.

TOTAL TRADING VOLUME—MARKETAXESS OPEN TRADING



Note: MarketAxess Open Trading is an all-to-all institutional marketplace for trading corporate bonds.
Source: MarketAxess 2016

Investors are generally supportive of this approach, with nearly 40% of U.S. bond investors in a recent Greenwich Associates study citing all-to-all trading as a top feature they look for when selecting an electronic trading venue. (See the Q4 2015 report *The Continuing Corporate Bond Evolution*.) Growing interest in MarketAxess' all-to-all Open Trading corporate bond platform, among others, also shows investor interest in the new paradigm.

Greenwich Associates does believe that all-to-all trading in various parts of the fixed-income market will continue its steady growth over time.

However, it is important to remember the difference between liquidity providers and investors. Liquidity providers are expected to provide on-demand liquidity for a fee—a role only bond dealers have and will continue to fill. They take risks with their balance sheet to service clients and profit accordingly.

Professional money managers make money by generating return for their clients. So if an investor is matched with another investor via an all-to-all trading platform, the two have opposing views of the market at that moment in time—one is buying while the other is selling.

RISKLESS PRINCIPAL VS. AGENCY TRADING

When a dealer acts as riskless principal, they are buying the bonds from one client onto their own balance sheet, but then quickly sell those same bonds to another client—often within minutes. This requires that both the buyer and seller be identified before the first leg of the transaction is executed. The dealer is still trading as principal, or directly with the client, but the trade is virtually riskless as their profit is locked in before the trade is done.

Acting as agent similarly requires both a buyer and seller be found before a trade is executed, but does not require the dealer to hold those bonds temporarily on their balance sheet. This is similar to the equity market, where brokers acting as agent help buyers and sellers find each other, but then connect them directly without getting in the middle.

This can happen often in more heavily traded markets, such as those for U.S. government bonds and well-known corporate bonds. In other markets where trading happens less frequently, however, that perfectly timed opposing view is hard to find, hence the role of the dealers.

What Trading Costs

The U.S. equity market is often considered one of the most efficient in the world, and as such, allows investors to execute at a low cost. Greenwich Associates research shows that in 2016, the average all-in commission rate for institutions trading U.S. equities is 2.63 cents per share, down from 3.2 cents per share in 2007 before the financial crisis. If we assume, based on Greenwich Associates research, that the average stock price across the entire U.S. market is roughly \$70, then a 15,000 share institutional order would cost about \$1 million, with a commission charge of \$184.

The cost of trading in the OTC bond market is higher, at about \$500 per \$1 million traded. Dealer revenue comes not from commission charged, but from capturing the difference between the bid and ask price—the spread. Taking a conservative approach, Greenwich Associates estimates the average spread for U.S. corporate bonds to be roughly 10 basis points.

With most customer orders executed at the midpoint, that leaves dealers earning five basis points of the total value of the trade, or \$500 in this example. The more liquid the bond, the lower this spread (and cost) becomes. While more expensive than equities markets, given the complexities of sourcing corporate bonds and the risk that dealers often face in holding bonds for a period of time or the cost of hedging that risk, the difference is understandable.



Rules, Regulations and Their Impact

Market Oversight

A total of 10 federal agencies and self-regulatory organizations are critical to rulemaking and/or enforcement for fixed-income-related products, creating a strong, albeit somewhat complex, degree of oversight. Federal regulation of the bond markets can be categorized under three areas of focus: investor protection, market transparency and systemic safety and soundness, also known as prudential regulation.

All broker-dealers who participate in the fixed-income markets are required to be registered with the U.S. Securities and Exchange Commission (SEC) and one or more self-regulatory organizations (SROs) such as the Financial Industry Regulatory Authority (FINRA) or the Municipal Securities Rulemaking Board (MSRB).

FIXED-INCOME MARKET OVERSIGHT BY PRODUCT

| | CFTC/ NFA | SEC/ FINRA | FED/ FDIC/OCC | MSRB |
|------------------------|--------------|---------------|------------------|------|
| U.S. Treasuries | | ✓ | ✓ | |
| Agency securities | | | ✓ | |
| Corporate bonds | | ✓ | | |
| Municipal bonds | | ✓ | | ✓ |
| Swaps | ✓ | | | |
| Securities based swaps | | ✓ | | |
| Futures | ✓ | | | |

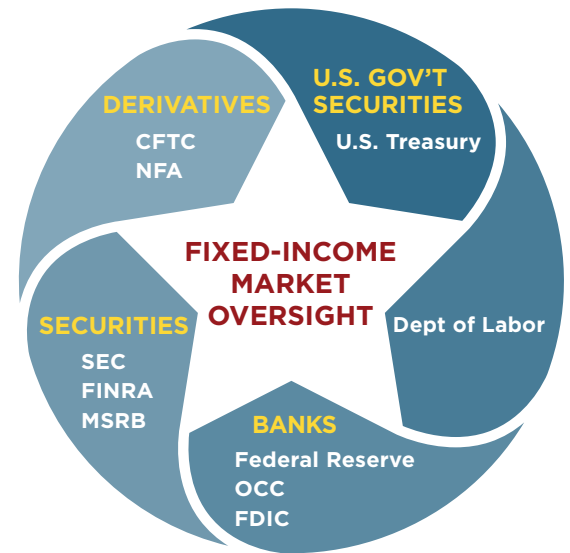
Source: Greenwich Associates 2016

The SEC makes rules governing dealer and, in some sectors, issuer participation in the securities markets. These rules cover such issues as fraud, capital requirements, trading activity, margin lending, and disclosure, among many others. The SEC also oversees mutual fund companies and registered investment advisors.

The rules of SROs cover such areas as suitability, pricing, interaction with investor customers, and professional qualification testing. The SEC and FINRA also regularly examine bond dealers to check for regulatory compliance.

Bank regulators, including the Federal Reserve Board (the “Fed”), the Office of the Comptroller of the Currency (OCC) and the Federal Deposit Insurance Corporation (FDIC) make rules that govern bank and bank holding company participation in the markets, including areas such as capital and liquidity. The OCC also examines banks active in the bond markets with regard to compliance with SEC and SRO rules. The U.S. Treasury Department is the primary rule-maker with regard to U.S. government securities.

The Commodity Futures Trading Commission (CFTC) and the National Futures Association (NFA) oversee the markets for fixed-income derivatives. Finally, the Department of Labor oversees entities that manage investments that fall under the Employee Retirement Income Security Act of 1974 (ERISA), and also protects investors in those plans.



Investor Protection

In the area of investor protection, U.S. regulators have several areas of focus with customer disclosure as a key tenet. FINRA and the MSRB require dealers to have a “reasonable basis to believe” that investments they recommend to retail customers are suitable. As a result, firms must ask customers about such issues as investment objectives, risk tolerance, and investment time horizon. In short, dealers are required to learn as much as possible about their customers before recommending investments.

In addition, dealers are required to provide potential customers with prospectuses, official statements, or other key disclosure information at the time they recommend an investment. Additionally, FINRA and the MSRB have rules in place to help ensure that investors receive fair prices for the securities they buy or sell and that dealers report to the customer relevant information about an investment at the time of a transaction.

Also related to investor protection, the SEC oversees mutual fund companies, ensuring that investors receive clear information about investments in their funds, and registered investment advisors, who must adhere to a fiduciary duty—agreeing to always do what is best for their clients—with regard to customers' investments.

Market Transparency

Market transparency relates to both information transparency—ensuring that investors have the information they need to make informed investment decisions—and price transparency—ensuring that investors have information to evaluate the prices they pay and receive for securities.

To provide information transparency, the SEC requires a corporate securities issuer to produce a prospectus and other disclosures at the time that bonds are offered for sale. A prospectus contains information about the issuer and the investment, including comprehensive financial information and a discussion of risks an investor in a bond might face. SEC rules also require corporate securities issuers to publish annual audited financial statements, quarterly financial statements and notices of certain events that could affect the value of their securities.

Disclosure rules in the municipal bond market do not apply directly to issuers. However, the SEC has rules to help ensure that, at the time of issuance and on an ongoing basis, investors have ready access to issuer financial and risk information. Financial information from corporate and issuers is available to investors free on the SEC's EDGAR platform, and municipal bond information is available on the MSRB's EMMA platform.

In the area of trading, both FINRA and the MSRB drive price transparency by requiring dealers to report the prices of all corporate securitized products and municipal bond transactions to a central repository. Much of this trade information is publicly disseminated in real time through FINRA's TRACE system and the MSRB's EMMA platform. The CFTC has similar requirements for many fixed-income-related swap transactions as enacted by the Dodd-Frank Act.

The impact reporting has had on liquidity remains a topic of great debate. Some market participants are of the view that trade reporting has improved liquidity by lowering transaction costs. Others believe it has harmed liquidity by discouraging dealers from participating as actively in the market.

The Volcker Rule prohibits banks from engaging in “proprietary trading” of many categories of investments, including certain fixed-income securities.

Prudential Regulation

Prudential regulation is primarily the purview of the federal banking agencies—the Fed, the OCC and the FDIC. These agencies require banks to hold minimum levels of capital against the investments they hold, providing a “cushion” against losses the bank may suffer if positions they hold perform poorly. SEC and CFTC regulations similarly set minimum capital requirements for non-bank broker/dealers and swap dealers.

The bank regulators’ “risk-based” capital rules account for the relative risks of various categories of investments. Banks are generally required to hold more capital against riskier positions. Banking agencies also have rules in place, such as the supplementary leverage ratio, to limit leverage and liquidity requirements, and to help ensure that banks have sufficient liquid investments that can be easily sold if the need arises.

In addition, the Volcker Rule, a provision of the Dodd-Frank Act, prohibits banks from engaging in “proprietary trading” of many categories of investments, including certain fixed-income securities.

While the bond markets have not seen the same degree of new oversight that Dodd-Frank brought to swaps, a slew of new rules impacting market participants have had a major impact on the market’s functioning.

Moving Forward

In the years since the financial crisis, nearly every element of the fixed-income market has received renewed focus and, in most cases, a modernization. The Dodd-Frank Act catalyzed the process for new swaps-market regulations impacting each of these four categories—dealers, investors, trading, and market transparency.

By enhancing the roles of the CFTC and the SEC (for securities-based swaps), these agencies gained the authority to oversee swap dealers and markets, ensure that transactions meet business conduct standards and require reporting that adds to the market’s transparency.

Dodd-Frank also brought a slew of new rules and revisions to existing rules which have had a major impact on market participants and the market’s functioning. For example, enhanced bank capital, leverage and liquidity requirements have increased the cost of capital for banks, making it less economical for them to hold bonds in order to service customers. The Volcker Rule that limits proprietary trading has had a similar impact, limiting bond dealers’ ability to hold bonds in inventory even when done to service institutional clients.

Conversations about future rule changes also continue—adding reporting and registration requirements for the U.S. Treasury market, for instance. Rules have also been proposed that would require dealers to disclose markups on municipal and corporate bond trades with investors.

While Greenwich Associates fully supports enhanced transparency of the fixed-income market, it is critical that regulators perform a cost-benefit analysis of any changes, ensuring that the cost of additional oversight does, in fact, improve market functioning for the end investor in a meaningful way. More specifically, while the value of reporting to regulators is hard to argue, weighing the pros and cons of broad public reporting is a much more difficult task. To that end, we believe that enhanced reporting requirements for the U.S. government bond market are an important addition to the regulators' toolbox for oversight purposes.

Exactly what must be reported and to whom, however, is still a source of ongoing debate. Prescribing specific methods for trading bonds, such as the CFTC rules requiring certain swaps be traded in specific ways on registered venues, is not advisable, as market participants has shown they will naturally gravitate to the most efficient methods of trading. Nearly three-quarters of foreign-exchange trading volume and nearly half of global government bond trading volume is already done electronically, for instance.

Conclusion

The fixed-income market is a central piece of the U.S economy, allowing money to flow from those who have it to those who need it. Ensuring those transfers take place requires an increasingly diverse set of market participants, trading venues, technologies, regulations, and incentives to enable the market to function smoothly.

To that end, market regulators must ensure that rules, both current and future, keep retail investors safe, while not being so burdensome that market efficiency is impacted.

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