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Return predictability in the corporate bond market along the supply chain ☆

Long Chen [a], Gaiyan Zhang [b], Weina Zhang [c,*]

[a] Cheung Kong Graduate School of Business, Beijing, China
[b] Department of Finance and Legal Studies, College of Business Administration, University of Missouri-St. Louis, One University Blvd., St. Louis, MO, 63121, USA
[c] Department of Finance, NUS Business School at National University of Singapore, 15 Kent Ridge Drive, Singapore 119245, Singapore

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ABSTRACT

We explore how efficiently new information transmits along the supply chain in the corporate bond market. We find a strong predictability of the lagged bond returns of customers for related firm- and industry-level future bond returns. This is likely due to investors' inattention to cash flow-related news along the supply chain. Moreover, the lagged bond returns of suppliers only predict the future bond returns of those firms that have less bargaining power. Overall, our results suggest that information along the supply chain travels more gradually in the bond market than the stock market.

1. Introduction

Although many studies have shown that the information diffusion process in stock markets can be gradual due to market frictions or behavioral biases (e.g., Jensen and Meckling, 1992; Shleifer and

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* Corresponding author.
E-mail addresses: lchen@ckgsb.edu.cn (L. Chen), zhangga@umsl.edu (G. Zhang), weina@nus.edu.sg (W. Zhang).

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Vishny, 1997; Daniel, Hirshleifer, and Subrahmanyam, 1998; Hong and Stein, 1999; Hirshleifer, 2001; Hong, Stein, and Yu, 2007; Duffie, 2010), fewer studies have examined another sizable financial market, the corporate bond market (e.g., Collin-Dufresne, Goldstein, and Martin, 2001; Chen, Lesmond, and Wei, 2007; Friewald, Jankowitsch, and Subrahmanyam, 2012; Jostova, Nikolova, Philipov, and Stahel, 2013). This is likely due to the lack of adequate data in the bond market before the public dissemination of bond trading data by NASD in 1994 and TRACE in 2002 (e.g., Sarig and Warga, 1989; Goodhart and O'Hara, 1997; Bessembinder, Maxwell, and Venkataraman, 2006).

There are only a few studies that have made a direct comparison between the stock and bond markets. For example, Hotchkiss and Ronen (2002) find that the information efficiency of corporate bond prices in processing earnings news is similar to that of the underlying stocks. In contrast, Kwan (1996) and Downing, Underwood, and Xing (2007) find that stocks lead bonds in reflecting firm-specific information and therefore conclude that the bond market is less informationally efficient than the stock market. The two contrasting claims reflect the complex and ambiguous nature of the information flow in the two markets. Empirically, it is hard to measure the information flow directly or even to separate the flow from the firm's own past stock or bond returns.

Moreover, bonds and stocks may react differently toward new information because bonds are different from stocks in several significant ways. First, the payoff to bondholders is the lower of the bond's face value and the liquidation value of firm assets under the default case, so bondholders have limited upside potential, unlike stockholders. Second, most of the corporate bonds have finite maturity whereas stocks do not. Third, bonds have more regular payouts than stocks in terms of coupon payments. Given these differences, bonds should be subject to more default-related downside news whereas stocks should be more affected by investment-related news.[1] In this paper, we provide fresh evidence on how different the bond market and the stock market are in diffusing new information.

Specifically, we utilize the supply chain as a natural setting for the relevant information flow related to the underlying firm. A firm's cash outflows and inflows, and thereby its underlying value and risk, are affected by its business relationships with its suppliers and customers. In our main analysis, we use the Benchmark Input-Output Surveys of the Bureau of Economic Analysis (BEA) to identify supplier and customer relationships at the industry level, identify the industry classifications of sample firms, and construct the inter-industry vertical relatedness coefficients similar to the procedure in the literature (e.g., Fan and Lang, 2000; Fan and Goyal, 2006; Menzly and Ozbas, 2010; Ahern, 2012).

We have three main results. First, we extend Menzly and Ozbas (2010), who investigate the predictability of suppliers and customers in the stock market, to those firms that have both publicly-traded bonds and stocks. In this way, we can compare the stock market and bond market directly since the bond returns and stock returns are matched to the same underlying firm. Interestingly, we find little cross-predictability in these firms related customers' and suppliers' industries' past stock returns. We look closer into our bond sample (i.e., firms with both stock and bond returns) and find that these firms are large firms (in the top 90 percentile in terms of size of the sample in Menzly and Ozbas, 2010). This indicates that investors who purchase the stocks of large firms can process supply chain information quite efficiently. Our results corroborate with the findings of Menzly and Ozbas (2010) because they do not find significant cross-predictability among the top quintile of stock portfolios that have highest analyst coverage. The firms in our bond sample mostly fall into this category.

Second, we find that the supply chain information diffuses more gradually in the corporate bond market than the stock market even among these large firms. Our results show that customer industries' past bond returns significantly predict the future bond returns of the related firms. In addition, supplier industries' past bond returns also significantly predict the future bond returns of those firms that have less bargaining power. Following the literature (e.g., Kale and Shahrur, 2007; Rhodes-Kropf and

[1] For example, Chen, Da, and Larrain (2011) find that the bulk of the investment growth rate is related to the surprise to current earnings growth. Kothari, Lewellen, and Warner (2013) find that quarterly investment grows rapidly following high profits and stock returns, but largely unrelated to the default spread on corporate bonds. This suggests that stock returns are more closely related to the earnings news. On the other hand, the bond and stock reactions towards credit rating changes are mainly found in the downgrade news in the early years (e.g., Katz, 1974; Griffin and Sanvicente, 1982). After further controlling for previous ratings and outlook changes, Hand, Holthausen, and Leftwich (1992) find that the stock returns are not affected by negative credit rating changes.