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Lockstep in liquidity: Common dealers and co-movement in bond liquidity ☆

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ABSTRACT

In this article, I investigate common dealers in the U.S. corporate bond market as a determinant of co-movement in liquidity. Using regulatory data that identifies counterparties in bond trades, I show that a corporate bond's liquidity moves together with other bonds' liquidity traded by the same dealers. Turning to the underlying factors of this correlation, a dealer's trading activity is predictive of bonds' future liquidity. I employ a case study of bonds that are mainly traded by a major dealer that went bankrupt in 2008. One month after the bankruptcy, these bonds were still more illiquid than comparable bonds.

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1. Introduction

Liquidity co-moves across many dimensions—across markets, across time, or across assets within the same class (Chordia, Roll, and Subrahmanyam, 2000). The financial crisis of 2007–2009 revealed co-movement at an unprecedented scale (Nagel, 2012). Liquidity of entire markets dried up (Mitchell and Pulvino, 2012); in several asset classes, investors “ran for the exit.” For certain assets, dealers stopped quoting prices. The deterioration of overall liquidity was pointed out as one of the main drivers of price movements.

☆The analysis and conclusions set forth are those of the author and do not indicate concurrence by other members of the research staff or the Board of Governors. The author thanks the editor, Tarun Chordia, and two anonymous referees for valuable comments.

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Several explanations for the co-movement in liquidity have been proposed. In various models trader-specific explanations such as balance sheet constraints play a role in determining the level and changes in liquidity. Binding value-at-risk (VaR) constraints are often cited as a prime suspect for the "liquidity crunch" of the recent financial crisis (Brunnermeier, 2009).[1] Empirically, dealers' repurchase agreements have predictive power for asset price volatility (Adrian and Shin, 2010). For dealers at the New York Stock Exchange (NYSE), Comerton-Forde, Hendershott, Jones, Moulton, and Seasholes (2010) show that balance sheet variables provide explanatory power for changes in the liquidity of certain assets. If traders affect assets' liquidity, assets traded in over-the-counter (OTC) markets should be particularly prone to such frictions. Empirically, however, it is difficult to analyze these markets. OTC markets are mostly opaque and data requirements are stringent.

In this article, I examine corporate bonds' co-movement in liquidity that originates from common dealers. Do bonds show common movements in liquidity if they are traded by the same dealer? Detailed transaction-level data from the U.S. corporate bond market from 2005 to 2013 enables me to calculate a measure of dealer liquidity—the volume-weighted average liquidity of all bonds traded by the same set of dealers. The main result of the paper indicates that bonds co-move in liquidity when they are traded by the same dealers. Common dealers provide explanatory power even when controlling for movements in market liquidity and bond-specific factors. The use of issuer-time fixed effects addresses concerns that new information may confound the results. If new information about a firm influences all bonds the same way, issuer-time fixed effects can control for unobserved changes in firm fundamentals.

How does a dealer influence bonds' liquidity? There are two main factors that are not mutually exclusive: inventory considerations and funding liquidity. Using current and past trade imbalances of a dealer as a proxy for his inventory, I provide two main findings. First, inventory considerations matter when trading a single bond. The past net trading volume of a dealer in a single bond is negatively correlated with current trading in the same bond. Second, these inventory considerations are not significantly correlated with the liquidity of other bonds traded by the same dealer. Yet the total trade imbalances of a dealer are predictive of the future liquidity of bonds traded by the same dealer. Indeed, high net trading volume in the past is correlated with more liquid bonds on average.

One possible factor determining a dealer's net trading volume is his funding liquidity. In several time series regressions, I show that past changes in prime dealers' repurchase agreements are predictive of the dealers' future bond-buying volume. Further, changes in repo positions are correlated with the future average liquidity of bonds mainly traded by prime dealers. A VAR analysis shows that a negative shock to repo positions decreases liquidity over the next four weeks.

These results show that bond dealers pose an additional risk to investors. Using a simple framework in the line of Fama and MacBeth (1973), I study whether dealer liquidity provide explanatory power for cross-sectional differences in bond returns. Controlling for a bond's overall liquidity, market liquidity, and several bond characteristics, dealer liquidity is a significant factor in determining return differences.

The last part of the article turns to a case study of the bankruptcy of a large broker-dealer during 2008. Bonds that were mainly traded by this dealer showed a pronounced increase in illiquidity after the dealer's bankruptcy. This increase is not driven by the dealer being the underwriter of these bonds, and the effect persists for several weeks.

This paper is related to several strands of the literature. Many researchers examine liquidity's role in asset pricing. Recently, several papers have focused on the bond market. While the measures of liquidity differ across studies, liquidity is mostly found to have asset pricing implications and co-moves across bonds (Bao, Pan, and Wang, 2011).[2]

[1] Other explanations why traders matter for asset pricing include, for example, rational inattention (Biais, Hombert, and Weill, 2011) or search frictions (Duffie, Gârleanu, and Pedersen, 2007).

[2] Researchers examining bond market liquidity include Khang and King (2004), Longstaff, Mithal, and Neis (2005), Bessembinder, Maxwell, and Venkataraman (2006), Goldstein, Hotchkiss, and Sirri (2006), Edwards, Harris, and Piwowar (2007), Mahanti, Nashikkar, Subrahmanyam, Chacko, and Mallik (2008), Lin, Wang, and Wu (2011), Dick-Nielsen, Feldhütter, and Lando (2012), and Friewald, Jankowitsch, and Subrahmanyam (2012).

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