

Impact of Market Maker System for Inter-bank Bond Market Liquidity

Dan Zhang

School of Economic Management, China University of Geosciences (Beijing), Beijing100083, China

Abstract: China's financial markets, the inter-bank bond market occupies not shake the position of China's economic development plays an irreplaceable role. The inter-bank bond market as the main market bond issuance and circulation of the national policy and guidelines tendency, for the operation of the inter-bank bond market research is of great significance.

This paper obtained by the method of empirical study concluded that the number of market makers liquidity and trading volume, bond prices and bond the remaining term of the inter-bank bond market into a positive relationship, but with no significant return volatility relationship.

Keywords Maker system; liquidity; Impact

INTRODUCTION

China's inter-bank bond market was officially established in 1997, ten years of its operation, the development speed is very fast, and its size is also growing. In China's financial markets, the inter-bank bond market occupies not shake the position of China's economic development plays an irreplaceable role. Market maker trading system as an important mechanism in the inter-bank bond market which plays a key role, the use of market maker system on the development of the inter-bank bond market plays an irreplaceable role. Among the many financial markets, the inter-bank bond market maker system is the first to introduce financial markets, although in inter-bank bond market in 2001 was formally introduced market-maker system, but only after more than ten years, the Suppliers system played a huge utility in the inter-bank bond market. So the market maker system and the inter-bank bond market are inextricably linked, it is worthy of our in-depth study of a topic. As China's financial market development time is shorter than the developed countries, the introduction of market-maker system time is also short. One of the important properties of financial market liquidity, the liquidity of financial assets to reflect the conversion of a currency rate, the presence of liquidity makes it possible transaction can be carried out, the strength of liquidity severely affected the completion of the transaction efficiency, the liquidity of financial markets makes the value and significance has existed. Strong liquidity can make transactions in financial markets both in quantity and quality can be improved, thereby pulling forward the development of the financial markets. So the market maker system for inter-bank bond market liquidity research study on

inter-bank bond market is extremely important, but as an important inter-bank bond market trading mechanism, its inter-bank bond market liquidity role For global also have a significant role, it is an important factor worth considering

A RESEARCH STATUS

The Foreign Research

In other countries, the establishment of the time the inter-bank bond market much earlier than our country, of course, its level of development and China is quite different, difficult par. Especially in the case of market maker system, the introduction of market maker system for longer than many foreign countries every night for a long period of time, so in many ways, China's market maker system are obvious than abroad insufficient. For the bond market, the market maker system, as well as the study of aspects of the market maker system inter-bank bond market liquidity impact of the inter-bank foreign scholars also studied earlier, the scope of their research institute involved more broadly, research questions the depth and angle, and so is beyond us, there is a lot we can learn from the experience.

Demsetz (1968) study on the supply and demand model for financial assets shows that the market price exist in two forms of financial assets: the purchase price and the selling price, the price of buying and selling price and the buyer gives the seller often can not be given outset agree, so that both sides reach a deal in order to obtain liquidity financial assets, will be mutual concessions, and work out a mutually acceptable price plan, developed out of the prices tend to deviate from the market equilibrium price. Garman (1976) study shows that due to the market maker

quotes mechanism of investors with liquidity, so the difference between their bilateral quotes provided by forming the profits they deserve. Pagano and Roell (1992) article by comparing the market maker system and auction system analysis, the following conclusions: When the market maker system sensitivity to risk is lower than the average investor sensitivity to risk, the market maker system is superior to the auction system. Chang, Huang and Rhee (1999) believes that the market maker system for market stability can play a crucial role, because the market maker for the securities bilateral quotations, while the reported purchase price and the selling price, and is using its own funds and securities and investors to trade on the basis of this price, this transaction form itself enhances the stability of the market, coupled with the relevant requirements makers have the responsibility and obligation to maintain and strengthen the market stability, so that the presence of the market maker system more stable financial markets.

Viswanathan and Wang (2002) studies the major market maker system for transaction costs and bidding system, through the relevant empirical analysis concluded that the market maker system and bidding system is not strictly better or worse, these two systems separately for different scale investors. Transaction costs Transaction costs and bidding system compared to higher market-maker system, but the formation of the two systems are different equilibrium price, investors in two Exchange trading system for revenue obtained are different, in bulk use on the trading market maker system will investors get greater benefits, and in the small-scale trading using auction system will investors get greater benefits. This is why the bulk of trading in the interbank bond market maker system prevailed, small-scale trading in the exchange market using auction system reasons exist.

Related Research

Before the introduction of no market maker system, the relevant research has focused on whether the country should introduce market-maker system, and later, as China's financial markets and overall economic development, many scholars gradually deepening understanding of the market maker system, experience the importance of market-maker system to

Chen Yiqin (2000) using a combination of theoretical and empirical methods of analysis of the NASDAQ market maker system, and then compare the situation of China's bond market, that the country should introduce market-maker system, but not blindly follow the example of developed countries, but should be combined the actual situation of China's financial market, the market-maker system with Chinese characteristics used in financial markets to properly play the greatest effectiveness, or just the opposite, worth the candle. Xia youHua (2001) were

concerned about in the paper market of our country, through the relevant empirical analysis and test results will make the development of China's paper market maker System usher in a new scene.

Yi-ping (2005) studied the market maker system inter-bank bond market issue, detailing the theory and development of market-maker system, the problems it has to be explored for improving market makers The efficiency and effectiveness of other issues also put forward relevant policy recommendations. Zhang Long (2005), European and American bond market maker system first introduced, combined with China's actual situation analogy. Zhu Xiu ling (2008) to select relevant indicators empirical test for China and the US bond market liquidity conduct comparative analysis, that the US bond market liquidity higher than those of China's bond market liquidity, the development of China's bond market is relatively backward, more serious deficiencies in many respects, European countries should learn from the development experience of the bond market to improve China's bond market, some institutional and technical aspects. Wu Lei (2009), the efficiency of inter-bank bond market maker system research, the use of high-frequency bilateral bond market quote data is completed empirical analysis, come to this bilateral mechanism applicable to market makers quote system, make City Using this mechanism providers offer accelerate conduction and timely correction of information in the market. Ying Chi (2010) of the study and comparative analysis of the stock market, bond market, mainly on the spillover effects of both empirical test analysis, the relationship between the two reinforce each other, thus introduced to the conclusion that China's stock market and the bond market there is a big correlation between the presence of similar characteristics in liquidity on both the development will also play a role in the interaction.

THE BASIC THEORY OF MARKET MAKER SYSTEM

Market maker in the stock market by the means have a certain strength and credibility of the securities business as a franchise dealer corporation, public investors continued to report the sale price of certain securities, two-way prices and subject to public investors on the price The sale requires its own funds and securities with investors in securities transactions.

In the US, the market maker is under the premise of a certain law, hold funds voluntary trading some traders specific securities, and profit from the difference in buying and selling. While some foreign experts say: the market maker is a long-term buy and sell using their own accounts related to securities companies.

In China's first definition of market makers appeared in 1990.Until 2007, People's Bank of China to develop a "national inter-bank bond market maker

regulations," states: market makers are those approved by People's Bank of China may carry out market-making operations in the interbank market, but it has certain specific rights financial institutions also bear certain obligations. Whether from domestic or foreign market maker's definition contains three key points, investors holding funds, mutual and two-way prices, traders have the strength and credibility of the statutory license, is closely related to the three.

Not direct transactions between investors, buying and selling of securities prices are market makers raised, and with investors to buy or sell at this price. Market liquidity and continuity can be formed, two-way prices trading between market makers and investors are dependent.

From the definition of a market maker, we can easily see critical two-way bidding behavior. So how pricing can satisfy market demand for both liquidity and obtain profits of it, that we should take the study.

Financial market trading mechanism, from the formation of price way to differentiate, there are two, namely, the market maker system and the auction system.

1. Cost Analysis of market makers.

Costs to be borne by the general market makers from three aspects: First, the processing, the second is to hold inventory instruction, the third is the asymmetry of information.

Makers are required to hold certain securities and cash market continues to work to maintain and balance, but also with the market maker to hold these securities stock price changes have a certain cost For example, when the stock market price movements may lead to reduced value of securities held by market makers, bringing losses. Unknown future instability of the market price of the securities and future trading volume makes the market maker to hold the stock is risky. When the price is very uncertain, when the cost of inventory fluctuations brought also increased; when the market brought about by higher trading volume uncertainty, the market maker to hold stock exchanges in order to meet the more cost It is higher.

Information costs. In the information model, we know that even without the cost of inventory, but the asymmetry of information will lead to increased costs on to the market maker, which in turn have an impact on the spread of market makers set. In the transaction process between the participants and market makers trading because of information asymmetry, adverse selection will produce, because the final choice of information and the true value of securities transactions rests in the hands of informed traders, whether to do so City's Trade by these traders control, when they feel they can choose when profits trading, if they feel little interest or other reasons, they can also veto the transaction. This effectively market makers in the trading process and no decision, in a disadvantageous position, so the market maker will

therefore bear the costs of this part of the information asymmetry caused.

2.Earnings Analysis Market Maker.

To analyze the market maker's earnings, we must first understand the maker of market making process. First, market makers would like to continue to report the spread trading, investors and transaction reference offer, combined with their own situation to decide whether to participate in the transaction and determine the number of market makers only assume the role of an intermediary, so investor behavior income market makers play a very important impact, and market makers quote another decision affecting investors, market makers must therefore continue to obtain information on the market, combining this information to adjust the offer to final completion of the transaction and realize gains. Integrated entire process, the market makers quote spreads and realized gains on trading plays a vital role.

If we called bid-ask spread to bring this part of the proceeds is spread income market maker, then also part of the proceeds from trading commissions, it occurs in a number of commodity trading securities or inactive process, market makers can commission by a certain percentage. Also uncertain market prices brought about by price changes also affect the stock market makers, and thus bring in revenue.

Empirical

The main issue of this paper is the market maker system for inter-bank bond market liquidity would affect. At present, for the bond market maker system would affect academic mobility has been a consensus. But for the Study bond market liquidity only from a single or a few variables. From the above analysis, the bond market liquidity affected by multiple factors. Therefore, this article linear model was constructed as follows:

$$\text{Spread}_{it} = \alpha + \beta_1 \text{Market}_{it} + \beta_2 \text{Volume} + \beta_3 \text{Volit} + \beta_4 \text{Maturity}_{it} + \beta_5 \text{Size}_{it} \quad (1)$$

The model can explore the relationship between factors, and secondly, the impact of other factors, the real validation of the inter-bank bond market maker system the impact of market liquidity.

For a measure of market liquidity indicators include foreign scholars selected: (yield or return spreads). And other indicators to measure the bond market liquidity. Among the many indicators, more reasonable bid-ask spread is a measure of market liquidity indicators, other indicators have varying degrees of impairment. For example, trading volume is more commonly used indicators, trading volume increase means that the market liquidity improved. But less than the index in that: when a large market pressures, the trading volume is often positively correlated with price volatility, and price volatility and liquidity negatively correlated, thus making the trading volume and liquidity-related losses, which under normal circumstances and trading volume

Liquidity positive correlation opposite. Therefore, in exceptional circumstances, trading volume does not mean that the market liquidity improved. Trading frequency, number of transactions per unit of time, is another indirect measure of liquidity indicators. Similar trading volume, high transaction frequency may reflect high market liquidity, but it also may be associated with increased price volatility, which in turn means lower market liquidity. Fleming (2001) in the study of the US bond market liquidity. The first day, as defined herein t_i bond bid-ask spread for the day arithmetic average of all market makers reported selling price and the purchase price spreads. Spread is calculated using the purchase price corresponding yield to maturity minus selling price corresponding yield to maturity. The yield has been adopted here instead of using bond prices, because bond prices are affected by many factors, coupon rate, remaining maturity, etc., and depends mainly on bond yields over the period, thus calculated using yields more accurate. T_i define the first day of trading in the bond spreads $Spread_{it}$:

$$Spread_{it} = \sum Spread_{ij} / n \quad (2)$$

Wherein, $Spread_{ij}$ for the first day of the j t_i bonds yield spreads quoted bid-ask spread, n Total items to offer the first day of the bond t_i .

As shown as (2), $Market_{it}$ variable is the number of market makers for each coupon computing market making quotation within each trading day during the sample period, the need in the database statistics. According to the previous analysis, the more the number of market makers, offer spread will be smaller, so the regression coefficient $Market_{it}$ should be negative. Trading volume ($Volume_i$) take bonds at an average trading volume of the first t_i per day, according to the previous definition of liquidity it shows that the larger the volume, the transaction represents the more active, so the regression coefficient $Volume_i$ should be negative. Since the affected bond yields remaining term and the remaining maturities are changing every day, so this will be the remaining term of the bond divided into two years, and more than 8 years, and so 2-4, 4-6, 6-8 5 Interval when calculating a yield variance only bonds, first determine the remaining term of the bonds which fall interval, if located 4 to 6 range, all of the first 10 trading days remaining maturity between 4-6 bonds is adopted fluctuation standard deviation yields calculated as a risk that bond only metrics. The indicator reflects the risk of the bonds. Theoretically, return volatility (VOL) has a positive impact on the spread (with a negative impact on liquidity).

CONCLUSION

In this paper, we got two conclusions as following.

The Theoretical Results

The status quo between the market maker system liquidity inter-bank bond market and China's interbank bond market were analyzed, and the yield bid-ask spread is the most appropriate measure of market liquidity indicators selected are related to variables that affect the market maker number of trading volume, bond prices and bond yields remaining term volatility.

Positive Results

The bilateral quote data and transactions in the inter-bank bond market maker, using a variety of statistical methods of measurement empirical research. Concluded that the inter-bank liquidity and the number of market makers, trading volume, bond prices and bond remaining term bond market into a positive relationship with the Volatility no significant relationship

REFERENCES

- David C. Porter ,Daniel G. Weaver., 1996, "Estimating bid-ask spread components ; Specialist versus multiple market maker systems". *Review of Quantitative Finance and Accounting*, p 62.
- Demsetz H.1968, "The cost of transacting". *The quarterly journal of economics*, p 33-53.
- Glosten L R, Milgrom P R. Bid., 1985, "ask and transaction prices in a specialist market with heterogeneously informed traders". *Journal of financial economics* , vol.14, no. 1, p 71-100.
- Grossman S J, Stiglitz J E, 1980,"On the impossibility of informational efficient markets". *The American economic review*, p 393-408.
- Harris M, Raviv A., 1993, "Differences of opinion make a horse race". *Review of Financial studies*, vol.6, no.3, pp 473-506.
- Hartmut Schmidt, Peter Iversen , 1993, "Automating German equity trading; Bid-ask spreads on competing systems". *Journal of Financial Services Research*, p 64.
- Ho T S Y, Stoll H R.,1983, "The dynamics of dealer markets under competition". *The Journal of financing* , vol. 38, no 4, pp 1053-1074.
- Jan Hanousek , Richard Pod piera., 2004, "Czech experience with market maker trading system". *Economic Systems* , p 282.
- PN Kumar , Ashutosh Jha, Gautham TK,Jitesh Mohan,Rama Subramanian AJ,VP Mohandas.2010, " ASurvey of call market (discrete) agent based artificial stock markets". *International Journal on Computer Science* , pp 29.
- StockProfiler., 2009, "US; Stock Watch; RVTI, SMP, MRO". M2 Presswire.