Pre-trade transparency in over-the-counter bond markets

Fan Chen, Zhuo Zhong

School of Economics and Business, SUNY Oneonta, Netzer Administration Building 223, 108 Ravine Parkway, Oneonta, NY 13820, United States
Department of Finance, Faculty of Business & Economics, University of Melbourne, Level 12, 198 Berkeley Street Victoria, 3010, Australia

Abstract

Using bond transaction data from TRACE from 2005 to 2015, we investigate the impact of pre-trade transparency on over-the-counter bond markets, and find that NYSE pre-trade transparency reduces US corporate bond transaction costs by $846 million per year. NYSE pre-trade transparent bonds also maintain smaller standard deviation in bid-ask spreads and institutional investors face smaller bid-ask spreads when trading the pre-trade transparent bonds, suggesting that pre-trade transparency tends to favor traders rather than dealers by enhancing traders’ bargaining capability.

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1. Introduction

Over-the-counter (hereafter OTC) markets are responsible for the operation of more than $1000 trillion in financial assets. Given the significance of OTC markets, it is not surprising that extensive empirical literature exists on the transaction costs in these markets. In OTC markets, it is important to obtain the best trade quote after searching for and negotiating with potentially fragmented liquidity providers. Nevertheless, the availability of this quote information, which is defined as pre-trade transparency, is very limited to investors in OTC markets. Investors could potentially face a high search cost, as they have to sequentially search over dealers to conduct a transaction (see Dufie, 2010, 2012). However, little evidence exists to show how pre-trade transparency/opacity influences information search costs, and thus the transaction costs in OTC markets. Our research aims to fill this gap in the literature.

Transparency is always an important element pertaining to market operations. While many have explored the importance and the consequences of bringing post-trade transparency to OTC markets, little research has been conducted to understand the implications of pre-trade transparency in OTC trading. Post-trade transparency is often defined as the availability of trade information following a transaction, such as prices and volumes, whereas, pre-trade transparency is defined as the availability of information prior to a transaction, such as trade interest and quotations. OTC markets have come under intense scrutiny due to...
the lack of transparency during the 2008 financial crisis. In the crisis, the opacity of OTC markets made price discovery and liquidity very challenging. If more pre-trade transparency had been enforced, the situation might have been different. Furthermore, both regulators and practitioners view pre-trade transparency to be equally as important as post-trade transparency in OTC trading.\footnote{In her keynote address in October 2010 at the National Association of Bond Lawyers 35th Bond Attorneys’ Workshop, Elisse Walter, Commissioner of the Securities and Exchange Commission, said, “Again, that is why I believe that improved pre-trade transparency is an important goal. Investors need better information and better access both to tap and provide liquidity in the market.”}


To guide our empirical research and explain the pre-trade transparency mechanism influencing OTC trading, we construct a search model. In the model, we consider traders’ lack of pre-trade information as Knightian uncertainty. Unlike risk, where the odds of future states are known, Knightian uncertainty refers to the situation in which the odds of future states are unknown. Citing the lack of pre-trade information and the awareness of this deficiency in OTC markets indicates the vagueness of information possessed by traders, which gives credence to Knightian uncertainty in this search process. Our model shows that pre-trade information enhances a trader’s willingness to search, which implicitly improves their bargaining capabilities. As a result, dealers have to lower their ask prices and increase their bid prices in order to secure trades. In other words, dealers have to compete for trades more aggressively. This results not only in smaller bid-ask spreads, but also in less dispersion among bid-ask spreads.

We test our model implications through an empirical study on U.S. corporate bonds using the OTC bond transaction data from TRACE from January 1, 2005, to June 30, 2015. In the U.S., the majority of corporate bonds are traded in OTC markets, but some are traded on both OTC and NYSE markets. The NYSE’s Bonds (previously known as the Automated Bond System) operates the largest centralized corporate bond market in the U.S. and is organized as an electronic limit order book system providing comprehensive pre-trade transparency. Thus, bonds traded both on OTC and NYSE markets are more pre-trade transparent relative to bonds that are only traded in OTC markets. Since we focus only on bond transactions that occurred on the OTC market, the availability of the pre-trade quote, which is provided by the limit order book, is the only one relevant difference between these two groups of bonds in regard to trading environments. Bond traders are able to extract pre-trade information for the NYSE’s bonds. This pre-trade information increases their bargaining power against dealers, and thereby reduce their transaction costs.\footnote{This is one possible explanation for lower transaction cost if we compare transaction costs in NYSE Bonds and OTC market directly. The lower transaction cost in NYSE Bonds could be the compensation that traders get for liquidity provision by posting limit orders on NYSE Bonds. In contrast, OTC transactions are more similar to a market order. The other alternative explanation of lower transaction cost on NYSE Bonds is the demand-based selection of trades. Hendershott and Madhavan (2015) find that electronic auctions are preferred for easier trades and in more liquid bonds. However, these two possible explanations do not apply to our finding since we only compare trading cost incurred on the OTC market, rather than the trading cost between the NYSE and OTC markets.}

Based on this feature we conduct an observational study. First, we construct a group of bonds traded on both OTC and NYSE, identified as the OTC-NYSE group, and then we employ propensity score matching to identify a matched group of bonds that trade only in OTC, namely OTC-only group. Finally, we analyze the transaction costs and variances of transaction costs between these two groups.

Consistent with our search model implications, we find smaller bond bid-ask spreads and smaller standard deviation of bid-ask spreads in the OTC-NYSE group as compared with the OTC-only group. Our findings are robust in a multitude of tests. The average effective bid-ask spread is 2 basis points lower on the OTC-NYSE group of bonds. In our sample period from 2005 to 2015, OTC-only bond transactions between dealers and traders are roughly $4230 billion per year. Therefore, if NYSE pre-trade transparency had been offered as part of OTC trading, traders would have saved approximately $4230 billion × $0.02% = $846 million per year on transaction costs.

A potential endogeneity issue for our empirical design of matching groups is that firms may choose to list bonds with smaller transaction costs on both OTC and NYSE markets. We address this concern with two-stage least square regressions, utilizing a firm’s accounting standard and the listing status of a firm’s equity on NYSE as instruments. These factors affect a firm’s decision on where to list its bonds but are not likely to correlate with bonds’ bid-ask spreads. Our regression results provide evidence that bonds’ transaction costs, as measured by bid-ask spreads, are negatively correlated with the presence of NYSE pre-trade transparency with a p-value < 0.01.

Though the reduction in bond transaction costs for institutional size trades is smaller than retail size trades, the reduction is still statistically significant for sophisticated institutional traders. In the subsample, we focus specifically on institutional sized trades (trade size > = $100,000) and find that bonds’ bid-ask spreads are negatively related to whether a bond is listed on NYSE. As institutional traders are likely to be informed traders (Anand et al., 2005), this suggests that improving pre-trade information favors traders over dealers. Pre-trade information is more likely to help traders enhance their bargaining capabilities than to help dealers to discern informed trading. If it were the latter that dominated, we should observe a positive relation between bonds’ bid-ask spreads and whether a bond is listed on NYSE, which we did not.

We are aware of other three recent papers that have examined the impact of trade transparency on transaction costs in the U.S. corporate bond markets (Bessembinder et al., 2006; Edwards et al., 2007; and Goldstein et al., 2007). Employing a sample of institutional trades in corporate bonds, Bessembinder et al. (2006) find a reduction of trade execution costs for both TRACE eligible and non-eligible bonds after the introduction of the TRACE reporting system on July 1, 2002. The reduction for TRACE eligible bonds is more than twice as big as the TRACE non-eligible bonds. Using a comprehensive record of OTC corporate bond
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