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## The relative informational efficiency of corporate retail bonds: Evidence from the London Stock Exchange



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#### A R T I C L E I N F O

#### ABSTRACT

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#### 1. Introduction

Because stocks and bonds are claims on the same corporate assets, the arrival of publicly available information that affects the market values of these assets should concurrently affect their returns. But, if one of the two markets is relatively more efficient than the other, then the returns of the more efficient market can reflect information faster than the returns of the less efficient market. Therefore, these returns have the power to predict the future returns of the security traded in the less efficient market. As a result, the activities of informed traders lead to a lead–lag relation for the returns of the two securities.

The possible differences in the level of informational efficiency of the two markets could be due to the different types of investors and the different informational environments that prevail in the two markets. The bond market is typically dominated by sophisticated institutional investors who have better and faster access to relevant information than private investors who tend to prefer the stock market. Thus, institutional investors that implies the bond market should be more informationally efficient than the stock market. Then again, there are many more financial analysts that follow the stock rather than the bonds of a firm. Thus, more stock-related research is produced and disseminated to the buyside investors, as compared to the bond-related research that is mainly

limited to firms rated by credit rating agencies. Further, stock analysts tend to revise their recommendations about a firm more frequently compared to the rating agencies that follow the same firm. Hence, stock prices should incorporate relevant information faster than bond prices, and the stock market should be more informationally efficient compared to the bond market. Under both scenarios, a lead-lag relation between the returns of the two securities should be observed. Further, a growing body of literature finds that stock markets might not integrate all of the available information instantly (e.g. Hong, Torous, & Valkanov, 2007, Hou, 2007). Under this scenario, the lagging market has a limited ability to fully incorporate the information reflected in the leading market. Thus, it is possible that bonds might lead in incorporating a particular type of information, such as a change in the probability of default, and lag in incorporating another type of information, such as an increase in sales revenue. Further, in the presence of information asymmetries, informed traders tend to systematically trade in either the bond or the stock market because of differences in trading fees, mechanisms, liquidity, institutional constraints, marginal tax brackets, and insider-related legislation (i.e., disclosure requirements).

I examine the relative informational efficiency of the London Stock Exchange's newly launched Order book for

Retail Bonds (ORB). I find that the daily returns for the stocks of the issuing firms lead the daily returns of the

retail bonds born in the ORB. This finding also holds for pre-existing bonds that were transferred to the ORB

from the LSE's Main Market and for the bonds with different credit ratings, issue sizes, and maturity times. I

also find that bonds have very limited predictive ability for stock returns. Overall, the results provide strong evidence that the underlying stock market is relatively more efficient than the ORB. Further, the relative informa-

tional inefficiency of the ORB implies profitable trading opportunities for private investors.

In this paper, I investigate the relative informational efficiency of the recently launched electronic Order book for Retail Bonds (ORB) of the London Stock Exchange (LSE). According to the EU Prospectus Directive (2010) a retail bond is a bond that is traded in units of less than £50,000. To a large extent, the retail bond market can be thought of as the non-institutional part of the buy-side. The ORB was launched on February 1, 2010, to satisfy the increasing demand of UK private

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investors for easy access to retail bond trading. Indeed, a survey by the Association of Private Client Investment Managers and Stockbrokers (APCIMS) reports that demand for corporate bonds by private investors has guintupled since 2008 (London Stock Exchange, 2013). The intention of the ORB was also to grant UK small- and medium-sized firms direct access to an untapped segment of the debt market. The APCIMS estimates that in a few years the ORB is likely to attract an extra £20 billion per year of fresh investment to the UK corporate debt market. The importance of this new source of financing for small- and mediumsized firms and its relevance to the recovery of the UK economy is well highlighted in the Breedon Report that recommends, among other things, that the United Kingdom needs to "increase the UK retail investor appetite for corporate bonds" (Department of Business, Innovation and Skills, DBIS, 2012a).<sup>1</sup> In the current economic environment where interest rates have reached very low levels that offer private investors limited choices in fixed income investments, and firm financing is neither easily available nor cheap; the introduction of an informationally efficient secondary market for retail bonds might significantly help smalland medium-sized UK companies to raise the much needed financing not currently available from banks.<sup>2</sup>

Despite the importance and the size of the bond markets, corporate bonds usually trade in a rather opaque environment with only a few market professionals that have access to information such as the prices at which dealers are willing to transact and the actual prices of completed bond trades.<sup>3,4</sup> As a result, the literature on various aspects of the corporate bond markets is guite limited and rather inconclusive. On one hand, a number of studies find that stock returns lead bond returns and, therefore, the stock market is relatively more efficient than the bond market (e.g. Blume, Keim, & Patel, 1991, Cornell & Green, 1991, Downing, Underwood, & Xing, 2009, Gebhardt, Hvidkjaer, & Swaminathan, 2005, Hong, Lin, & Wu, 2012, Kwan, 1996). On the other hand, Hotchkiss and Ronen (2002); Ronen and Zhou (2013), and Bittlingmayer and Moser (2014) show that no evidence exists that stock returns systematically lead bond returns, or that the stock market is more efficient that the bond market. According to Downing et al. (2009); Hotchkiss and Ronen (2002), and Alexander, Edwards, and Ferri (2000), these conflicting findings could be attributed to the opaque nature of the corporate bond market and to the complex relation between the returns of a firm's stock and its publicly traded high yield debt that exhibits both similarities and differences. The motivation for my study is to examine for the first time how new information is incorporated into the bond prices of the newly launched ORB. Unlike existing bond markets, the ORB allows all market participants access to continuously posted bid and ask prices via live data feeds that therefore could help to minimize information asymmetries. This high level of transparency contributes to the motivation to investigate the ORB's informational efficiency relative to the underlying stock market.

The results on the relative informational efficiency of the ORB market have direct implications for investors, bond issuers, and regulators. For instance, if stocks lead bonds, then investors might buy (sell) a firm's bond after observing an increase (decrease) in the firm's stock price. The investors are also likely to face higher transaction costs in the less efficient market because of the greater variance in the pricing error (i.e., deviations of the market price from the 'fair' price). Consequently, traders might not trade as frequently or at such large volumes because of the high implicit costs (see, e.g., Bessembinder, Maxwell, & Venkataraman, 2006; Edwards, Harris, & Piwowar, 2007; Goldstein, Hotchkiss, & Sirri, 2007). This is also of interest to the bond issuers because firms are likely to raise financing more easily and less expensively in an informationally efficient market. This is especially important for small- and medium-sized firms because corporate bonds typically have a maturity of between seven and ten years. This time frame provides these firms with enough time to grow because of the longer term financing compared to bank loans. Thus, the introduction of the ORB can potentially help these firms to decrease their dependence on bank borrowing and lower their cost of debt, which ultimately could benefit the British economy as a whole. However, if the ORB market is unappealing to private investors (e.g., an inefficient market), then firms might have to sell their bonds at a significant discount in order to tempt potential buyers. For regulators and supervisory bodies, the findings of this study can help them to adopt policies that could improve the efficiency of the ORB, making the UK retail bond market a level playing field for all market participants. This level field could lead to the further development of the retail bond market and the better allocation of capital resources that eventually will benefit the UK firms and economy.

I use a bivariate vector autoregression model to examine the lead-lag relation between the daily returns of the ORB corporate retail bond portfolios and the daily returns of the underlying stock portfolios. The use of bond portfolios helps to mitigate the problems related to nonsynchronous data, stale quotes, and extreme differences in liquidity in the bonds in my sample that could affect the interpretation of the observed lead-lag relations. I also regress the daily returns of the retail bond portfolios on the daily returns of UK government bonds and the FTSE All Shares index to examine the sensitivity of the retail bond returns to interest rates and stock market movements. Finally, I assess the economic significance of my results for industry practitioners by examining whether the lead-lag relation between bond and stock returns represents profitable trading opportunities. In particular, I address the following questions: Is the informational efficiency of the ORB different to that of the underlying stock market? And do the empirical results have any economic significance for industry practitioners?

I find that the daily stock returns lead the daily retail bond returns for the portfolios of bonds born in the ORB, the bonds that were transferred to the ORB from the LSE's Main Market as well as for bonds of different credit quality, issue size, and time to maturity. I also find that the daily returns of the portfolios of bonds born in the ORB; the bonds that were transferred to the ORB from the Main Market; and of the high yield, not rated, and the middle maturity bonds are significantly related to the daily returns of the stock market. Overall, the empirical results indicate that the underlying stock market is relatively more efficient than the ORB in incorporating publicly available information. The relative informational inefficiency of the ORB together with its low level of transaction costs imply profitable trades on retail bonds for the private investors.

The remainder of this paper is organized as follows. Section 2 provides a brief description of the ORB market. Section 3 describes the data used in this study, and Section 4 describes the methods used and presents the empirical results. In Section 5, I investigate the economic significance of the empirical results; and in Section 6, I summarize and conclude the paper.

#### 2. The Order book for Retail Bonds of the London Stock Exchange

The ORB is an electronic retail bond market that is based on the LSE Group's highly successful Italian *Mercato Obbligazionario Telematico* 

<sup>&</sup>lt;sup>1</sup> The recommendations of the *Breedon Report* have been widely welcomed by the industry. For example, John Cridland, the Director-General of CBI, UK's premium business lobbying group, said, "One of the CBI's ideas was to open up the UK bond markets to mid-sized firms, so it's great to see this report setting out how this can be done. To help stimulate demand for bonds issued by mid-sized businesses we need to develop a retail market, ...." (Confederation of British Industry, 2012).

<sup>&</sup>lt;sup>2</sup> According to figures from the Bank of England, the growth rate of stock lending to nonfinancial UK businesses was -5.2% ( $-\pounds2.1$  billion) in 2010, -2.1% ( $-\pounds0.8$  billion) in 2011, -3.7% ( $-\pounds1.5$  billion) in 2012, and -3.0% ( $-\pounds1.1$  billion) by the end of November 2013 (Bank of England, 2014).

<sup>&</sup>lt;sup>3</sup> According to the Bank for International Settlements (Bank for International Settlements, 2013), the global corporate bond market's outstanding amount at Q2 of 2013 was \$45.65 trillion. This is about 87% the size of the global equity market and about 67% of the global GDP. The largest corporate bond market is by far the US market (46.39%, \$21.18 trillion), followed by the UK (7.70%, \$3.51 trillion), and the Japanese (7.61%, \$3.47 trillion).

<sup>&</sup>lt;sup>4</sup> As Blume et al. (1991) discuss, a published bond price might be an actual transaction price, a bid and ask average, or either a bid or an ask price. They show that the return calculated by using any of these four possible prices is upward biased, and the bias increases as the bid-ask spread widens; similar concerns are raised by Sarig and Warga (1989) and Nunn, Hill, and Schneeweis (1986).

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