

March 12, 2018

SEC Fixed Income Market Structure Advisory Committee
Mr. Brent J. Fields
Federal Advisory Committee Management Officer and Secretary
Securities and Exchange Commission 100 F Street, NE
Washington, DC 20549-1090

In regard to SEC File No. 265-30

Dear Members of the Fixed Income Market Structure Advisory Committee:

It has been with great pleasure that I have watched the formation of FIMSAC, with its objective to provide the SEC with perspectives on the structure and operations of the US Fixed Income markets, and recommendations on matters related to fixed income market structure. I am also pleased that Chairman Heaney's first comments were focused on the long term interests of retail investors, both directly and through pension funds.

I have been discussing the problems with the Fixed Income market structure for many years now, and have written about them as well. Two of my recent Viewpoints discussing this topic, titled *'Where Are the Bonds?'* and *'Flaws in Fixed Income Asset Management'*, are attached, and I would like to share them with the Committee. I have also provided another presentation on the US Bond Market Structure – *'Overview of US Bond and Non Agency MBS Markets – 2014'*.

By way of background, after an MBA at the University of Chicago, I have accumulated 30 years of Fixed Income experience primarily in MBS markets, starting out in Fixed Income and MBS Research at Merrill Lynch, Morgan Stanley and Nomura Securities. I left research at the large firms in 1995, as I decided that the relationship between trading and research within a large broker-dealer precluded independent advice to clients. I spent that next 15+ years at MBS specialist boutiques, focusing on secondary markets, where I provided independent advice and investment ideas to, and traded with, many of the largest fixed income institutions – over 200 - over the years. Having a bird's eye view of the markets, participants, products and investment flows over this period has allowed me to form many unique insights that I believe are free of bias. I am currently the founder and CIO of MBS Mantra, LLC, a unique analytically driven Investment Advisor that seeks to provide Alpha-generating investments and strategies to investors.

I have read the minutes of the initial FIMSAC Jan 18 meeting, as well as those of the subcommittees, and have the following observations:

- **A discussion of the structure of the Fixed Income market is missing.** Market participants are identified, as are numerous byproducts of the market structure, but not why and how the status quo exists. The costs of the inefficiencies of the market structure to investors is also not identified or quantified, except indirectly through the analysis of bid-offer spreads and the discussions on ‘behavior modification’.
- **Symptoms of the current market structure are identified, leading to the formation of sub committees to study them, but not the causes of the symptoms.** Almost all the research submitted discusses bandaids for the current market structure, through the use of technology.
- While there is diversity to the types of firms represented on the commission, and their experience, **the discussion appears to have failed to connect the dots, that are available in the exhibits and research provided, that would lead to a discussion of market structure.**
- **Most market participants focus their energies and research on the primary markets, and for many, the secondary markets tend to be of secondary importance.**

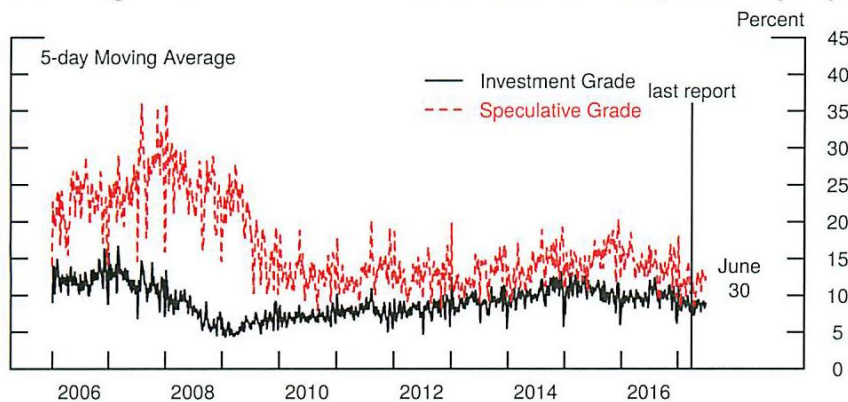
The Red Flag

Size of Trades in Secondary Markets: The bond market liquidity reports from the Fed offers some very important insights that most market participants are not aware of, or think about.

<https://www.federalreserve.gov/foia/files/bond-market-liquidity-report-2017Q2.pdf>

A graph within Exhibit 4 – Percentage of Trades Greater than 1 Million in Par Value – is, in my view, the one that should raise the most questions that can lead to an understanding of market structure. This in turn can lead to a discussion of solutions in order to improve transparency and liquidity and provide additional returns to retail investors and pensions.

Percentage of Trades Greater than 1 Million in Par Value (Seasonally Adjusted)



Note: Excludes 144a bonds.
Source: FINRA, Mergent, Moody's DRD.

The FINRA data shows that approximately only 10% of Investment Grade corporate bond trades are greater than \$1mm and <15% of Speculative Grade bond trades are greater than \$1mm.

In other words, greater than 80% of all secondary market trades in bonds are < \$1mm - Oddlots!

I found this to be very curious, as bonds are created in block Roundlot sizes, leading to my investigations and papers.

Granted, the volume of invested principal traded is in larger blocks that were more recently issued, but the number of outstanding cusips is far greater than the number of bonds with flow and liquidity at any point in time. Could seasoned issues have more flow and liquidity if the market structure was better designed?

In *'Where are the Bonds'* (second graph on Page 2), I compute similar data for MBS in 2014 – only 20% of Non-Agency MBS trades are greater than \$1mm.

Pages 13-18 of *'Overview of US Bond and Non Agency MBS Markets – 2014'* provide more detail.

As a secondary markets specialist in MBS, I have long been aware of reasons behind the creation of Oddlots, but not fully aware of the magnitude of the problem. **The recent availability of FINRA TRACE data finally provides concrete evidence of the problem, and can thus lead to potential solutions.**

Bond Market Structure

The following comments summarize discussions in the two MBS Mantra Viewpoints I have attached.

On the origination side:

- There are over a million outstanding cusips in bonds.
- Bonds trade OTC
- A given bond issuer has many outstanding bonds, but only 1 stock. For example, GE has over 500 bond cusips outstanding.
- In contrast, there are only a few thousand stocks.
- When bonds are originated, larger managers get greater allocations. Bond holdings are concentrated with a limited number of managers, unlike stocks.

On the investment side:

- The majority of Fixed Income assets are managed in Separate Accounts by large Fixed Income Managers for the benefit of the Pension System and retail investors. (Banks, Insurance companies, and Funds are other large investors).
- Separate Accounts work well for Equities portfolios.
- Large fixed income managers create Oddlots by allocating their Roundlot purchases across their many separate accounts, for “Diversification” and “Fair Allocation”.
- It follows that investor clients of such managers own Oddlots purchased at Roundlot prices
- Oddlots enter the market when Investors (and usually not their managers) change managers or

strategies and want to sell bonds.

- Oddlots usually trade cheaper than roundlots.
- In general managers do not buy oddlots of bonds that they do not already own, as they cannot allocate them fairly, and there are surveillance and maintenance costs for owning additional cusips.
- Large managers often market their allocations process as a positive, as their purchasing power allows them to buy blocks. They do not realize that this creates losses relative to roundlot prices (and marks) when individual accounts need to sell.

The result:

- Secondary markets are dominated by Oddlots.
- Institutional investors own Oddlots purchased at Roundlot prices, locking in ‘negative alpha’ at allocation time. The negative alpha is realized when the bond is sold. The exception is when a bond is held to maturity.
- The best buyer of an oddlot is usually someone that owns it already. This limits the number of potential purchasers at a “fair” value.
- I suspect the magnitude of fixed income underperformance from negative alpha losses is substantial, in the order of many tens of \$billions, or more.
- From my interactions with them, institutional investors, pension consultants, and individuals are not aware of this problem, and do not question the prices realized upon sale of bonds.
- My informal surveys suggest that each such institutional separate account owns 1000-2000 cusips. Even a very large (many \$Billion) corporate pension plan that I surveyed has suggested that their average bond position is not much larger than \$1mm.
- Sales of such oddlots by large managers are usually involuntary events, executed through transition managers, perhaps explaining why there is not greater awareness of the problems caused by their allocations process.
- **Two identical portfolios formed from identical bond cusips, different only in total size, and thus in the size of each bond held, will likely not achieve identical total returns under most scenarios, unlike in equities.**
- Individual cusips trade infrequently (with a wide range in prices), resulting in a dependence on ‘pricing service’ marks for valuations.
- Individual investors that own bonds in accounts on retail equity platforms cannot exit bond positions, as they do not have access to systems such as ‘MarketAxess’ or to dealers that might have an ‘axe’. Bonds are typically sold in auction by the ‘trading desks’ of such managers, with no ability of the owner to control the sales price, if he or she can get a bid at all in a timely manner.

Flaws in the Fixed Income Market Structure:

- **There are flaws in both sides of the market – the origination and the investing side.**
- By managing the majority of fixed income assets in Separate Accounts, the market locks in underperformance and illiquidity.

- By originating millions of cusips, bonds become illiquid, bond blocks are not large, trade infrequently, and are not as fungible as stocks. In addition, indices cannot be replicated, leading to imperfect hedging and benchmarking.
- **The Separate Account investing structure does not work well for a primary market that creates millions of cusips.**

Solutions to improving the Fixed Income Market Structure

In the papers attached, I make some suggestions to improve market structure, liquidity and transparency. Briefly:

- If the Separate Account structure is to be maintained, the SEC can limit the number of cusips that are originated, for example by requiring issuers to limit the number of bonds they have outstanding, and reopening issues instead of originating new cusips. The US Treasury already does this on occasion, for example. This will make each cusip more liquid and more broadly owned, leading to a greater number of potential purchasers in the secondary market.
- If the number of cusips could be reduced and limited, and the size of bonds increased, then bonds could become exchange traded, and thus more liquid with transparent pricing and liquidity. Investors could then more efficiently avail themselves of the benefits of separate accounts.
- Mr. Harris, on page 202, line 22, discusses a Biasis and Green study of bond trading in the 1920s, when the New Stock Exchange traded bonds. “They found that the bonds then traded at lower transactions costs than we presently see”. Mr. Harris then states “So its not technology, its rules and systems..”. **I believe that this evidence should justify the formation of an additional sub-committee to study this topic.**
- On the investing side, given the current market with millions of cusips, fund structures are the obvious solution to keep blocks of bonds intact, with the elimination of Separate Accounts directly owning bonds. This will likely require changes to pension plan bylaws to allow investing in funds in Separate Accounts.
- **I translate ‘the long term interests of retail investors’ into ‘improving returns for investors’.** **While this objective is not explicitly specified, improving either the investing side or origination side should dramatically improve returns for Fixed Income investors.**

Concerns about liquidity in the current marketplace and in extreme circumstances

I discuss this issue in *‘Where are the Bonds?’*. This Viewpoint was written in response to Vanguard proposals to improve bond markets, and many of the same concerns and recommendations are voiced in the minutes of the January FIMSAC meeting. My opinions:

- “It is unlikely that Electronic Bond Trading and other exchange-like solutions will mitigate the performance, liquidity, and pricing issues that arise from fragmentation of most bonds. Even Oddlots of bonds that are fungible, such as US Treasuries or Agency MBS, often trade at discounts, in spite of substantial electronic trading in their markets.”

- “Lack-of-liquidity concerns seem to arise from secondary market considerations - who will provide liquidity if and when everyone wants or needs to sell at the same time....To me, this is a leverage issue, and central bank QE has made this worse. Bond price widening and illiquidity will likely occur when levered investors are all trying to delever at the same time, as they did in the Taper Tantrum of 2013, and in the Crisis years of 2007-2008. When all bond investors are going in the same direction, the proposals (by Vanguard) listed above will not work....My recommendation to the Fed, SEC, FINRA and other regulators is to focus on providing emergency balance sheet vehicles at the Fed to absorb excessive supply of bonds from the secondary markets in the event of a run.”

Additional suggestions

I would like FINRA to further break out its data, creating matrices for bond trades less than \$1mm and greater than \$1mm, by seller type and buyer type. Maybe the SEC can request this data from FINRA for the commission. Besides confirming or revoking my hypothesis of the sources of the flaws in the fixed income market structure, such data could also shed further light on where future liquidity problems are going to come from.

In conclusion

I hope that the Commission finds the attached Viewpoints and concerns and suggestions voiced therein and above to be useful. I am available to discuss this topic in further detail, or to add diversity of thinking to the expert group at the table, and remain at your service.

Yours respectfully,

Samir Shah

Managing Member and CIO
MBS Mantra, LLC.

Links to the additional documents attached below

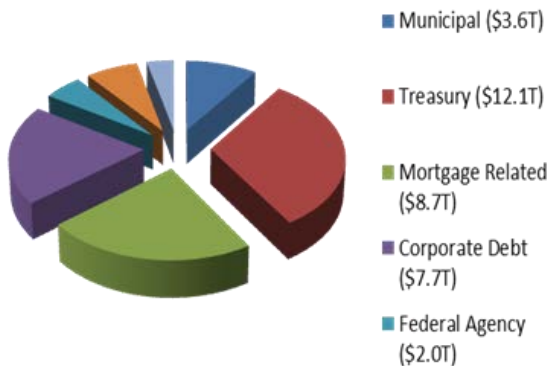
http://www.mbsmantrallc.com/var/m_0/00/003/44984/591731-MBS_Mantra_-_Viewpoints_-_Oct_2016.pdf

http://www.mbsmantrallc.com/var/m_0/00/003/44984/639478-MBS_Mantra_-_Viewpoint_-_Flaws_in_Fixed_Income_Asset_Management_-_April_6,_2017.pdf

<http://www.mbsmantrallc.com/us-bond-market-overview.shtml>

MBS Mantra’s view of Economics, Finance and MBS Markets

Where are the Bonds?



I am writing in response to the following article on [Business Insider](http://www.businessinsider.com/vanguard-on-what-needs-to-happen-in-the-bond-market-2016-10) that discusses Vanguard's proposals to improve the bond markets.

<http://www.businessinsider.com/vanguard-on-what-needs-to-happen-in-the-bond-market-2016-10>

Vanguard, like most large asset managers, has missed an important issue in the Fixed Income Markets that leads to significant underperformance for investors - **fragmentation of bond holdings.**

One of the biggest complaints of large institutional buyers is that there are not enough bonds for them to buy. But, the bond market is huge, and much of it turns over.

So, **where are the bonds?**

Overview of the US Bond Markets

I published an [Overview of the US bond markets](#) in 2015. Please refer to it for details. The data is from 2014, mostly from SIFMA or FINRA TRACE reports.

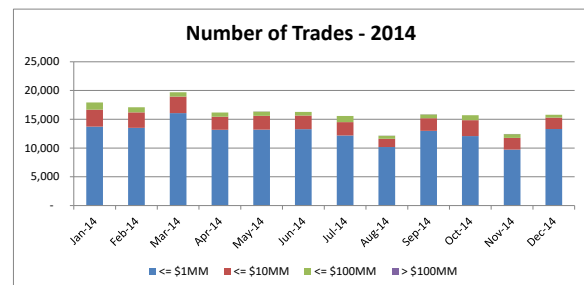
I have focused on the Non-Agency RMBS ("RMBS") market, but I suspect the same issues apply to most other bond sectors.

- Outstanding US Bond Market Debt was \$38.1T, compared to \$24.6T for listed equities (Page 5).
- US Treasury debt is the largest sector (\$12.1T in 2014) surpassing Mortgage Related debt (\$8.7T) in 2011. Corporate debt was \$7.7T (Page 6).

- Non Agency RMBS had been the largest structured sector within MBS, but was rapidly shrinking. However, in 2014, it was still \$980B (Page 7).
- Choosing a random month (October 2014), Fixed Income average daily trading volume was \$768B, of which US Treasuries were \$530B, and Non Agency MBS (including CMBS) was \$3.5B (Page 12).
- Aggregating RMBS TRACE data for 2014, there were 190,952 trades, totaling \$335+B - a significant percentage of all outstanding bonds, and certainly a majority of the bonds that are not locked up in held-to-maturity accounts at banks and insurance companies (Page 14).
- However, 153,437 (80%!) of these were less than \$1mm in size (totalling \$14B), and only 9165 were greater than \$10mm in size (totalling \$196B, averaging 45 per day), explaining the complaints from large institutional investors. 28,295 trades

totalling \$114B were between \$1mm and \$10mm in size (Page 14).

- Similar stratification is also seen in dealer offerings, and Bid Wanted In Comp ("BWIC") auction supply - only a small fraction of the supply is "block-sized" (pages 13 and 17), with the rest fragmented.



Why are Bonds in the secondary markets fragmented

Bonds are created in bulk - large institutions buy them as blocks.

Yet, as described above, when one studies the TRACE data, only a fraction of all trades (at least in Non Agency RMBS) are blocks.

Understanding the holders sheds some light on this:

- Insurance companies: From an [NAIC report](#) - "As of year-end 2015, the insurance industry held \$252.996 billion of agency RMBS and \$124.613 billion of private-label RMBS or 14.2% of total RMBS outstanding."
- Banks: From a Fed data series - (ALCBLOTC Index on Bloomberg) - as of 10/2016 banks hold \$97.7B in Non Agency MBS.
- Banks and Insurance companies holdings of Non Agency MBS total approximately \$350B. Given that the total size of the market has shrunk from 2014, due to almost non-existent new issuance, and continued prepayments and default related shrinkage, and might now be approximately \$700B market size, this is still ~ 50% of all Non Agency MBS holdings.
- The rest must therefore be held by Money Managers and Hedge Funds - \$300B to \$400B. (Compare this

number to the total RMBS traded volume in 2014).

Banks and Insurance companies tend to keep the bonds they purchase as blocks, and tend not to trade their portfolios much - they mostly have a investment problem, are usually hunting for assets to purchase to deploy cash, and rarely sell bonds.

Most Money Managers, on the other hand, purchase blocks of bonds and allocate them to many thousands of Institutional Separately Managed Accounts - SMAs - fragmenting the bond positions into tiny pieces, with each client getting an allocation of the purchase. This is done as most clients are promised "Fair Allocation" and "Diversification".

Thus are created what is known in the industry as "Oddlots" - Money Managers create Oddlots through the process of allocations to SMAs.

Oddlot holdings from Money Managers regularly enter the marketplace - there are

many BWICs everyday with oddlot sized bonds! (See Page 17 of the Overview).

In my experience, Money Managers mostly sell Oddlots when (a) SMA clients instruct them to sell bonds to raise cash or change strategies; or (b) they inherit bonds to manage from the migration of a client account from another manager. (A sub-industry of Brokers has emerged to facilitate this - they are known as "Transition Managers".)

There is no question that these Oddlot bonds do not trade in an orderly manner. They often have wide discrepancies in prices, for many reasons that I will discuss below. In essence, they trade at "Oddlot Prices" that are usually at higher yields (discounts) to benchmark "market yields" or "Block Prices".

One large Money Manager has this statement in their SMA marketing publication: *"Investment managers generally combine trades across their clients' accounts, allowing them to 'buy in bulk',*

which can potentially lead to better pricing due to a smaller spread." This document goes on compare their allocated costs vs the typical markup costs on Municipal bonds, stratified by size, published by the MRSB. What is not addressed is whether the savings in transactions costs can offset the lower yields of the client in essence purchasing Oddlots at Block Prices, as compared to paying higher one time transaction costs when purchasing Oddlots in the secondary market at higher yields. Also not compared is whether those transaction cost efficiencies can be achieved when selling bonds - unlikely, since most Money Managers do not sell entire blocks to provide liquidity for a single SMA.

I am not going to focus on the implications that Oddlot sales at Oddlot Prices have on the Realized Total Return Performance of SMA clients, where the allocated bonds were purchased at Block Prices. Please contact me offline if you would like to discuss this.

Why do Oddlots trade "cheap"?

Over the course of 20 years of trading Oddlots with Money Managers, I have heard and identified most of the reasons:

Sell side reasons

- The primary business of large dealers is creating and moving new issues. They mostly do not bid on secondary positions unless it is for a large favored client. Secondary bonds in position are not focused on by their salesforce. Oddlots get even less focus, and orders are often shunted to their "regional dealer" desks that transact with smaller dealers.
- Small ("Regional") dealers end up providing much liquidity in Oddlots. However, Regional dealers have limited capital and balance sheet size available, and often cannot consistently bid.
- Most large buy side managers will not "approve" smaller dealers or

transact with them, increasing their transactions costs of going through 2 or more dealers, including Transition Managers that will broker bonds to Regional Dealers. An ancillary effect is that large managers often are not offered cheap oddlots.

- There are many fixed costs of doing a fixed income transaction - ticket costs, cancel and corrects of tickets, expensive analytics, etc. The smaller the bond, the larger the margin required to cover costs.

Buy side reasons

- Money Manager Excuse: "it wont move the needle. I only buy blocks".
- Money Manager Excuse: "I have 20 new issues I am buying this week, call me next week".
- Money Manager excuse: "I sold a small bond and got lousy bids. My bid for your bond is back of your offering, in spite of it being a matcher". The bid from an owner of the bond defines future bids for the

same bond, potentially leading to a downward spiral in the price an oddlot bond will trade at when liquidity is needed.

- Some Money Managers have gotten Wells notices from the SEC for purchasing oddlots cheap and letting their pricing services mark them at roundlot levels, showing instantaneous gains, discouraging them from purchasing oddlots.
- Regional dealers are not approved for trading by many managers, in spite of MBS having DVP (delivery versus payment) settlement. Bids for oddlots often involve multiple parties, each needing to cover costs.
- Most Institutional bond investors do not buy Oddlots in the Secondary Markets due to the marginal costs of a new position. Banks and Insurance companies have accounting costs, reporting, and basis issues to consider. A new position triggers a new round of costs, making oddlots, even if they already own them, non-

economical. Money Managers, too, have costs associated with purchasing Oddlots that they do not already own. Bond holdings generate a perpetual cost stream to money managers: costs of surveillance, as well as marking costs. The costs associated with a portfolio of new cusips can overwhelm the fees earned from managing that account. This also explains why managers usually liquidate "inherited" bond portfolios - they prefer to manage and allocate bonds they already own, with no marginal costs for marking or surveillance.

- Matchers - when a cusip is already owned, there is no marginal cost to a money manager for owning more of that cusip. However, most bonds are unique, and tend to be owned by a few holders. Usually a manager with a matcher should be the best bid for a bond, and dealers bid accordingly. If an existing holder does not support the prices of bonds he already owns,

prices for oddlots of that bond will suffer in the secondary market, as non holders will only buy oddlots if they are more than compensated for the costs associated with doing so.

- Leverage and competition - in today's low yielding rate environment, with many hedge funds competing for new issue bonds with real money accounts, hedge funds deploy leverage in their quest for double digit returns from 1.5%-3% yielding bonds. This lowers the yields on blocks. In addition, there is strong demand from overseas buyers that are confronted with negative yields in their local economies. In contrast, most oddlots cannot be leveraged, and trade at more fundamental unleveraged yields due to limited competition.

It is unlikely that Electronic Bond Trading and other exchange-like solutions will mitigate the performance, liquidity, and pricing issues that arise from fragmentation

of most bonds. Even Oddlots of bonds that are fungible, such as US Treasuries or Agency MBS, often trade at discounts, in spite of substantial electronic trading in their markets.

Given the large size of the market for secondary bonds, with inexhaustible supply of Oddlots for the foreseeable future, MBS Mantra has chosen to embrace this inefficiency by investing for clients in SMAs at Oddlot prices, thus achieving superior returns to comparable SMAs that have purchased bonds at Block prices.

The longer term solutions to fix this Institutional flaw involve Institutional Managers managing assets either in mutual fund formats rather than allocated SMAs, or having client SMAs invest only in sector mutual funds, thus allowing Blocks of bonds to remain Blocks so that they can be sold efficiently when liquidity is needed.

Back to Vanguard

Not surprisingly, most of Vanguard's recommendations have to do with transparency and liquidity in large block trading between large managers - Vanguard is already bypassing many of the issues of bond fragmentation by focusing on Mutual Funds.

- **Limit trading fragmentation.**
- **Further develop all-to-all networks.**
- **Integrate trading and order-management systems.**
- **Provide greater price transparency.**
- **Protect against information leakage.**

In the current environment, these are not significant issues in my opinion.

As far as demand goes, one hears anecdotal evidence that most new issue bonds are oversubscribed by many multiples. I heard more examples of this at an S&P conference called "Making Sense of Malformed Global

Bond Markets", so this is clearly not a demand issue.

Lack-of-liquidity concerns seem to arise from secondary market considerations - who will provide liquidity if and when everyone wants or needs to sell at the same time.

To me, this is a leverage issue, and central bank QE has made this worse. Bond price widening and illiquidity will likely occur when levered investors are all trying to delever at the same time, as they did in the Taper Tantrum of 2013, and in the Crisis years of 2007-2008. **When all bond investors are going in the same direction, the proposals listed above will not work.**

My recommendation to the Fed, SEC, FINRA and other regulators is to focus on providing emergency balance sheet vehicles at the Fed to absorb excessive supply of bonds from the secondary markets in the event of a run.

As importantly, Central Banks need to recognize that they have opened up



Pandora's box by initiating QE, low rates, and negative interest rates, and that it is unlikely that they will be able to unwind these in the short run. **Reducing market volatility through stable expectations will be the key to preventing an unintended crisis, and possibly having a 30 year plan for QE, to gradually allow bonds to mature.**

Samir B. Shah
Chief Investment Officer
MBS Mantra, LLC
sshah@mbsmantrallc.com
203-388-8356

October 19, 2016



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Viewpoint

Flaws in Fixed Income Asset Management

April 6, 2017

Samir Shah, CIO, MBS Mantra, LLC

Those of you who have seen MBS Mantra's marketing materials know that, at its core, our strategy seeks to exploit flaws in the structure of Fixed Income Asset Management ("FIAM"). **One of these flaws results in the loss of many Billions in returns to the Pension System. We have an ambitious long term plan to solve this structural flaw in Fixed Income to improve returns to the Pension System, and thus disrupt Fixed Income Asset Management.**

I have hinted at this flaw in a previous Viewpoint – *Where are the Bonds*, dated October 19, 2016.

The flaw is the suitability mismatch between the custody and management structure of most bonds, namely in Separately Managed Account (SMAs), and in the structure of the US bond market.

The result of the flaw is this: money managers break up blocks of bonds – Roundlots - into Oddlots (typically less than \$1mm in size) to allocate to their clients – typically Long Only Pensions and Endowments – in their SMAs.

Such investors are, in essence, buying Oddlots at Roundlot prices.

Since Oddlots usually trade at discounts to Roundlots, this allocations process locks in Negative Alpha for the Pension system. These losses remain unrealized until Oddlots are sold in the secondary market to satisfy a redemption request from an investor. However, they are real, and probably cost the pension system many tens if not hundreds of Billions of expected but lost returns.

Most institutional investors are unaware of these losses as they are masked by the cumulative returns from coupon and Beta-driven price changes. My constant questioning of consultants, trustees, and pension board members, at the conferences I attend and in office visits, suggests that many of these fiduciaries are unaware of this issue and do not compare their holdings statements from before a redemption with the realized proceeds of the redemption. **This lack of awareness allows this systematic flaw to persist.**

What is the magnitude of this Problem

I cannot directly find the size of Fixed Income assets held in SMAs, so we have to guess by working backwards.

The total size of the US Fixed Income Market is approximately \$39.36T. (SIFMA Q4 2016)

<http://www.sifma.org/research/statistics.aspx>



MBS Mantra, LLC

Of this, \$3.74T is owned by Bond and Income Mutual Funds, according to ICI data (Bloomberg Ticker IF02IOS3 Index). (2/2017)

According to the NAIC, bonds owned by Insurance companies total \$3.5T (year end 2010)

http://www.naic.org/capital_markets_archive/110819.htm

The Fed owns \$4.2T in its SOMA account.

https://www.newyorkfed.org/markets/soma/sysopen_accholdings.html

Banks – approx. \$2.7T in US securities

<https://www.federalreserve.gov/econresdata/releases/combanksal/current.htm>

Foreign Holders of US debt - \$5.9T

These holders total \$20T, leaving us with about \$19.3T unaccounted for. Most of these are probably held at Fixed Income Asset Managers, in SMAs.

Most large asset managers do not show their AUM in SMAs on their website (one exception is Doubleline). Based on conversations with fixed income asset managers, many managers have a large percentage of their assets in SMAs, and not mutual funds.

In my estimation, on average, most Oddlots probably trade 1% (or point) cheaper than round lots. This does vary by asset class, and FINRA has been attempting to make this market more transparent through TRACE. The only asset class where Oddlots might not trade at a significant discount is US Treasuries, as the UST market is mostly electronically traded.

To be conservative, let us assume that the FIAM system's non-UST bond AUM in SMAs is \$10T.

1% of \$10T is \$100B - a sizable problem and significant amount of lost returns, and worth the effort to fix!

Why does this problem exist

I do not believe that this systemic problem is intentional in any way.

The first investment management companies probably all started out with SMAs, as they are ideal for equities and active management of equities. The structure probably got reused for Fixed Income as it was already there.

All subsequent entrepreneurs that started Fixed Income managers probably came from other Fixed Income management firms, and recreated what they knew and had experienced, instead of analyzing the market and identifying the appropriate way to manage Fixed Income assets.

In our opinion, the SMA investment structure is not suitable for the current structure of the fixed income market.

Let's first examine market structure of equities.

- There are a limited number of public equities, with a few thousand companies constituting the majority of the market capitalization.
- A company usually has a limited number of different share classes.
- As capital grows or is raised, a company continues to issue more of the same shares.
- A new share is no different than an old share.
- Since most shares are exchange traded, the price of a single share will not differ significantly from the price of a larger quantity of shares.
- Portfolio value can be ascertained with precision.
- In addition, each stock has many holders, improving liquidity.
- **The SMA structure can work well in the confines of this market structure. Large or small SMA accounts to be created with identical portfolios, risks and liquidity, without much friction. Active management and investor constraints can easily be facilitated. Holders of small SMAs can have returns that are similar to those of large SMAs.**

With bonds, this is not true. The SMA structure does not work well in the bond market framework, where there are over a million individual and unique bonds.

The problem lies with the way bonds are created – every new financing need results in a new bond. Bloomberg shows 279,950 individual corporate bonds, and 958,039 muni bonds. Any given issuer will have many bonds outstanding. For example, there are 583 GE bonds, each trading uniquely and with a limited number of holders. Almost all bonds trade in the OTC market, with limited liquidity.

The problem is even worse in the MBS markets, where the number of bond holders can be less than 5. A majority holder of a bond can effectively manipulate the price of an oddlot as he can be the best buyer is he so chooses, or not provide any liquidity at all.

To add insult to injury, a small SMA will realize different (and lower) total return than a larger SMA with the same bond portfolio, as smaller Oddlots trade at greater discounts compared to larger Oddlots.

As described above and previously, the allocation of unique bonds into a large number of SMAs leads to the fragmentation of bonds, and approximately 80% of all Non Agency MBS that trade in the secondary markets are Oddlots (using 2014 FINRA data). I suspect that other bond sectors have similar statistics.

Solutions

I have thought about this problem for many years, and founded MBS Mantra to solve this. I have identified two possible solutions to eliminate this problem that can work within the existing FIAM SMA structure.

The first solution is unlikely to happen, but is a good thought experiment. It will likely require regulation and control by the SEC, although socially conscious companies could easily implement it right away.



The proposal is to change the bond market structure to more resemble the structure of stocks, by reducing the number of bonds per issuer, thus reducing the total number of bonds, and increasing the size and fungibility of each bond.

This would also increase holders, and make the bonds more liquid. Bond issues could be large enough to be exchange and electronically traded. This would also reduce the cost of FIAM and fees for SMAs would drop.

One way to accomplish this would be for the SEC to mandate that each issuer only have a limited number of corporate bonds (plus money markets for operating capital needs) outstanding at any time. One limit could be 30 bonds, one for each year, although I would prefer maturity buckets and even fewer issues, maybe limited to 5 or 10 per issuer. A new long bond would only be issued when the shortest one matured, with the others rolling down the maturity ladder. To handle the premium/discount and income needs of investors, maybe all bonds should be zero coupons, with coupon streams being built synthetically from zeros.

If the company needed more debt capital, it could reopen one or all outstanding issues and issue more of any specific bond. They would get better execution, as liquidity would improve with larger outstanding bonds and more holders.

In mortgages, you could make all MBS a covered bond of the issuer. This is the norm in many countries, and was proposed in the US during the financial crisis, but never took off.

Such a bond market structure would work very well in a SMA landscape, or at least certainly better than the current market structure.

There is no chance this will happen, and it is almost a ridiculous suggestion given the powers in the market: the underperformance from illiquidity and oddlot trading is primarily captured by large banks, brokers and hedge funds that participate in the secondary markets. They will lobby to keep fixed income markets non transparent and illiquid, as the trading of Fixed Income bonds is a large part of their revenue.

Our analysis of the problem has led us to the identification of a second solution that is possible to execute within the SMA structure, in a market with a million bond cusips. The goal of this new solution will be to prevent the creation of Oddlots in the future by keeping Roundlots intact. We are not giving details here, as we believe that this is our IP. We have not come across any other Fixed Income manager that appears to have intentionally tried our solution.

Ironically, MBS Mantra currently exploits the fragmented nature of the bond markets and manages secondary market MBS bonds in SMAs, as they are already of a size that can be used in SMAs.



MBS Mantra, LLC

However, as MBS Mantra increases AUM and earns revenues, we will be investing in the creation of such an optimal Fixed Income Asset Manager. We hope to identify forward thinking sources of capital to realize this disruptive dream. Our success will also perform a social function of improving returns to the pension system.

I would love to hear your comments.

Samir Shah, CIO

MBS Mantra, LLC

sshah@mbsmantrallc.com

203-388-8356



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Overview of US Bond and Non Agency MBS Markets – 2014

Section 1 from MBS Mantra, LLC's FAQ for Investors

September, 2015

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Section 1

What is the size of the market that MBS Mantra will invest in?

- **MBS Mantra invests in the US Bond Markets, primarily in Non Agency RMBS bonds.**
- **The following pages describe the size and components of the US Bond Markets, and describes in more detail the size and trading characteristics of the Non Agency RMBS market.**

Section 1, Part A

Size and Components of the US Bond Market *

* As of various dates in 2014

Size of US Bond Markets

- The US Bond markets are larger than the US Equity markets.

Listed Equities on US Exchanges	Outstanding US Bond Market Debt	US Bank Time and Saving Deposits
24.6T	38.1T	10.1T

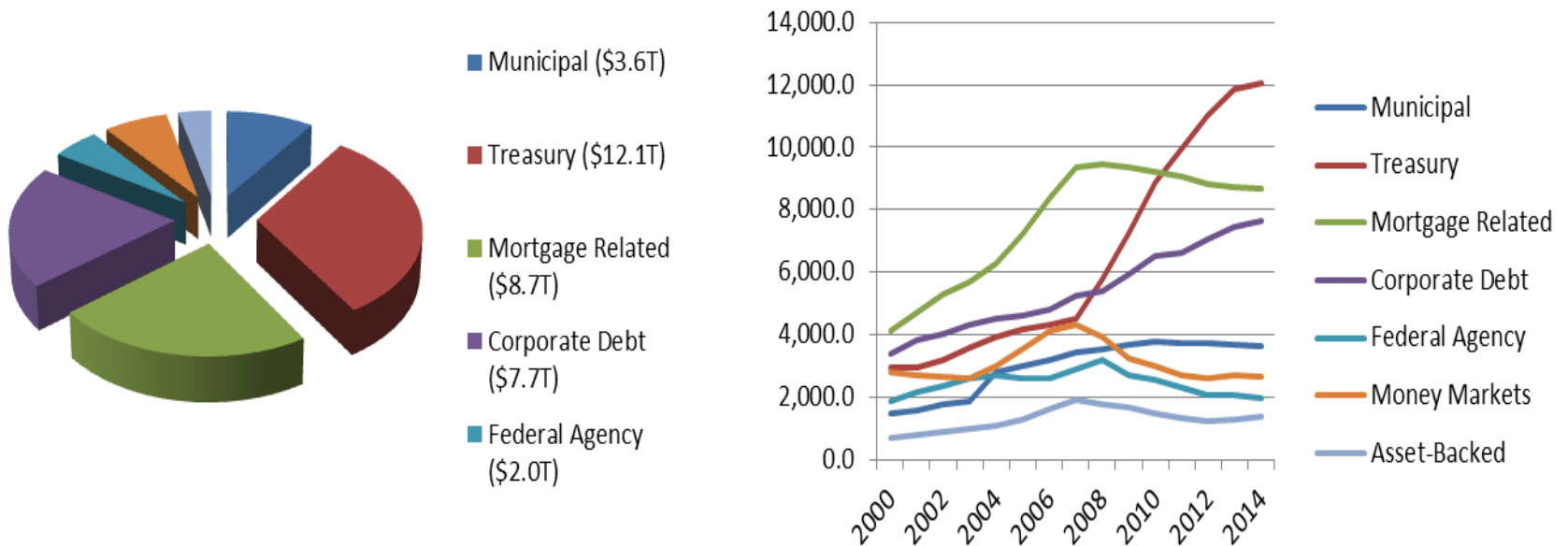
2013-2014 estimates. Sources: World Federation of Exchanges, Federal Reserve,

- Most bonds are traded in OTC (“Over-The-Counter”) market.
- Mostly traded by “Investment Banks” with large Institutional Money Managers, for their Institutional Investors, in large block sizes - an Institutional product. Not sold in sizes appropriate for Individual Investors.
- Not easily available to Individual (“Retail”) Investors.
- 2 sectors available for direct Retail investing: Municipal Bonds, and US Treasuries and Savings Bonds.
- Bank Term CDs are the only other direct fixed income alternatives for Retail investors.

US Bond Markets

(as of November 2014)

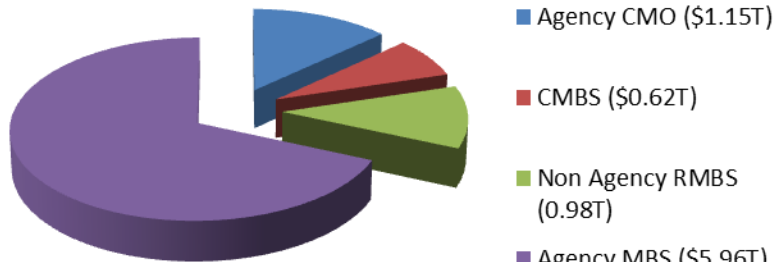
- US Treasury (“UST”) debt has become the largest bond sector, post QE.
- Mortgage Related debt is now the 2nd largest sector.



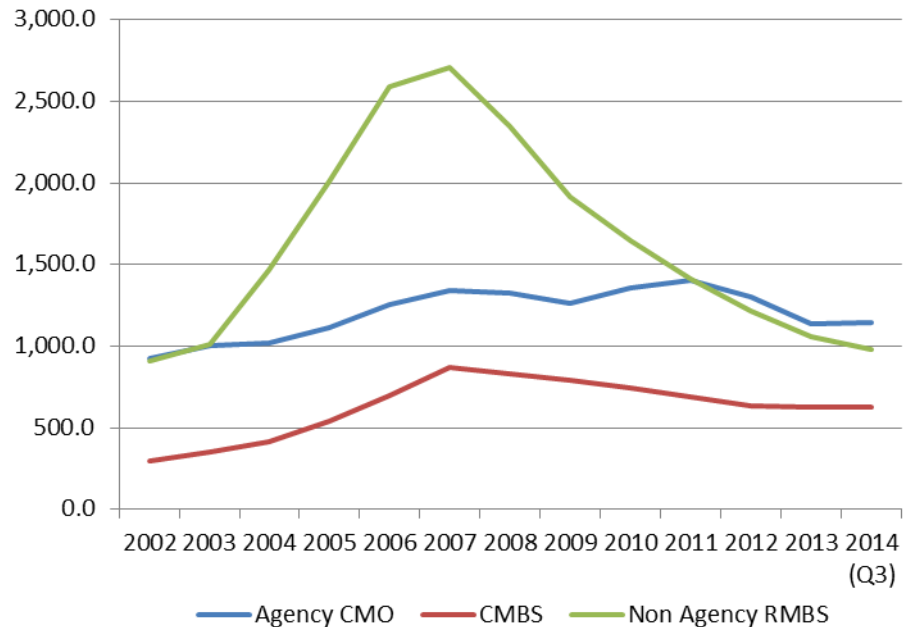
2014. Source: SIFMA

Mortgage Backed Securities

- The \$8.7T Mortgage Market has multiple sectors.
- Agency MBS (“passthroughs”) is the largest and most liquid sector.
- Non Agency RMBS and CMBS are the most interesting as they have had great changes in their markets.
- The ballooning and subsequent collapse of these markets during the recent Financial Crisis has created numerous opportunities.

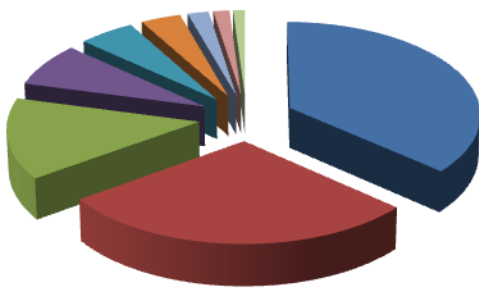


2014. Source: SIFMA

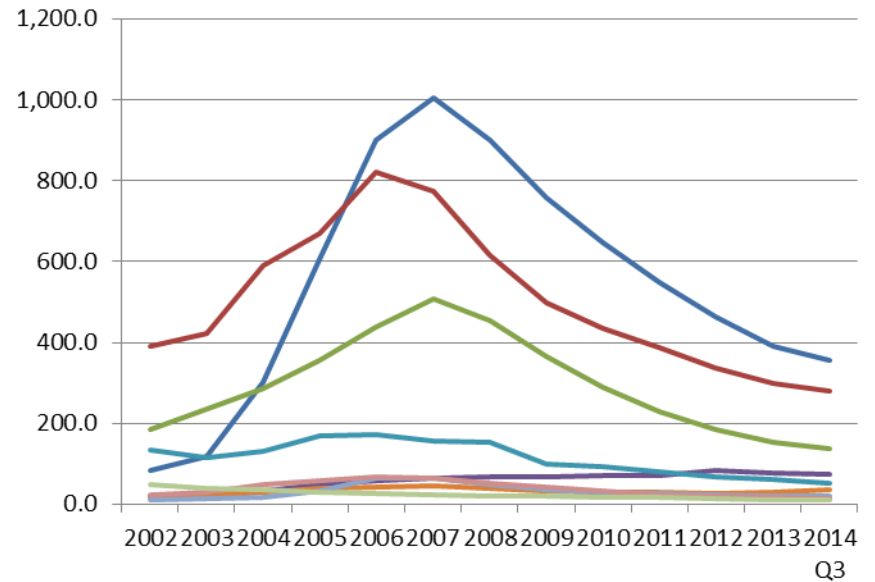


Non Agency RMBS Market

- The \$976B Non Agency RMBS Market can be further stratified. It is shrinking, but is still sizable.



- Alt-A (\$356B)
- Subprime (\$279B)
- Jumbo Prime (\$137B)
- Resecuritization (\$74B)
- Other (\$50B)
- Scratch & Dent (\$36B)
- Junior Lien (\$19B)
- HELOC (\$14B)
- Manufactured Housing (\$10B)



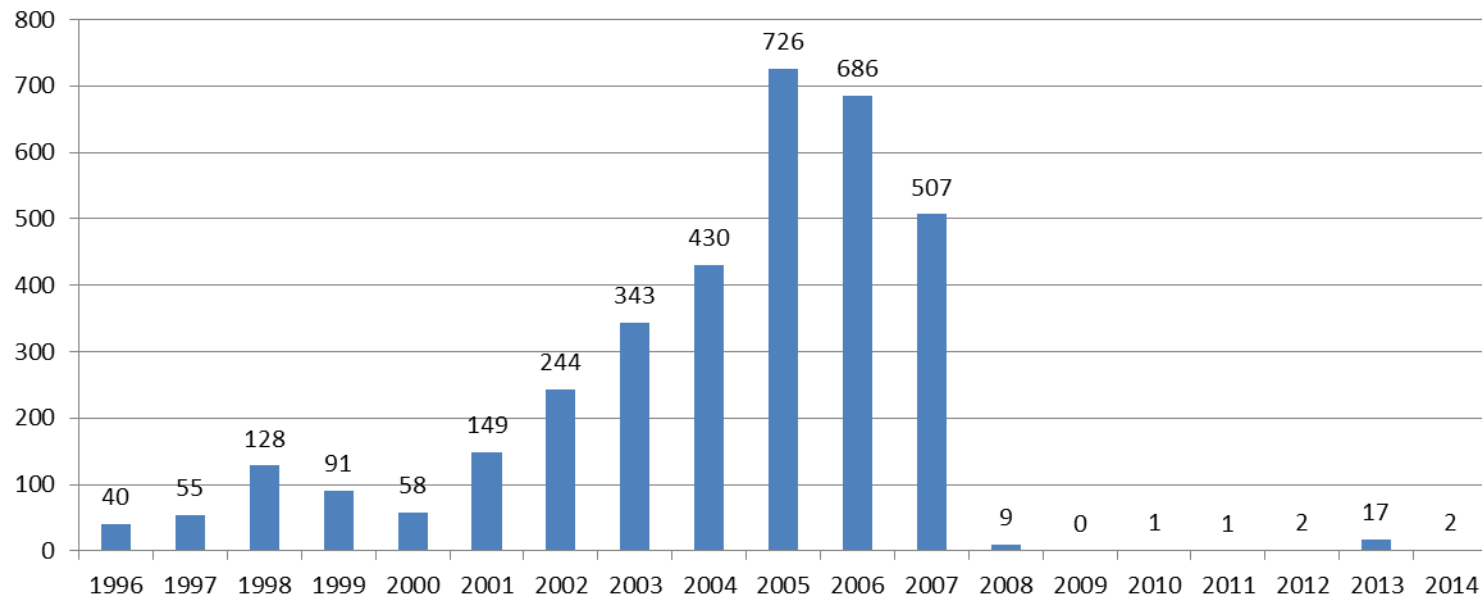
- Alt-A
- Subprime
- Jumbo Prime
- Resecuritization
- Other
- Scratch & Dent
- Junior Lien
- HELOC
- Manufactured Housing

2014. Source: SIFMA

Issuance of Non Agency RMBS

- Since 2009, Non Agency RMBS has almost ceased to be produced, however \$976+B remain outstanding.
- Most new mortgages are securitized into Agency MBS.

**Non Agency RMBS Issuance
(\$ billions)**



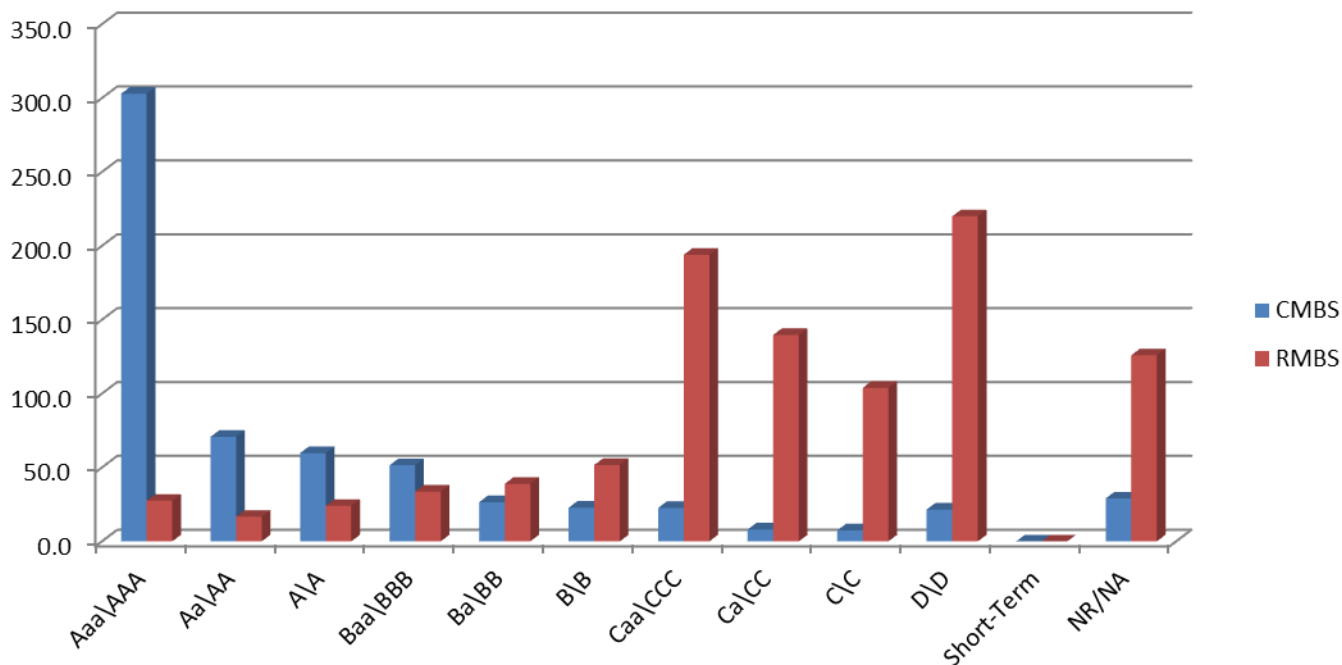
2014. Source: SIFMA



Distribution by Ratings

CMBS and Non Agency RMBS Universe

- The \$623B CMBS market is highly rated, and therefore very liquid.
- The \$976B Non Agency RMBS Market has mostly non-Investment Grade (“IG”) ratings, and is more prone to inefficiencies and mispricings.



2014. Source: SIFMA

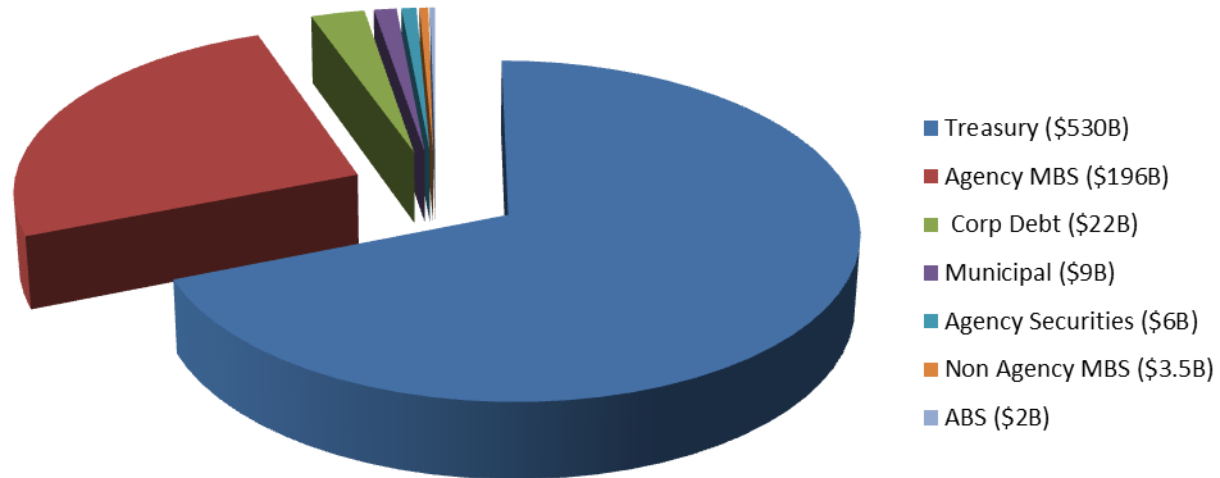
Section 1, Part B

Non Agency (“NA”) RMBS – Trading and Flow Characteristics

Fixed Income Securities – Liquidity Statistics

Average Daily Traded Volume by Sector - Oct 2014

- Average Daily Trading Volume for October 2014: \$768B
- Non Agency MBS (including CMBS) – a pretty healthy \$3.5B

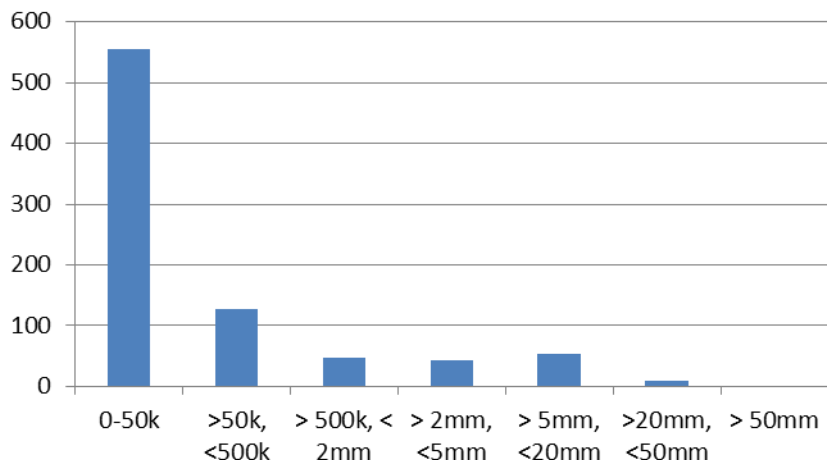


2014. Source: SIFMA

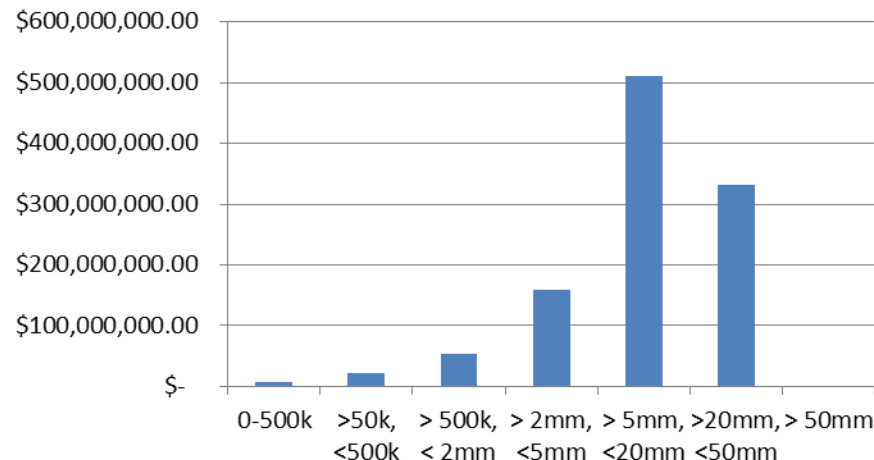
Non Agency RMBS - Dealer Offerings as of November 10, 2014

- There were \$1.08+B in Non Agency RMBS offered by dealers.
- Of 837 items offered, 731 were smaller than \$2mm, totaling \$81mm.
- The majority of the bonds offered are oddlots and microlots!
- Only 10 bonds offered with greater than \$20mm in principal.

Number of Bonds



Total Principal



2014. Source: MBS Source

Non Agency RMBS - FINRA Trading Statistics 2014 Totals

- 190,000+ trades in Non Agency RMBS in 2014, totaling approx. \$335+B.
- Majority of the trades (153,000+) were less than \$1mm, totaling \$14+B.
- Non-Investment Grade flow dominated Investment Grade bond flow.

	Non- Investment Grade	Investment Grade	Total
Volume of Trades (\$B)			
Total	\$329.31	\$23.59	\$352.89
Customer Buys	\$155.59	\$11.00	\$166.59
Customer Sells	\$152.98	\$10.37	\$163.35
Dealer to Dealer	\$152.98	\$2.22	\$155.20
Number of Trades			
Total	159,279	32,125	191,404
Customer Buys	69,056	9,856	78,912
Customer Sells	60,603	12,495	73,098
Dealer to Dealer	29,612	9,768	39,380

	Non- Investment Grade	Investment Grade	Total
Volume of Trades (\$B) *			
Total	\$317.5	\$17.8	\$335.32
<1mm	\$11.7	\$2.3	\$14.05
1mm-10mm	\$105.3	\$9.2	\$114.47
10mm-100mm	\$190.3	\$6.3	\$196.55
>100mm	\$10.2	\$0.0	\$10.25
Number of Trades (BB) *			
Total	159,188	31,764	190,952
<1mm	124,823	28,614	153,437
1mm-10mm	25,439	2,856	28,295
10mm-100mm	8,871	294	9,165
>100mm	55	-	55

*FINRA trade size data does not total up correctly

2014. Source: FINRA - TRACE

Non Agency RMBS - FINRA Trading Statistics Monthly Averages - 2014

- 15,000 trades on average every month, with average total principal of \$27.9B!
- Majority of the trades (12,000+) were less than \$1mm, totaling \$1+B per month.
- Non-Investment Grade flow dominated Investment Grade bonds.

	Non- Investment Grade	Investment Grade	Total
Volume of Trades (\$B)			
Total	\$27.44	\$1.97	\$29.41
Customer Buys	\$12.97	\$0.92	\$13.88
Customer Sells	\$12.75	\$0.86	\$13.61
Dealer to Dealer	\$1.70	\$0.18	\$1.89
Number of Trades			
Total	13,273	2,677	15,950
Customer Buys	5,755	821	6,576
Customer Sells	5,050	1,041	6,092
Dealer to Dealer	2,468	814	3,282

	Non- Investment Grade	Investment Grade	Total
Volume of Trades (\$B) *			
Total	\$26.5	\$1.5	\$27.94
<1mm	\$1.0	\$0.2	\$1.17
1mm-10mm	\$8.8	\$0.8	\$9.54
10mm-100mm	\$15.9	\$0.5	\$16.38
>100mm	\$0.9	\$0.0	\$0.85
Number of Trades (BB) *			
Total	13,266	2,647	15,913
<1mm	10,402	2,385	12,786
1mm-10mm	2,120	238	2,358
10mm-100mm	739	25	764
>100mm	5	-	5

*FINRA trade size data does not total up correctly

2014. Source: FINRA - TRACE

Non Agency RMBS - FINRA Trading Statistics

Sample Month Summary - October 2014

- 15,000+ trades in Non Agency RMBS, totaling approx. \$30B!
- Majority of the trades (12,000+) were less than \$1mm, totaling \$1+B.
- The bulk of the volume was in the \$10+mm bucket, totaling \$17B.
- Volumes for other months in 2014 are similar.
- Non-Investment Grade flow dominated Investment Grade bond flows.
- Purchasing power resides with customers.

	Non- Investment Grade	Investment Grade	Total
Volume of Trades (\$B)			
Total	\$29.54	\$1.61	\$31.15
Customer Buys	\$13.28	\$0.71	\$13.99
Customer Sells	\$14.44	\$0.78	\$15.22
Dealer to Dealer	\$1.81	\$0.12	\$1.94
Number of Trades			
Total	13,099	2,644	15,743
Customer Buys	5,580	766	6,346
Customer Sells	5,121	1,079	6,200
Dealer to Dealer	2,398	799	3,197

	Non- Investment Grade	Investment Grade	Total
Volume of Trades (\$B) *			
Total	\$28.4	\$1.4	\$29.72
<1mm	\$1.1	\$0.2	\$1.33
1mm-10mm	\$10.1	\$1.0	\$11.12
10mm-100mm	\$17.1	\$0.1	\$17.27
>100mm	\$0.0	\$0.0	\$0.00
Number of Trades (BB) *			
Total	13,092	2,623	15,715
<1mm	9,794	2,281	12,075
1mm-10mm	2,450	332	2,782
10mm-100mm	848	10	858
>100mm	-	-	-

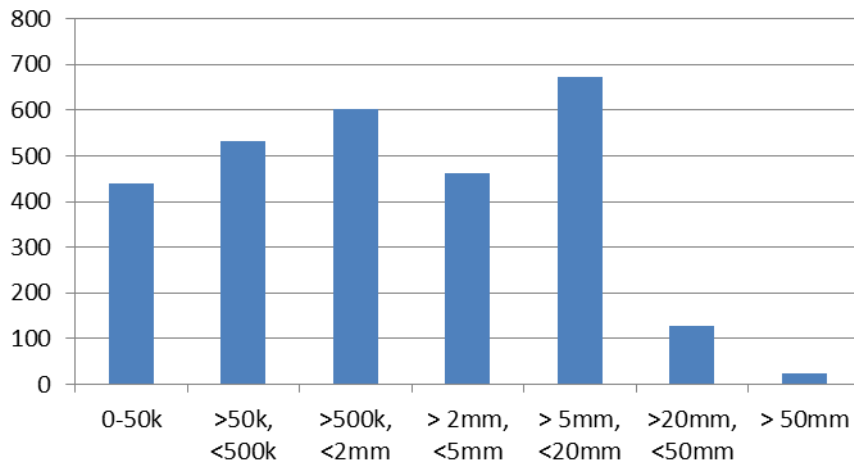
*FINRA trade size data on 3 days in October does not total up correctly

2014. Source: FINRA - TRACE

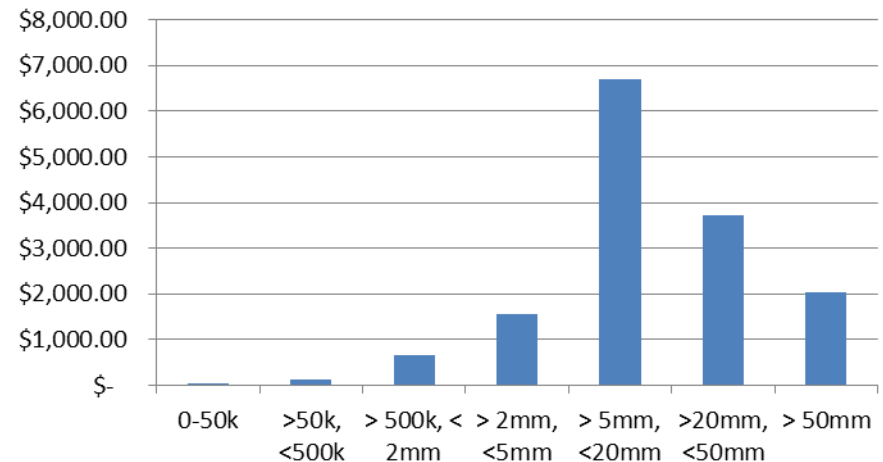
Non Agency RMBS - Bid Wanted in Comp (“BWIC”) Supply October 2014 - Stratification by Size

- \$14.795BB in Non Agency RMBS were “BWIC-ed” in Oct 2014.
- 2858 different bonds.
- 573 of these were Oddlots or Microlots, smaller than 2mm principal each, totaling \$776mm.
- Only 151 were greater than \$20mm.

Number of Bonds



Total Principal (\$mm)

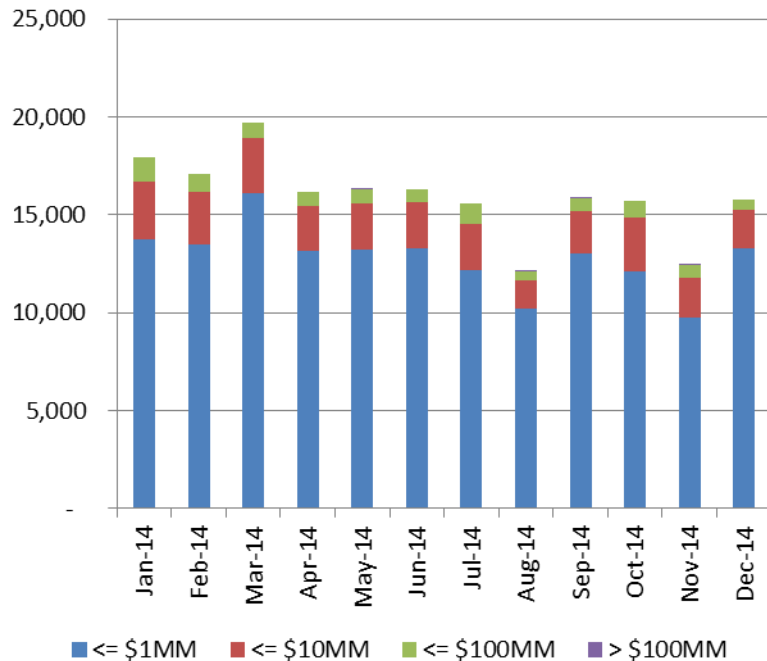


2014. Source: Bid lists from various dealers

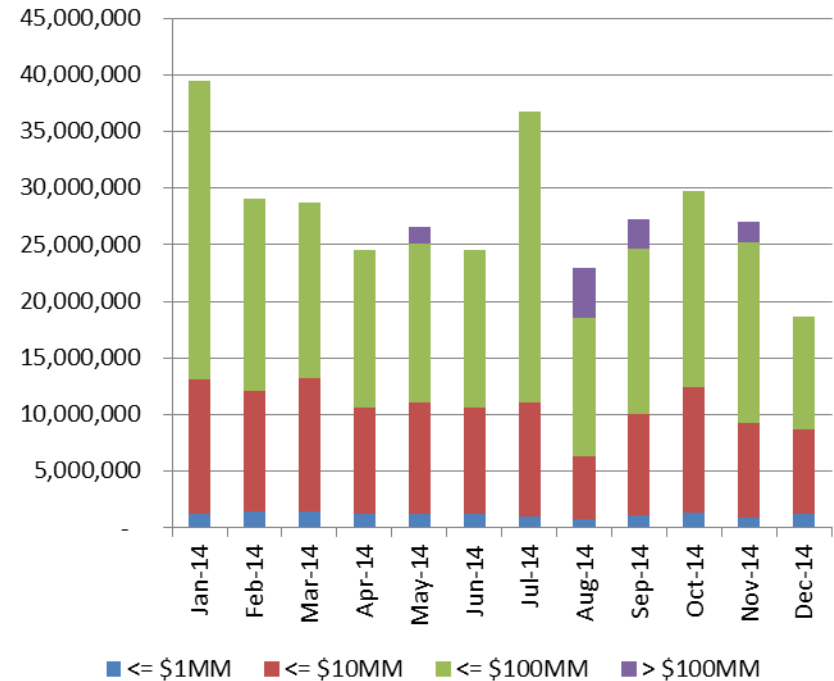
Non Agency – 2014 FINRA Trading Statistics

- The majority of the trades in Non Agency RMBS are Oddlots <\$1mm in size, with approximately \$1B traded per month.

Number of Trades



Principal Traded (\$'000s)



2014. Source: FINRA

Contact and Additional Information

For more information, please contact:

Samir B. Shah
Managing Member and Chief Investment Officer
MBS Mantra, LLC

Email: sshah@mbsmantrallc.com

Phone: 203-388-8356

Website: www.mbsmantrallc.com

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