Key Determinants of Spillover Effect of Bond Default

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Abstract. After the epidemic of Covid-19, the spillover effects of the global economy are very common, especially in the bond market, which has attracted widespread attention from investors. Bond defaults not only affect defaulting companies, but also affect other companies in the network, affecting their bond prices. In this context, this paper analyzes the spillover effect of bond default in the context of the global economic slowdown caused by the COVID-19 epidemic. Based on theoretical methods, this article identifies three key determinants of bond default spillover effects. The three key determining factors identified in this study are information spillover, counterparty risk, and investor psychology. These three key determining factors may help later scholars understand the spillover effects of bond defaults. Based on these three key determining factors, this article also proposes some possible strategic suggestions to mitigate the impact of bond default spillovers and prevent systemic risks in the economy.

Keywords: Spillover effect; bond; default.

1. Introduction

The importance of studying bond defaults lies in their profound impact and revealing role on the financial market. Bond defaults not only reflect the financial difficulties of individual enterprises or institutions, but also serve as an important signal of market health and risk levels [1-3]. By conducting in-depth research on bond defaults, one can gain insight into the flow of market funds and the operation of the credit system, thereby evaluating the overall stability of the economic environment. In addition, the analysis of bond default cases provides valuable risk education for investors, helping them improve their risk identification and prevention capabilities, and make more rational investment decisions. Meanwhile, for regulatory authorities, studying bond defaults can help reveal regulatory loopholes and provide strong support for improving the financial regulatory system and enhancing market stability.

Due to the impact of the COVID-19, the bond default rate has risen significantly in the past four years. Given the widespread, frequent, catastrophic, and far-reaching impact of bond defaults, studying the key determinants of bond default spillover effects is of great and urgent significance [4]. Therefore, this study provides an in-depth analysis of the key factors affecting bond default spillover effects, aiming to assist potential enterprises in effective risk management and prevent systemic financial risks.

This article is organized as follows. Section 2 explains the spillover effects of the bond market. The third, fourth, and fifth sections systematically analyze the three key determinants of bond default spillover effects. Section 6 discusses the survey results and proposes a series of recommendations aimed at preventing systemic risks caused by credit risk contagion.

2. Spillover Effects of Bond Default

A bond is a debt instrument requiring the issuer to pay interest over a specific period [5]. A bond default occurs when the issuer do not have the capacity to fulfill the required interest or principal payments within the designated timeframe. The bond market has repeatedly suffered from default events [5]. Bond default is primary investment risk in the bond market, which might not only cause losses to creditors but also have spillover effects. When a bond default occurs, it creates a ripple effect or contagion on other bonds [6]. This effect can be categorized into three types: intra-industry spillovers, intra-regional spillovers, and cross-market spillovers [1, 7].

Firstly, bond default might cause intra-industry spillover effects. For instance, Hu et al. studies China's bond market and finds that bond defaults lead to higher bond issuing prices in default industries, consequently increasing the debt financing cost [6]. Additionally, Qi et al. identifies the industrial spillover effect caused by bond default based on empirical evidence of the industrial bond portfolio [8].

Secondly, bond default might cause intra-regional spillover effects. In case of the European sovereign bond defaults, Allegret et al. find a risk contagion effect on banks' equity returns across European countries [1]. However, they note European sovereign bond defaults have a positive effect on U.S. banks. Furthermore, in case of the corporate bond defaults, Wang et al. research China's bond market and find similar spillover effect from state-owned enterprise (SOE) defaults on other SOEs in the same province, likely due to investors' doubt about the local government's guarantee capacity [2].

Lastly, bond default might cause cross-market spillover effects. The bond and stock markets are susceptible to the same external factors such as the macroeconomic environment, interest rates, and exchange rates. Additionally, companies might issue bonds and stocks to raise funds, making bonds and stocks closely connected with each other. Consequently, credit default risks in the bond market might shift to the stock market, considering the company might encounter the same external shocks and the interconnectivity between the two. AzizPour et al. study the three waves of bond defaults in the United States and find a negative spillover effect of bond default on the stock prices in the banking sector [8].

3. Information Spillover

Information spillover has been found prevalent in previous economic and finance studies. The concept originates from Warner [9]. According to Warner, a risk event is not merely an isolated occurrence, but signals business environment risks to the market [9]. It means a single event might have a signaling effect to influence external parties when they are making decisions under the circumstance of information asymmetry. This kind of signaling effect might affect investors' evaluation of bond price, stock price, and the price of other investment instruments. Consequently, the investors' investment decisions might be altered. This could be called information spillover effects.

Information spillover effects of risk events is prevalent in corporate finance research. Scholars find that negative events such as financial report restatement and accounting fraud, can trigger contagion effects, the negative spillover effects, on peer firms. Gleason et al. find that restatement of financial statements not only affect a firm's value but also cause investors to reassess the peer firms' financial quality [10]. This reevaluation to a decline in the value of industry portfolio. Similarly, Beatty et al. observe the negative impact of the accounting fraud that a single firm's fraudulent reporting might devalue the stock price of its peer firms in whole industry [10-11].

Specifically, when it comes to bond default, investors may find themselves handicapped due to insufficient information. They might not possess enough data or insights to accurately assess the risk associated with bond default, therefore making investment decisions difficult. To prevent investment losses, they might view a single default as a broader indicator of industry-wide credit risk. This perception can trigger spillover effects across the industry and provoke a defensive response among investors. Hu et al find that bond defaults lead to negative effects in peer firms' bond prices, with the spillover effect being greater in firms with less transparent information environments [6].

4. Counterparty Risk

Counterparty risk, which can arise from a bond default, is the financial risk a creditor may encounter when a debtor defaults. It emerges from a series of claim and liability defaults. When a company defaults on its bond, it likely encounters serious financial constraints. This scenario may also prevent it from repaying creditors other than bondholders, thus setting off a chain of defaults within the creditor-debtor chain.

Firms typically have two types of creditors, including suppliers or customers and financial institutions. The first group includes suppliers or customers in the supply chain. A bond default generally signifies serious financial constraint in the company and its failure in paying trade payable to suppliers or customers. Consequently, the bond default might disrupt the cash flow of those upstream or downstream businesses in supply chain, making them unable to recover their debts, and leading to a series of defaults. Kiyotaki and Moore uncover the balance sheet channel of risk contagion effect, the negative spillover effect, which is often formed due to trade credit and results in interlocked loans [12]. This simply means credit risk can spread through the chain of creditor-debtor relationship chain formed by trade credit. The second group comprises financial institutions, mainly commercial banks. Their primary creditors' rights come from bank loans or bonds. Therefore, bond defaults might also affect financial institutions due to the bad debt.

Counterparty risk associated with commercial banks may be lower than that associated with suppliers or customers. This is due to several reasons: (1) Banks impose limits on loan sizes for individual borrowers and are required by regulators to diversify their lending, reducing their risk exposure to a single borrower; (2) Financial institutions can choose their borrowers, while trade credit is typically involuntary; (3) Bank loans are often secured, leading to higher recovery rates compared to unsecured debt (credit bond). Therefore, in terms of direct counterparty risk for bond default, supply chain companies generally face higher risks than financial institutions, particularly in terms of direct counterparty risk.

5. Investor Psychology

This section outlines two aspects of investor psychology according to behavioral finance theory and elucidates how these aspects contribute to the default spillover effects in the bond market. The two investor psychological traits associated with spillover effects of bond default are the heuristic principle and fragile belief.

The first psychological trait associated with spillover effects of bond default is the heuristic principle. Investors, facing limited energy and incomplete information, often rely on past experiences to streamline risk assessment and value evaluation. Tversky and Kahneman introduce the concept of heuristic principles, asserting that investors use prior experience to make decisions in uncertain situations [13]. However, this can lead to predictive bias and increase risk contagion. According to the heuristic principles, bond investors form expectations about future credit risks based on past default events. Fuster et al. provide empirical support for this, suggesting that investors with a heuristic principle might overestimate the occurrence of default risk [14]. They could mistake a single default for a systemic risk, leading to a decrease in asset prices.

The second psychological trait associated with spillover effects of bond default is termed as fragile beliefs among investors. Fragile beliefs can cause systemic volatility in bond prices, which can deviate from the credit risk of the bond. Collin-Dufresne find that when investors have fragile beliefs, the spillover effect on bond prices increase significantly, even if the likelihood of credit risk contagion remains low [15-17]. Under this circumstance, the spillover effect may not stem from the actual risk of default contagion but rather from panic-induced blind selling.

6. Conclusion

Bond default is not uncommon in the bond market. In recent times, the global economic slowdown and the COVID-19 pandemic, together with decreasing government guarantees in developing countries like China, have prompted an increase in bond default rates. These defaults have far-reaching consequences. They not only affect the financial stability and reputation of the defaulting enterprise, but they also have broader, industry-wide and regional implications. Such spillover effect can destabilize financial markets, affecting investor confidence and potentially leading to more

widespread financial difficulties. Under this circumstance, this paper systematically analyzes three key determinants of the spillover effects of bond default.

To prevent the credit risk contagion and to effectively avoid systemic risk within the financial sector, it is crucial that regulatory authorities take proactive steps to supervise the information disclosure in the bond market. By elevating the standards and improving the transparency of information disclosure, the detrimental spillover caused by information asymmetry can be mitigated. Secondly, it is important for rating agencies to enhance and refine their risk warning technology. In an era where advancements in technology are rapidly evolving, agencies should harness the power of text analysis, machine learning, and other cutting-edge technologies to issue more timely and accurate risk warnings. These warnings could be based on negative public sentiment and opinion about bond issuers, thus providing a more holistic view of potential risks. Lastly, it is important to develop the Credit Default Swap (CDS) market and other similar new instruments to mitigate the risks associated with bond default.

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