A Review of the Influence Factors of Corporate Bond Credit Spread

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***Abstract*—In order to let investors understand the law of historical interest rate spread change, and make correct investment decisions by judging the rationality of bond price and future price trend, this paper studies the influencing factors of corporate bond credit interest rate spread through comparative analysis. The research shows that the macro and micro level can have an impact on the credit spread of corporate bonds. The macro factors include risk-free interest rate, interest rate risk, liquidity risk and so on. The micro factors include the capital structure of bond issuers, corporate governance, bond issuance period, bond credit rating, bond issuance scale and so on, Starting from these two aspects, this paper combs and analyzes the literature of domestic and foreign experts and scholars, studies its influencing factors, and indicates that investors should consider these factors when they invest, but make blind choices.**

***Index Term*—Corporate bonds, credit spread, macro factors, micro factors, journals reviewed.**

I. Introduction

In the era of economic strides forward, my country's corporate bond market is developing faster and faster. An important form of corporate financing is the issuance of bonds. It is an important way for companies to raise funds, but its credit risk is relatively high, such as the outbreak in 2008. China's financial crisis, so its pricing has also attracted people's attention. Credit spread refers to the difference between the credit bond yield and the risk-free interest rate of the same maturity [1]. In the era of economic prosperity, corporate financing will encounter many problems, such as the continuous increase in default events, so reduce corporate bonds credit spreads have become a key problem to be solved. With the development of bonds, credit spreads have more and more influence on bond pricing, and its influencing factors have become one of the hot topics discussed by scholars at home and abroad. It is of significance to discuss its influencing factors. Importantly, in the economic market, there are many factors that affect it, ranging from global economic changes, international exchange rate changes, inflation, etc., to small corporate-level factors, such as asset scale, financial leverage, etc., in order to allow investors to understand the changing laws of historical spreads, to study whether the current bond price is reasonable before making investment decisions, and to grasp its future price trend, this article conducts a research on its influencing factors. From the current research, the factors that affect its changes are mainly at the macro and micro level. Compared with the relevant research of domestic and foreign scholars, this article mainly summarizes the two parts.

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II. Macro-influencing Factors of Corporate Bond Credit Spreads

The macro-influencing factors of corporate bond credit spreads mainly include: risk-free interest rate, interest rate risk, liquidity risk, monetary policy, economic environment and other factors.

A. Risk-Free Interest Rate

The risk-free interest rate refers to the rate of return generated by investors investing funds in a risk-free project. At present, the existing scholars more often regard the yield to maturity of national debt as its measurement index. Analyzing its impact on bond credit spreads from different perspectives will lead to different conclusions. From the investment perspective, the reduction of risk-free interest rates will increase investor consumption. The looser the funding environment, the lower the default rate will be, which will lead to profitability. The gap becomes smaller; from the perspective of supply and demand, its reduction will make companies more debt financing, increase the number of bond supply, lower prices, and increase credit spreads. Merton, Altman, and other studies found that when the company's assets are not equal to liabilities and the latter is smaller, the company is likely to default. The risk-free interest rate changes in the opposite direction to the value of the put option bond, and the current one increases. At large, the latter will fall, the value of the bond will rise, and the corresponding return will fall, so a reduction in the risk-free interest rate will increase the credit spread of corporate bonds [2], [3]. Zhao Liang and Yu Yue found that when comparing the nominal interest rate and the real interest rate, the former is weaker to explain the effect of interest rate on credit spreads, and the latter is stronger, and it is manifested in the real interest rate and bond credit spreads. The changes are in the opposite direction [4]. Zhang Jiaqi also verified that it has an opposite relationship with bond yield to maturity [5]. Delianedis and Geske used US financial market data to conduct research and believed that the yield of treasury bonds had no significant impact on it [6].

B. Interest Rate Risk

When interest rates change, assets or income may suffer losses. This risk affects the value of bonds and thus affects credit spreads. Chen conducted an empirical study to confirm whether interest rate risk affects the duration of

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credit spreads and whether it is related to default risk. The results show that interest rates not only affect its current movement, but also have certain predictions about its future dynamics [7]. Liang Zhaohui and Wang Zongsheng divided the credit spread risk into credit risk factors, interest rate risk, and liquidity risk, and tested the impact of non-credit risks on bond credit spreads. The results proved that credit risk factors have a great influence on it. The explanatory power has increased by more than 14% after adding factors such as interest rate risk and liquidity risk [8].

C. Liquidity Risk

When assets lack liquidity and cannot be realized, liquidity risks will arise, and liquidity affects investors' investments. Chen believes that the lower the liquidity, the higher the spread, which shows that reducing credit spreads can be achieved by increasing liquidity [9]. Ji Zhihong and Cao Yuanyuan found that the credit spread of my country's credit bonds is more reflected in the market liquidity premium rather than the credit risk premium [10]. Chen Tingting and Hu Yi believe that the epidemic has a significant impact on corporate bond spreads, and this impact is even more pronounced when the entire market is insufficiently liquid [11].

D. Monetary Policy

Monetary policy directly affects the amount of bank funds and indirectly affects the number of bond issuances. Guo Ye and Huang Zhen found that: Unexpected monetary policy has a more significant impact on credit spreads, especially during periods of rising economic cycles. In addition, monetary policy has a greater impact on long-term bonds. The credit spread of the variety has a more significant impact [12]. Zeng Yufeng and Fu Shengsheng believe that the U.S. monetary policy will affect China's bond credit spreads, and that sudden monetary policies will have a greater impact and have different effects on bonds of different ratings [13]. Liu Bo and Meng Nana found that monetary policy has a significant impact on credit spreads through empirical results [14].

E. Economic Environment

The economic environment affects the financial market and its impact on the bond market cannot be ignored. The better the economy, the lower the probability of default and the change in credit spreads. Dragon Yongjun Tand and Hong Yan found that economic growth will increase the credit spread, and the credit spread has a positive correlation with the volatility of the economic growth rate [15]. Zhou Rongxi and Wang Di believe that the larger the GDP, the higher the credit spread of short- and medium-term bonds, and the smaller the long-term bond, indicating that the length of time will also have a restraining effect on this effect [16]. Zhu Yan and Sun Shuwei believe that when a loose monetary policy is issued, it will make the company's operations better, increase investors' confidence in the economic environment, and thus show an optimistic attitude towards the company. At this time, the company's bond credit The spread will also become smaller [17]. Liu Bo and Meng Nana found that economic growth, monetary policy, etc. have a significant impact on credit spreads through empirical results [14].

F. Other Macro-influencing Factors

Other macro-influencing factors of corporate bond credit spreads include: stock market index, SSE corporate bond index, SSE composite index, taxation, term structure of interest rates, industrial value added, inflation, etc.

III. Micro-influencing Factors of Corporate Bond Credit Spreads

The micro-influencing factors of corporate bond credit spreads mainly include: capital structure, corporate governance, bond issuance period, bond credit rating, bond issuance scale, analyst forecasts and other factors.

A. Enterprise Capital Structure

The capital structure of an enterprise includes the composition and proportion of different capitals of the enterprise, which will affect the company's fund-raising plan. Therefore, when an enterprise raises funds through the issuance of bonds, it should consider the impact of changes in the capital structure on its bonds. Tang and Yan believe that it will change as the capital structure of the bond issuer changes. Those capital structures include assets and liabilities, cash flow, state-owned shares, etc will have an impact on it [18]. Zhao Jing and Fang Zhaoben believe that the historical volatility, capital structure, leverage ratio, stock return volatility, and turnover rate of a company's stock will affect it [19]. Douglas found that the greater the volatility of corporate cash flow, the higher the risk of cash shortage, and the higher the probability of default causes the increase in corporate bond spreads [20]. Wang Xuebiao and Wang Xi found through empirical analysis that corporate characteristics and issuance structure have an impact on medium-term credit spreads, but the influencing factors are mainly credit rating, state-owned enterprise background, and enterprise scale [21]. Lin Wanfa and Li Shuqi proved that cost stickiness can reduce credit ratings by increasing corporate asset volatility and accounting information risks at the same time, which in turn affects bond credit spreads [22].

B. Corporate Governance

The main content of corporate governance has become the company's high-level rules of procedure and employee management systems. Once corporate governance fails, the willingness of the company to repay debt will be shaken, which will increase the company's default rate and affect bond spreads. Klock concluded during empirical research that if the company's governance system is good, it means that the company has a good information disclosure system, and the information asymmetry between the company and investors will be reduced at this time, the spreads are reduced [23]. Zhou's research has shown that corporate social responsibility and good corporate governance can reduce bond credit spreads. And if the enterprise itself exhibits a higher level of operating risk, it will increase its bond credit spread [24]. Zhou Hong, Jian Lei, and Li Guoping believe that corporate governance has a negative correlation with interest spreads, which mainly affects interest spreads in terms of reducing information asymmetry [25].

C. Bond Issuance Period

Many uncertainties in the future are reflected in the unexpired period. The time of the period is accompanied by risks. The compensation required by investors is related to time. Fons found that the issuance period will also affect corporate bonds. Credit spreads, and when the bond credit rating is high, the duration and credit spreads will show changes in the same direction, and when the credit rating is low, they will show reverse changes [26]. The final empirical results of Ren Zhaozhang and Li Peng show that the length of the remaining maturity of a bond is the most important factor affecting it [27]. Chen Shiwei believes that at the micro level, the remaining maturity of the bond has a significant impact on it [28].

D. Bond Credit Rating

Credit rating is an important indicator of bond risk premium. Many investors consider it when making investment decisions. John believe that credit rating can affect the yield of corporate bonds, and the yield difference between different bond ratings is significant [29]. Zhang Shujun selected nearly 200 For bonds, the results show that different bond grades have different effects on spreads. The higher the grade, the lower the spread [30]. Liang Zhu believes that high-rated (AAA) short-term bonds have significant low spreads, but the ratings of low-rated bonds have no significant relationship with credit spreads [31].

E. Scale of Bond Issuance

Usually the bond issuance scale is used to measure the liquidity of bonds. To a certain extent, the scale can reduce costs, reflect the value of assets, and thus affect the spread. Yang Dakai and Wang Peng believe that the issuance scale is inversely related to it, because the company The larger the scale of the company indicates that the more assets the company has, the smaller the risk of default and the stronger the ability to bear the company's debt [32]. Crabbe and Turner came to the opposite conclusion. He believed that the scale of bond issuance has little impact on it, and it is more affected by other factors. Because the financial market is more complete, investors may pay more attention to the issue. The financial capabilities of debt companies themselves are not particularly concerned about the scale of debt issuance, so the impact is smal [33].

F. Analyst Forecast

Marquardt and Wiedman believe that the number of analysts can be used to replace the degree of information disclosure [34]. Lin Wanfa proves that the number of analysts tracked is significantly negatively correlated with credit spreads. It also proves that the tracking of domestic celebrity analysts can also significantly reduce bond credit spreads. [35] Qian Jiahui believes that the increasing attention of analysts it can reduce the debt financing cost of listed companies, and this relationship is more significant in regions with a good financial ecological environment and private enterprises [36].

G. Other Micro-influencing Factors

Other micro-influencing factors of corporate bond credit spreads include: investment management system, hedging ratio, investor sentiment, investor judgments and expectations, analyst forecasts, corporate information transparency, business risk, customer concentration, bond redemption clauses and resale clauses, etc.

IV. Conclusion

In general, the influencing factors of credit spreads are the common influence of multiple levels. These factors are mainly at the macro level and the micro level. The macro level mainly includes risk-free interest rate, interest rate risk, liquidity risk, monetary policy, etc., and the micro level mainly includes Capital structure, corporate governance, bond issuance period, bond credit rating, etc. These research results have a great reference for later scholars' research. It can help investors consider these influencing factors when investing in bonds, but not when making investment decisions. Blind selection, and research in this area is beneficial for companies, creditors and the government to use risk-free assets to optimize capital allocation in time when anticipating that a default event may occur, to hedge, to warn of changes in corporate credit ratings, and to avoid heavy losses for investors .

Conflict of Interest

Submitted work has no conflict of interest.

Author Contributions

Li Sisi conducted literature search and research and thesis writing; Zhang Mu conducted literature review and thesis revision; all authors approved the final version.

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