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Firm-specific stock and bond predictability: New evidence from Canada

N. Cao^a, V. Galvani^a, S. Gubellini^{b,*}^a Department of Economics, University of Alberta Edmonton, AB, T6G 2H4, Canada^b Department of Finance, San Diego State University, 5500 Campanile Drive, San Diego, CA, 92182, USA

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ABSTRACT

Asynchronous and contemporaneous links between the values of individual stocks and bonds issued by the same firm offer indications on how firm-specific information streams between the stock and bond markets. We examine these links using a novel database including bonds issued by Canadian firms over three decades. The overall results provide strong evidence of information flows streaming from the stock to the bond market, and suggest that significant bidirectional information flows were triggered by the 2007 financial crisis. Further, information regarding the mean of the firm's value, rather than its volatility, prevails in driving contemporaneous variations in stocks and bonds.

1. Introduction

Starting in the 1980s, the comovements between stock and bond markets became the subject of several studies. A stream of this literature aims to integrate the price dynamics of stocks and bonds by showing that the same set of systematic risk factors explains cross-sectional excess returns and yields, as proposed in the seminal studies of [Fama and French \(1993\)](#), [Elton, Gruber, Agrawal, and Mann \(2001\)](#), and [Gebhardt, Hvidkjaer, and Swaminathan \(2005\)](#). A concurrent body of research examines the lead-lag dynamics between stock and bond values. Studies in this line of inquiry evaluate whether bonds or stocks show any predictive ability for each other, where predictability is typically interpreted in the framework of the gradual information diffusion model proposed by [Hong and Stein \(1999\)](#), or it is explained by invoking liquidity arguments ([Ronen & Zhou, 2013](#)). A related stream of research examines whether stocks and bonds are contemporaneously correlated at the firm-level. If they are, the interest lies in identifying the nature of the information that dominates adjustments in equity and debt prices.

As we discuss in the subsequent literature review, conclusive evidence on the degree of predictability of stocks and bonds, as well as on cross-market correlations has not been provided. In this paper, we offer new evidence on the informational role of security prices in the Canadian market and thus add to the open debate stemming from U.S. related studies.

As the first step in our analysis, we examine the existence of significant information flows between the Canadian stock and bond markets. These flows are measured by the asynchronous relationships between stock returns and bond yield changes. If stock and bond prices adjust to information instantly and simultaneously, then asynchronous cross-correlations should be absent. We show that in the

* Corresponding author.

E-mail addresses: ning.cao@ualberta.ca (N. Cao), vgalvani@ualberta.ca (V. Galvani), sgubelli@mail.sdsu.edu (S. Gubellini).

years preceding the Fall of 2007, information appears to stream from the stock market to the bond market without bouncing back. We also provide evidence of an information flow streaming from the bond to the stock market, as gauged by a significant link between current bond yield changes and leading stock returns in the post-2007 period. In summary, we find that when the years following the 2007 financial crisis are included in the sample, the information flow appears to stream both ways: from the stock market to the bond market, and vice versa. We interpret these bilateral flows as evidence of intensified information exchanges triggered by the recent financial crisis. In a designated sub-section of the paper, we discuss in depth the potential causes of this phenomenon. To preview, we ascribe the heightened predictive ability of bonds after 2007 to an increased relevance of monetary policy in determining asset prices, coupled with bonds being more responsive than equities to the activities of central banks (Brandt & Wang, 2003).

Several U.S. related studies have highlighted the puzzling finding that the correlation between contemporaneous stock and bond returns at the firm level tends to be negligible. As pointed out by Collin-Dufresne, Goldstein, and Martin (2001), this insignificant cross-market correlation is surprising. Indeed institutional investors should be able to exploit informed trading on both markets, thus causing any information-driven arbitrage opportunity to vanish. Kapadia and Pu (2012) suggest that illiquidity and idiosyncratic risk in the U.S. equity or bond market may inhibit the execution of such information-based arbitrage trades, thus explaining the absence of significant cross-market correlations. Contrary to these findings, our analysis of Canadian data documents a significant degree of integration between contemporaneous prices of stocks and bonds that, as we discuss in a dedicated sub-section on market dynamics, is robust to the consideration of liquidity.

Elaborating on the extension of the Kyle (1985) model proposed by Back and Crotty (2015), evidence of a significant cross-market correlation may be also interpreted as a sign of asymmetric information in the Canadian financial market. Corroborating this conjecture is the notion that, in general, the regulatory stance to inside trading is more lenient in Canada than in the United States. Furthermore, prosecutions for illegal insider trading in Canada are unusual and, when occurring, yield outcomes that are less punitive than those observed in the United States (Jabbour, Jalilvand, & Switzer, 2000; and; King, 2009).

Another contribution of this study is to shed light on the nature of the prevailing firm-specific information that drives security price adjustments in the Canadian market. According to the structural model of bond pricing by Merton (1974), the sign of the contemporaneous correlation between the value of a firm's equity and that of the bonds issued by the same firm indicates whether the informational shocks driving concurrent variation in stock and bond prices are mostly affecting the mean or the volatility of the firm's underlying assets. The model builds on the firm value being the only state variable that associates prices of alternative claims (e.g., stocks and bonds) to the same firm's assets. Merton's model suggests that the value of a bond is related to the price of a put option on the firm's assets. Due to the limited liability feature of equity, the price of a stock is instead defined by that of a call option on the firm's assets. The bondholder (shareholder) position is equivalent to selling (buying) a European put (call) option. Concurrently, the bondholder also offers a risk-free loan to the shareholder.¹ When the volatility of the firm's assets increases, options appreciate. In this case, the bondholder (short) position deteriorates (as the yield increases), while the shareholder (long) position appreciates (as the stock return increases). In contrast, when the mean of the firm's assets declines, the put appreciates and the call value depreciates. In this instance, both bondholder and shareholder positions worsen (yield increases and stock return declines). Within this theoretical framework, firm-specific information affecting the firm's asset volatility (mean) results in a positive (negative) contemporaneous correlation between stock returns and bond yield changes. The empirical correlations we obtain in our Canadian data indicate that the prevailing type of information affecting concurrent variation in stock and bond prices pertains to the expected value of the issuing firm's assets, rather than to their volatility.

This is the first paper employing Canadian firm-level data to analyze the informational efficiency of the stock and bond markets, as well as the nature of the information that triggers simultaneous price variations in these markets. This study also extends the existing literature on Canadian bonds, which is, unfortunately, sparse, mainly due to a paucity of readily available data.² Importantly, our analysis employs a novel database of bonds issued by publicly owned Canadian firms. We collect bond data from two publications: the Financial Post Bonds Canadian Prices and the Financial Post Bonds Corporate. Taken together, these two outlets provide comprehensive records for a large number of Canadian corporate bonds. For comparison, the entire Bloomberg database on Canadian Corporate bonds consistently covers about half of our bond database over the 1984–2010 period. Our sample consists of monthly stock and bond data which include prices for 1065 bonds issued by 93 publicly traded Canadian firms. The considered time period of 27 years makes our sample the longest among those used in similarly aimed studies. Despite their comprehensive nature, the Financial Post publications were discontinued in December 2010. To corroborate our results suggesting the presence of a firm-specific information flow from the bond to the stock market in the post-2007 period we employ Bloomberg data. In this alternative setting, we favorably replicate our main results and extend their validity to the period ending in 2015.

As noted by Hong, Lin, and Wu (2012) most of the firm-level studies focusing on the serial correlation between stocks and bonds examine the U.S. market and rely on relatively short samples. Therefore, the use of our novel database of Canadian corporate bonds covering three decades of data not only assuages data mining concerns, but also evaluates the robustness of the conclusions yielded by the literature focusing on U.S. data to the examination of a sample covering several phases of the business cycle.

To establish a common ground with the extant literature on stock and bond comovements, we first employ a standard model specification where we regress changes in monthly bond yields on asynchronous and contemporaneous stock returns. Next, we consider various model specifications, sub-samples, and inferential procedures to suppress potential confounding effects and better isolate the

¹ The values of the shareholder and bondholder positions are reconciled by the put and call parity relationship.

² Other papers which examine Canadian bonds include Hatch and White (1986), Ackert and Athanassakos (2005), Landon and Smith (2006; and 2007), Booth, Georgopoulos, and Hejazi (2007), Peters (2007), Landon (2009), and Batten, Jacoby, and Liao (2014).

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