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Research on the Application of Bonds in Financial Risk Management

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Abstract. In order to promote the healthy and sustainable development of the financial industry as a whole and the economy, guide investors in the financial market to establish rational investment concepts and avoid the herding effect, this paper unfolds based on the existing applications of bonds in financial market risk management, starting from the development history of the bond market in the world and China, respectively, to sort out and summarize the ways of trading and management in the financial market. The results of the study show that bond markets can indeed have an impact on the management of financial risks, while the expansion of the bond market size has generally been utilized to promote economic growth. An Active bond management can reduce market risk for financial investors, while negative bond management can increase market risk under certain conditions. This paper has important practical significance for investors' risk aversion in financial market.

Keywords: Bond · Risk · Management · Financial Market

1 Introduction

1.1 Research Background

Bond market, is also termed the debated market or the fixed-income market, is originated in the Iraq and has been developed through various development. Bonds are recognized as one of the oldest financial instruments in Mesopotamian times. It has become an essential approach for government and large companies to finance. Long-term borrowings and debt instruments are two major ways of transaction money in the bond market. There are several types of bonds in the market. For instance, corporate bonds, municipal bonds, mortgage securities and federal agency bonds, and treasury bills and bonds. Most of these instruments promise fixed income, or income based on a specific formula, and are sometimes thought of as constituting fixed income capital markets. In practice, these formulas can lead to income flows that are far from fixed. As a result, "fixed income" may not be an appropriate term. It might be a simpler and more directly to define these instruments or bonds.

The main way the United States government borrows money is by selling Treasuries. Treasury bills have maturities of up to 10 years, and bonds have maturities of up to

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10 years. Both of them can be issued in increments of $200, but usually trade at a face value of $2,000. Both bonds and nots pay interest semi-annually, termed coupon payments. The name comes from the days before computers, when financiers simply attached a coupon to a bond and presented it to receive interest payments.

1.2 Research Significance

The development of bond market, especially government bond, its market size and market liquidity have theoretical and practical significance for the study of macroeconomic effects. The current international trade friction is complicated. Affected by the new crown virus, the global economy is in a downward range. In order to prevent financial risks and maintain macroeconomic stability, it is urgent to optimize the market size control of bonds and the management of market liquidity. Studying the application of bonds in financial market risk management has become a major issue in the field of national finance and finance as well as in the macroeconomic field.

2 Literature Review

2.1 The Development of Bond Market in Globe

The first legally binding evidence dates back to 2400 BC in Iraq. Another area that issued government bonds in the early days was Venice [1]. Bonds become the most popular war funding after 16th century [2]. Especially, it has been applied by the US government to finance the Revolutionary war (the American war of Independence in 1775). This financial tool also been used in subsequent war for government to finance their war in 1917. For instance, 5 million bonds were issued at a coupon rate of 3.5% to support the US army against Germany during World War I. At the same year, the British government implement the same strategy to rise the capital for same purpose. During the period of 1970s and 1980s, numerous angel companies closing down lead the increase of high yield corporate bonds. These firms issued investment-grade debt when they saw their creditworthiness plummet. The rating fell to TRIPLE-B, the lowest rating for investment grade bonds [3]. In addition to US bond market development, international bond market has been rapidly expanded since the period of 1980s. During this period, the global sector's share of total nominal outstanding of the major bond markets increased from 4 to 11%. At the same time, we can witness a significant development for the Japanese yen and Swiss franc. At the end of 1980s, the size of Swiss franc foreign bond market had overtaken Yankee bond. The Euro-bond market had a strong performance in 1990. At that period, it accounted for more than three-quarters of all outstanding international bonds. In 1989, Euro-bonds worth more than 220 billion dollars and the reading volumes in the secondary market of Euro-bonds exceeded 2 trillion dollars [4].

2.2 The Development of Bond Market in China

China first entered the Stock market in the Qing Dynasty. During the Taiping Rebellion in 1861, the provincial government began to use the overseas bond market. One year later, bond was used to control brigands located in Fujian and Taiwan. In 1867 and 1868, China continued to rely on loans from foreign merchants to support its war fight Islamic rebels in western China from financial perspective [5]. In the late 19th and early 20th centuries, China's foreign loans were mainly securitizations of maritime tariffs. Maritime tariffs are not only one of the biggest sources of government revenue, but they are extremely attractive to foreign governments as they collect those customs directly at local ports in China [6]. With the outbreak of the Sino-Japanese War in 1937, the People's Republic of China issued various domestic bonds during the Eight-Year War to raise funds for the war, and these bonds were issued not only to individual investors, but also to institutions such as banks. Contradictorily, as the central government has weakened, Shanghai's banks-China's monetary center-have become relatively strong. China's banks gained and maintained a good reputation during this era amid frequent government defaults. As the Chinese government reopened its financial channel to foreign markets in the early 1980s and became a focal point in China, interest in the bond market also revived. In addition to issuing more traditional government bonds, generally considered a better way to save, state-owned enterprises began issuing bonds in the period of early 1990s. But in particular economies, such as China, the sudden growth of the quasi-corporate-bond market does not reflect the maturity of the market or the maturity of the issuing companies. On the contrary, such issuance largely represents the skewed incentives that renowned state-owned enterprises face during the economic transition [7]. The total foreign debt of China has reached $305 billion at the end of September 2006, this number increased 8.5% compared 2005. Among them, medium - and long-term bonds accounted for 44.7 percent, while short-term bonds accounted for 55.3 percent.

2.3 The Problem with Less Developed Bond Market

A comprehensive banking system is an essential for a country as well as the globe. The outlet for capital is critical for Banks with huge amount of deposit to operate properly. When there is a insufficient demand, the tendency to "foist" loans on borrowers who may be reluctant to lend. For example, in a conglomerate environment, the placement of unwanted loans is easy to accomplish. This in turn tends to loosen investment standards for borrowers, leading to lower capital investment and lower returns on equity. So over borrowing led to overcapacity, which in turn turned many loans into non-performing loans. This situation has been reported recently in East Asia [8].

The local government may misguide the credit allocation preference by specific purpose or mistakes. This might bring a negative effect on the bond market. Even worse, it also discourages companies from repaying their overseas loans. When confidence in the national currency begins to wane, the scramble for foreign money by these debtors often sparks a real economic crisis [9]. Lack of transparency is recognized as one the most significant issue concerned by investors. Both the financial industry and regulators as well as public officials oppose mark-to-market accounting. Yet, in contrast, three parts including the Financial Accounting Standards Board, the U.S. Securities and Exchange Commission, and the International Accounting Standards Board prefer to replace historical cost with fair value as the basis for evaluating financial assets and liabilities. While some commercial loans have no apparent market value, many recent techniques, such as arbitrage analysis applied to similar tools, and risk analysis, can now remove the fog that currently hangs over financial institutions' financial statements [10]. When the corporate bond market is sizable, loans dominated by market forces account for a larger proportion of total loans than a less developed market. Because at a less developed bond market, lending is mainly controlled by the central banking system or central government. In practice, regulators are the key candidates of those who receive information on the market. Experience indicates that an experienced bond market provides more solid protection against economic recession than bank managers' decisions and an imperfect banking supervisory system when the bond market is too small and/or controlled [11].

2.4 Bond Management

2.4.1 Passive Bond Management

From the perspective of passive bond management, bond prices are stable and passive bond managers can only afford limit risk in fixed income portfolios. There are two classes of passive management. The firs one we should mention is the so-called index strategy. Within this strategy, it tries to duplicate what did in the past of a targeted bond index. Compared with the first strategy mentioned above, the second strategy is extensively used by insurance companies and pension to secure an institution's overall profit from the turbulent market. Although two strategies are quite similar as both of them prefer to accepting a reasonable price at the market. Yet, they are significantly different in numerous ways. The index portfolio's risk-reward model is similar to the bond market it is associated. Immunization strategy is looking for the smallest risk where is possible.

In theoretical term, there should a great similarity between a bond market index and a stock market index. For instance, the S&P 500 is the most commonly used index for equity index funds, which simply buy shares of each company in the S&P 500 in proportion to the market value of the issued equity. Bond index funds apply a similar strategy. Yet we cannot directly use the same stage and some modification should take place. Three major indexes such as Barclays Capital U.S. focus on market-cap return. Those three indexes include government, corporate, mortgage-backed and Yankee debt. Yankee bonds are dollar-denominated, SECURITIES and Exchange Commission-registered issuers of foreign bonds sold in the United States. By using a different strategy, considerable institutions strive to isolate the risks caused by the interest rate and there are generally two approaches to achieve this target. Some banks strive to protect their current value or market value by concerning interest rate fluctuations. On the other hand, some pension funds, may face obligations to repay them after a certain number of years. These financers more concern about the further return.

Both investors are concerning the issue of the risk of interest rate. And the interest rate is an essential indicator of a company's net worth or the ability to repay furfure debt. Immunology refers to strategies such investors use to insulate their overall financial position from interest rate fluctuations.

2.4.2 Active Bond Management

In general, the potential value of active bond management comes from two sources. On the one hand, interest rate forecasting should be considered, this enables us to predict the tendency of the whole market and the situation of fixed income markets. In the other word, we can have a quick glance of the general tendency. If they expect interest rates to fall, fund managers increase the maturity of their portfolios. On the other hand, we can concern the potential profits which is the relative mispricing in the fixed income market. For example, an analyst might consider the target bond's default premium to be insignificant, making the bond unattractive.

It is essential for analysts to comprehend the outperformance of the market so that they can receive a high return. You cannot profit from knowledge of interest rates. If the price has already reflected this information, it is about to fall. It is also important for us to focus on the market efficiency. Valuable information could differential information. Under this assumption, we should not heavily rely on rate forecasters.

3 Discussion

Bond market is a transaction in the money market consisting of longer-term borrowings or debt instruments. Corporate bonds, municipal bonds, mortgage securities and federal agency debt are the three key players in the bond market. The main way the U.S. government borrows money is by selling Treasuries. Treasury bills have maturities of up to 10 years, while bonds have maturities of up to 10 years. Both notes and bonds can be issued in increments of $200, but usually trade at a face value of $2,000. Both notes and bonds pay interest semiannually, called coupon payments. The name comes from the days before computers, when investors simply attached a coupon to a bond and presented it to receive interest payments. The content of the daily News publishes the Dow Average. Another Jones index leaderboard is the most important performer, but one of the reference standards due to the index's broader base. Foreign bond markets play a critical role in prosing the local economy by linking the nation and globe through financial ties. Consequently, globe investors now are paying more attention on Tokyo's Nikkei Average and London's Financial Times Index.

The NYSE has been approved that it can expand its bond trading system that allowed all the companies listed on NYSE enable to process debt trading since 2006. Before this time, every bond should be registered before listing, and this action was time-consuming and it was not enough to make a reasonable valuation of most bond listings. For the new listings, the electronic bond trading system has been expanded and it called NYSE Bonds that is developed to the largest centralized bond market. However, almost all the investors prefer to conduct the transaction over the counter although some investors have accounts on New York Stock Exchange. There are some dominated plays such as Merrill Lynch (now part of Bank of America), Salomon Smith Barney (a division of Citigroup), and Goldman Sachs that consist the network of bond traders, and they were bridged through a technical quotation system. Yet, those dealers do not have a large of number of public debates that are available. They may not sell bonds from their inventories to customers or necessarily buy bonds for their own inventories. Instead, they prefer to find an investor who wants to take the opposite side of the deal.

4 Conclusion

Reviewing the full text research, based on the existing application of bonds in financial market risk management, starting from the development history of the bond market in the world and China, the transaction and management methods in the financial market are sorted out and summarized. The research results show that the bond market can indeed play a certain role in the management of financial risks, and the expansion of the bond market can generally be used to promote economic growth. Active bond management can reduce the market risk of financial investors, while passive bond management will increase market risk under certain conditions. Based on this, this paper puts forward suggestions from the following three aspects: First, pay close attention to important markets, actively supervise sub-key markets, and establish a comprehensive early warning system; second, actively guide development and improve risk management; Education, guide rational investment. However, due to limited access to resources, this paper fails to use econometric methods to quantify the role of bonds in financial market risk. Subsequent research can carry out quantitative analysis on this basis, and can also conduct further research based on the impact of major events in the financial industry on risk generation and risk spillover, such as whether relevant policy changes or turmoil in the international financial market will cause risks. Meanwhile, the spillover caused a significant impact, which we can further explore in follow-up research.

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