Analyzing the TBA Market: Changes Made & Changes Needed

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Abstract

To-Be Announced is a market where agency Mortgage Backed Securities are traded. Pre-2008, Mortgage Backed Securities were traded at volumes as high as $350 billion (Federal Reserve Bank, 2011), however, post 2008 this trade volume fell to a mere $10 billion (Federal Reserve Bank, 2011). This was because of the huge losses customers faced when the 2008 crisis hit. One of the reasons for the failure of these securities was a lack of understanding of these MBS. The To-Be Announced market further decreases knowledge of these securities and therefore, could be restructured like the Corporate Bond Market where prices of the securities are regularly published to increase transparency. This paper aims to understand the changes in the TBA market and suggests further changes to improve the market for investors.

Mortgage Backed Securities

Mortgage Backed Securities (MBS) are bonds that are backed by a pool of mortgage loans. In each mortgage backed security there are hundreds of different mortgages in the collateral pool. Each mortgage pool has different characteristics, which make each security fundamentally different. For example, there could be residential or commercial mortgages in the collateral pool. These mortgages also differ on characteristics like the location of the house on which the mortgage was taken, the borrower's credit rating, the loan terms and the duration of the particular mortgage. The underwriter of the MBS selects these mortgages and the credit rating agencies rate these mortgages. In every MBS deal there is a servicer who is responsible for collecting mortgage payments from the borrowers and is in charge of recovering defaulted mortgage payments. The servicer is also known as the manager in some of the MBS deals.

Even though each MBS is inherently different, they are categorized into 4 broad categories – agency residential mortgages, non-agency residential mortgages, subprime residential mortgages and commercial mortgages.

When the government backs a mortgage partially or fully it is called an agency mortgage. For example, Government National Mortgage Association (Ginnie Mae), the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac) issue agency MBS. These are government agencies or government sponsored agencies. Mortgages by Ginnie Mae are backed

by the full faith and credit of the U.S. government and guarantees that investors will receive timely payments with the only risk being prepayment risk. Fannie Mae and Freddie Mac mortgages also provide certain guarantees, but are not backed by the U.S. government. However, it almost fully guarantees that investors will receive timely payments with the only risk being prepayment risk (SIFMA).

Non-agency mortgages mainly consist of large principal value loans and medium credit borrowers. These mortgages have both credit and prepayment risk.

Subprime mortgages mainly consist of low credit borrowers and these have mainly prepayment and credit risk. Subprime mortgages are considered to be the riskiest because of the higher likelihood of default from a subprime mortgage borrower as compared to a non-agency or agency mortgage borrower.

Commercial mortgages are mortgages taken out by companies for commercial use. For example, a mortgage taken out by JC Penny will be considered a commercial mortgage.

These different types of mortgages are collateralized and then broken into tranches or preserved as pass-throughs and sold to customers. A mortgage pass-through security is a type of MBS created by pooling mortgage loans entitling the bondholder to receive a pro rata share in the cash flows of the specific pool of mortgage loans, that serves as a collateral for the security (SIFMA). Because there is only one

tranche/class of bondholders, these securities are sometimes referred to as single-class MBS.

In a tranched MBS there are different classes of bondholders and the highest class of bondholders receive payments first, followed by the next level and so on and so forth. The payments are like a waterfall, which first go to the AAA bondholders, then AA bondholders et cetera, and when there are delinquencies or defaults the lowest class of bondholder does not receive payment and once that class is removed the second lowest class does not receive payment. In other words, defaults work there way from the bottom up, whereas payments are given top down.

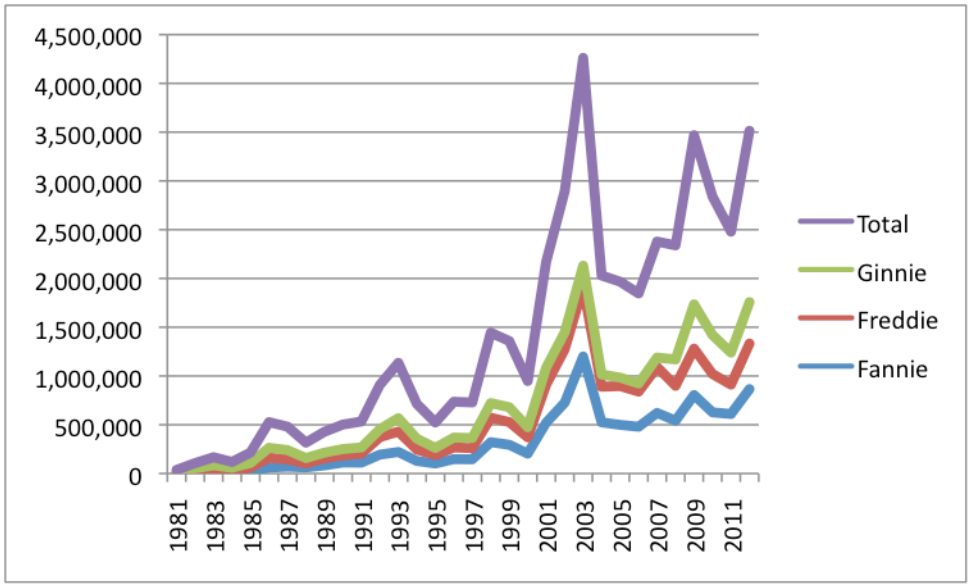
These tranches serve as a form of credit enhancement to protect the AAA bondholders, AA bondholders etc. Tranching is meant to improve the credit profile of the MBS by providing a cushion for default. A bigger cushion requires the collateral pool to default more before the AAA bondholders lose their money as compared to a class that has a smaller cushion. Tranching is also important for credit rating agencies when they are deciding a rating for a security. This rating is necessary to help determine the players in the market. For example, insurance companies would rarely buy junk bonds, whereas hedge funds would rarely buy AAA rated bonds.

Since these securities are inherently different from each other, they are mainly over the counter (OTC) securities. Some of these securities, however, are sold in the To

Be Announced (TBA) market, which is similar to an exchange, giving an illusion of similarity amongst these MBS.

After the 2008 crisis, trade in overall MBS decreased, however, trading in agency MBS remained strong. More than 90% of these agency MBS are traded in the TBA market (Vickery & Wright, 2010).

Figure 1: Breakup of MBS traded between 1990-2012 ($ USD Millions)



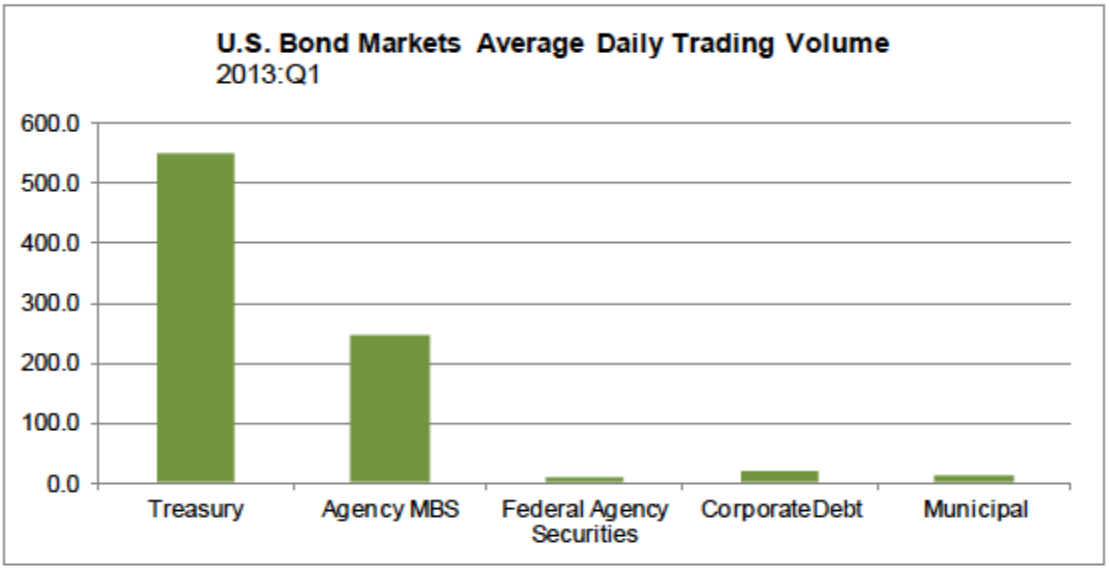
Source: SIFMA(2013)

According to SIFMA statistics overall trading in securitized products fell in 2008. Furthermore trading in private label/non-agency MBS also decreased post 2008. However, in Figure 1, it is interesting to note that the total agency MBS value increased post 2008. One reason for this is that these are backed by the government

so investors are not taking on as much risk as they would have had they invested in non-agency MBS.

In Figure 2, we see average trading volume breakup in the US bond market. As you can see, agency mortgages are the second highest securities, below treasuries, traded in the US bond market. It is interesting to see that agency MBS have a significant share in the average daily volume of US Bonds traded.

Figure 2: Trading in the US Bond Markets (in $ billions)



Source: SIFMA(2013)

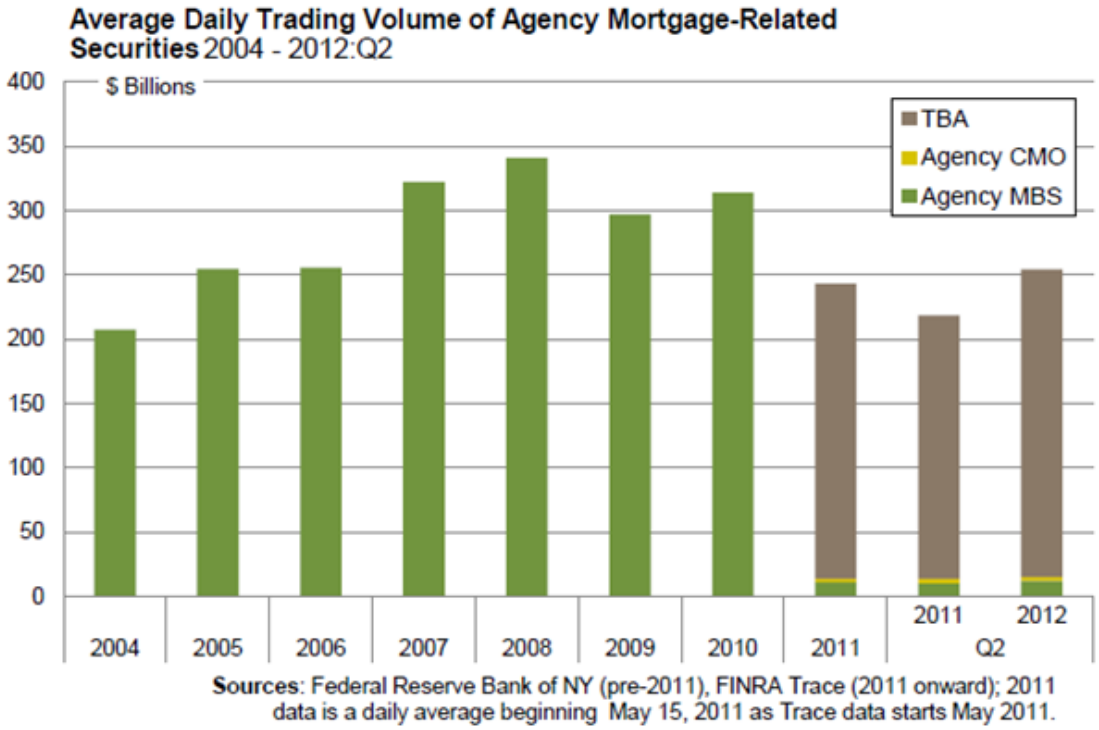
From Figure 1 & Figure 2, we can conclude that MBS play a significant role in the US Bond Market. Furthermore, agency MBS contribute more to the MBS market compared to non-agency MBS, subprime MBS and commercial MBS. It is therefore important for us to understand the mechanics of the agency MBS market.

TBA market

The To-Be Announced market is a platform for agency MBS dealers to trade. The TBA market can be thought of as a combination of the Over the Counter and Exchange Traded market. This is because in the TBA market each security that is sold is different and therefore specific to the buyer. However, each different security is sold at the same price. In other words, the TBA market allows investors to buy a MBS today at some specific price without knowing the details of that MBS.

In a TBA trade, there are two parties. The two parties agree on price and 5 other characteristics. This is the characteristic feature of the TBA market; the actual identity of the securities to be delivered at settlement is not specified on the trade date. Instead, the two parties agree on only six general parameters of the securities to be delivered: issuer, maturity, coupon, price, par amount, and settlement date. This market only caters to certain agency MBS; the other MBS are traded in the specified pool market. The name of this market is the specified pool, because at the time of the trade the identity of the pool is known unlike the TBA market (SIFMA Fact Sheet, 2013).

Figure 3: Increase in TBA Market Share Since 2004



Source: Federal Reserve Bank

In Figure 3, you see average trading volume of agency MBS. In the green are the agency MBS that do not trade in the TBA market, and in the grey the agency MBS that are traded in the TBA market are seen. It is interesting to note that before the financial crisis there was no sign of trade in TBA but after the crisis TBA took a significant portion of market share. One possible reason for this is that the TBA markets creates an illusion of safer securities and more liquidity. Conversely, it could be that customers were wary of trading in these securities with banks due to the crisis, and therefore, they moved to the TBA market.

All agency MBS are not eligible for trade in the TBA market. All TBA eligible securities involve a "pass-through" structure, whereby the underlying mortgage principal and interest payments are given to bondholders on a pro rata basis (NAIC). Agency MBS are initially issued as pass-throughs, in part because the strength of the guarantee by the government is such that there is no need for additional credit enhancement.

To understand the opacity of the TBA trade one needs to understand the timeline of information flow.

Figure 4: Timeline of a TBA Trade

Source:SIFMA(2013)

In a TBA trade there are 3 important dates one needs to know about:

1. Trade date: The buyer and the seller establish the six trade parameters mentioned previously. For example, a TBA contract agreed in July will be settled in August, for a security issued by Freddie Mac with a 30-year maturity, a 6% annual coupon, and a par amount of $200 million at a price of $102 per $100 of par amount,

for a total price of $204 million. TBA trades generally settle within three months (Vickery & Wright, 2010).

2. Two days before settlement: No later than 3 p.m. two business days prior to settlement ("48-hour day"), the seller provides the buyer with the details of the pools it intends to deliver on settlement day (Vickery & Wright, 2010).

3. Settlement day: The seller delivers the securities specified two days prior and receives the cash specified on the trade date.

From the above timeline we see that the details of the security are only known two days before settlement date leading to opacity in the market. Securities Industry and Financial Markets Association (SIFMA) resolve all the issues that arise in this period, as it is the regulator of the TBA market. After the trade is completed the servicer is in charge of collecting the mortgages and managing defaults.

Limitations of the TBA Market

As discussed in the previous section the mortgage backed securities that were being sold were not known at the time of trade, but were only fully known 2 days prior to the settlement date. This property of the TBA market created some frictions in the market. Below is a detailed explanation of some of the main problems in this market.

Cheapest to Deliver Phenomenon

On settlement date, the seller selects which MBS in their inventory to deliver to the buyer. The seller has the incentive to deliver the least valuable security which matches the characteristics settled on the trade date. This incentive is well understood by the TBA buyer, who therefore expects to receive a security of lower value than the average security. This is an example of a market phenomenon known as "adverse selection." The practice of delivering the cheapest security provided it satisfies the 6 criterion is known as the "cheapest to deliver" phenomenon (Vickery & Wright, 2010).

Another thing one should note is that small players in the market are hurt more compared to the big players in the market because of the "cheapest to deliver" phenomenon. The big banks, generally, have steady long-term relationships with the seller and therefore are not always given the worst security of the lot, but the small, one time buyers or regional brokers are severely hurt because of the "cheapest to deliver" phenomenon. This could result in significant problems if these small buyers

and regional brokers formed a union and decided not to trade in the market. By leaving the market they would decrease the demand of these securities and therefore, hurt the economy.

Opacity also increases transaction costs for the small sized customers. A less informed, smaller sized buyer is charged a higher markup by the seller as compared to a well-informed larger buyer. A small sized buyer might be less informed because he/she might not have access to information like the big buyers do. This markup overprices an already overpriced security.

Illusion of Fungibility

TBA trading effectively applies a common cheapest-to-deliver price level to an intrinsically diverse set of underlying securities. In other words, intrinsically different securities are being traded for the same price. The practice of homogenized prices is counterintuitive when applied to agency MBS, because of the greater heterogeneity of the underlying securities, the pools of mortgages and hence the prepayment risk (Vickery & Wright, 2010). Each security has different pool characteristics, which affect the prepayment and recovery of the mortgages, and hence increase heterogeneity. Together, the securitization process and the TBA market transform what is fundamentally heterogeneous into something homogeneous. Obviously, this fungibility is only temporary, because after settlement the buyer observes additional characteristics about the specific pools, which provide information about the prepayment behavior, and hence value.

In summary, the TBA market has two problems:

1. Opacity in the market is binding customers to securities they might have not bought had they known about the characteristics of the security on the trade date.
2. Opacity in the market is increasing transaction cost for the customer's.

Changes in the TBA Market Post 2008 Crisis

Loan Restriction

As discussed above, Fannie Mae and Freddie Mac are allowed to purchase only certain types of mortgages. One such restriction is the loan limit set by the Federal Home Financing Agency (FHFA). Therefore Fannie Mae and Freddie Mac are prohibited from purchasing mortgages larger than a set of conforming loan limits set by the FHFA. In 2008, FHFA increased the conforming loan limit to $729,750 from a previous national level of $417,000 (Vickery & Wright, 2010). The FHFA adjusts the limits annually in line with the general level of home prices.

As the U.S. housing market deteriorated in 2007, and mortgage market stresses increased, market participants and policymakers looked to the GSEs to support the housing sector. This led to raising the conforming loan limit to allow the GSEs to support a broader range of residential mortgages, particularly the prime jumbo market. This limit was in place from 2008 until 2011 and has since gone back to the original limit of $417,000 (Vickery & Wright, 2010).

Margin Requirement

The Financial Industry Regulatory Authority (FINRA) recently proposed a few amendments in the TBA market. It proposed collection of margin when current exposure exceeded $250,000 (FINRA, 2014). This was to eliminate credit risk in the market. This practice is followed in the futures market to protect the two parties

from the credit risk of the other party. As we will see in the next section, this change is unnecessary for this market.

Transparency

In 2001, FINRA aimed to make the corporate market transparent, which had an outstanding principal of $5.37 trillion at the end of 2006 (Bessembinder & Maxwell, 2008). FINRA improved transparency by introducing Trade Reporting and Compliance Engine (TRACE) to the entire corporate bond market. TRACE was established in July 2002 to create a database to store information on price and bring transparency to the corporate bond market. FINRA immediately created the database and offered real-time information on price for all corporate bond trades — including intra-day transaction data and aggregate end-of-day statistics (for example- most active bonds, total volume, advances and declines, and new highs and lows).

Bessembinder and Maxwell's in their report in 2008 stated that the increase in transparency reduced cost of transactions in trading. In their report they provided three possible reasons for this:

1. In opaque markets, well-informed dealers can extort the less informed dealers. The dealers in this case are less informed in some cases because they do not have access to the information other dealers have. For example, big banks might have more information on the security as compared to a regional broker.

2. In a transparent market it is hard to charge any buyer a higher mark up. This significantly reduces transaction cost for the buyer.
3. In a transparent market the dealer can share the risk and therefore decrease carrying costs and the customer's cost of transaction.

They also found that increasing transparency helped smaller sized trades decrease their cost of transaction more compared to bigger sized trades.

FINRA, following the corporate bond market, has extended some of this transparency to the TBA market. In 2012, FINRA increased transparency in the TBA market for agency pass-through MBS. Through TRACE, FINRA has begun collecting TBA transaction information, including the Committee on Uniform Securities Identification Procedures (CUSIP) number, time of transaction, price and other related information. However, FINRA has not released these numbers to the market (Friewald, Jankowitsch & Subrahmanyam, 2013). In other words, post trade transparency, information on the price at which the security was traded, has improved but the data is yet to be released on a large scale. On the other hand, pre-trade transparency, information on the willingness to buy and quotes on the security, has remained the same. Some argue that this is the first step to make the market transparent. That might be true but the real question is when will they take the next step?

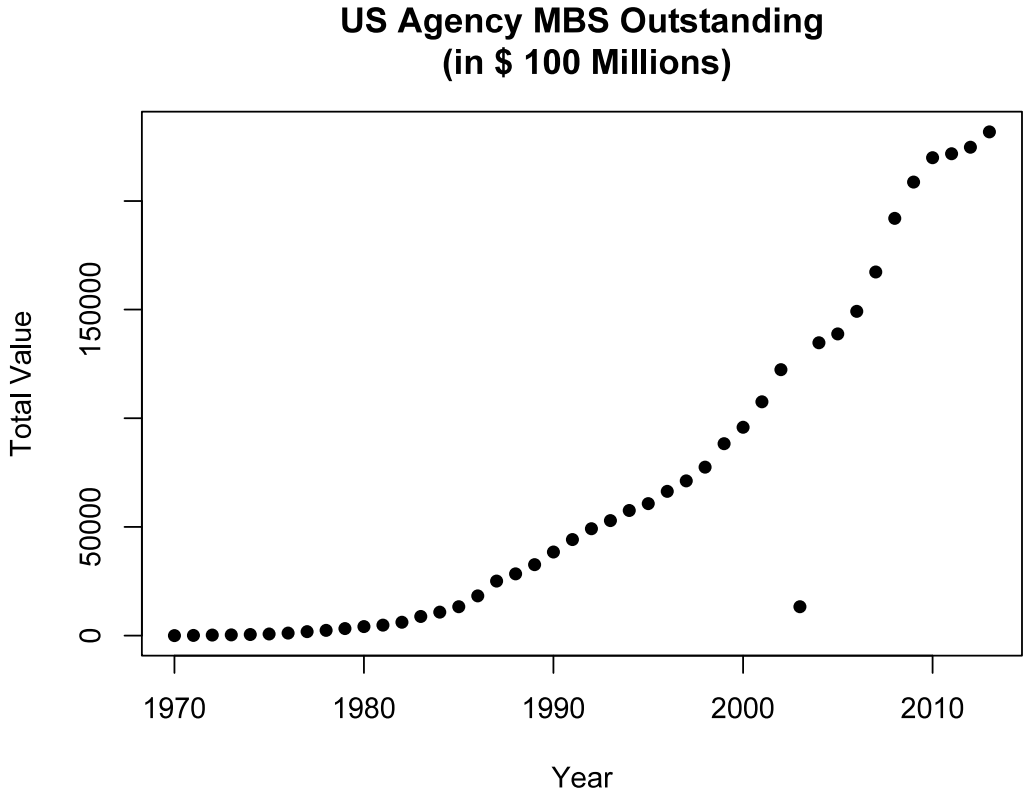
Affects of the Changes in the TBA Market

One of the changes in the TBA market was the changing of the conforming loan limit. This however, did not address the problem of "cheapest to deliver" securities which was hurting small buyers and regional brokers, nor did it address the problem of making these fundamentally different securities look homogenous.

The other change we saw was the introduction of a margin requirement to reduce credit risk, which seems pointless in this market. All the securities are guaranteed by the government and have little or no credit risk. Therefore reducing credit risk is useless in this market.

And the final change we saw in the market was the introduction of TRACE. To confirm that this change was beneficial to the investors we need to see if the introduction of TRACE improved transaction costs. In the Friewald, Jankowitsch & Subrahmanyam report, of 2013, the authors showed that the TBA market has the lowest cost of transaction as compared to other markets like the corporate bond market. However, this low transaction cost has no meaning in regards to the affects of TRACE. Information on pre-TRACE cost of transaction and post-TRACE cost of transaction would be more beneficial to investors. One way to see this is if the trade in agency MBS market increased after TRACE.

Figure 5: US Agency MBS Outstanding, 1970-2013



Source:SIFMA

Figure 5 shows that the agency MBS market has been growing at a steady rate. The addition of TRACE in 2012 did not change the trajectory of agency MBS traded. If the transaction costs were in fact lowered and hence beneficial to the investors we should have seen a change in this curve. Therefore, Figure 5 alludes to the fact that introduction of TRACE did not significantly increase transparency and hence cost of transaction.

There is no doubt about the fact that an increase in price transparency benefits investors. However, this transparency means not only price transparency but product transparency as well. In other words, TRACE improved information on price, time of trade, CUSIP information et cetera, but it failed to improve the transparency of the security itself, therefore not leading to significant changes in the MBS trajectory. Even after the implementation of TRACE investors had no information of what they were buying, and this is the issue the authorities need to address in the TBA market.

The changes in 2008 of conforming loan limits or addition of TRACE in 2012 did not aim to solve this fundamental problem of opacity of security and the wrongful perception of fungibility in the market. The Vickery and Wright report of 2010 alludes to the fact that the TBA market is creating liquidity in the agency MBS market and is therefore beneficial to investors. This would mean there is no need for any major changes in the market. But the assumption that the TBA market creates liquidity is untrue and therefore the conclusion that no major changes are needed is also incorrect. The agency MBS market has more participants than the other MBS markets and therefore is going to be more liquid than any other MBS market. Refer to Figure 3; we see that before 2008 there was as much agency MBS trade as there was after the 2008. The only thing that changed was the shift from trading agency MBS over the counter to trading agency MBS in the TBA market. However, in the over the counter market all details of the MBS were disclosed, but this was not the case in the TBA market.

Suggestions

Improving the Transparency of the Security

The fundamental flaw in the TBA market is the illusion of all agency MBS being the same. As we have seen, all these MBS are different; agency MBS bare little to no credit risk but they do have prepayment risk, which is unique to each security and therefore makes each security different. The TBA market needs to disclose all the characteristics of the security on the trade date and not 2 days before the settlement date.

Let's take for example the case of Fabrice Tourre, the junior Goldman Sachs trader who was charged by the SEC for defrauding investors on a mortgage deal during the crisis. During the financial crisis information on the mortgage pool was simply unavailable. Bankers were telling investors it was a "sweet deal" and the investors never questioned the bankers. The information was not easily understandable or available to these investors who might have reconsidered their decision to buy the MBS. Touree did what everybody in the industry was doing. Nobody understood these securities but trading in these securities was higher than ever before. This is similar to the TBA market. Investors do not adequately understand MBS but are still trading these securities. To protect the investors from future problems there is a need for more transparency in the market. Therefore I suggest making all of the TBA market transparent and not just one part of it. I suggest information on price continue to be reported and disclosure of security happen on the trade date not 2 days before the settlement date.

Improving Cost of Transaction

One solution to this problem of opaqueness in the market is bringing complete transparency to the agency MBS market. This might help reduce prices and help the small buyers/regional brokers in the market. We have seen this in the corporate bond market. In 2001, TRACE was introduced in the corporate bond market. TRACE reported prices, time of buying and selling and other characteristics of trade in the corporate bond market. Previous studies have shown that this increase in transparency led to a substantial decrease in transaction costs in the market. The introduction of TRACE reduced dealers' information advantage relative to customers and therefore also made the market fairer. Right now, TRACE reports only post-trade statistics, but to accomplish this we need to post pre-trade statistics as well.

In the article, "The Grass Isn't Always Greener- Chasing Return in a Challenging Investment Environment", released in 2011, FINRA warns investors about investing in securitized products. One of their main concerns was the transaction cost involved in securitized products market. FINRA acted on this by bringing in TRACE to the TBA market. This is interesting because a well-established entity like FINRA is putting forward certain concerns, which have not been addressed by SIFMA. To the contrary, SIFMA has shown no indication of seeing any problem in this industry.

Making the TBA market more transparent might even be able to cater to investors who were shying away from this market because of its opaqueness. This might lead

to further reduction in transaction costs and prices, creating a market better suited to serving all the investors, instead of just the big corporates.

Summary

In summary, MBS are a vital part of the US Bond market. Furthermore agency MBS play a significant role in the MBS market. The TBA market that regulates trade in this security needs to be looked at in more depth to improve the market in favor of investors. The opacity in the TBA market is not only a recipe for future disaster but is also increasing transaction costs and hurting regional brokers. The TBA market needs to start providing the details of the MBS being traded on the trade date and not 2 days before settlement date.

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