

A Correlation Analysis of Risk Attributes and Returns: Evidence from the Returns and Volatility of Chinese Convertible Bonds

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Abstract. The risk-return matching theory has been widely verified in mainstream investment products such as stocks and ordinary bonds (see, e.g., Sharpe, 1964; Fama & French, 1993). However, with the emergence of hybrid financial instruments, their risk-return characteristics have gradually challenged the traditional theoretical framework, and convertible bonds are a typical example. This study takes China's convertible bond market as the research object to explore the applicability of the traditional risk-return theory in this segmented market. To systematically analyse the risk-return characteristics of convertible bonds, this study adopts a combination of qualitative and quantitative methods, including text analysis, case analysis, comparative analysis, index construction, and Index Model (IM) analysis. Equal-weighted indices are constructed for convertible bonds and stocks respectively. Key indicators such as return rate, volatility, and Sharpe ratio are calculated, and parameters like alpha (α) and beta (β) are measured using the IM model for in-depth research. The research results show that convertible bonds break the “low-risk, low-return” matching relationship in the traditional theory. From the perspective of absolute risk-return characteristics, convertible bonds have low-risk attributes. However, this low-risk attribute does not compromise expected returns. Compared with the stock index, the annualized return rate of the convertible bond index is 1.66 times that of the stock index. The IM model shows that the α value of the convertible bond index is 6.115%, reflecting significant excess returns independent of the stock index. In addition, after classifying convertible bonds according to the stock-bond ratio (conversion value / pure bond value), this study finds that the risk-return distribution among different types of convertible bonds still conforms to the traditional symmetry law. The theoretical significance of this study lies in supplementing the gap of the traditional risk-return theory in the research of segmented markets and providing a new case for the traditional financial theory. In practice, it provides a basis for asset allocation. At the same time, the study provides a quantitative reference for institutional investors to construct convertible bond investment portfolios, such as the equal-weighted index construction method and the application of the IM model.

Keywords: Convertible Bonds, Bond Attribute, Equity Attribute, Volatility, Risk-Return Characteristics.

1. Introduction

1.1. Research Background and Topic

From the perspective of global financial market development, the alignment between risks and returns has always been a central concern for investors and researchers. Classical economic theory such as Capital Asset Pricing Model (CAPM) clearly put forward the core logic that higher risk corresponds to higher return, and this logic has been widely verified in mainstream investment varieties such as stocks and ordinary bonds [1]. However, with the innovation of the financial derivatives market, mixed financial instruments have emerged continuously, and their risk-return characteristics have gradually broken through the traditional theoretical framework. Convertible bonds are a typical representative of such instruments.

The convertible bond market in China entered a rapid development phase in 2017, with the total number of newly issued convertible bonds across the market reaching 821 from 2018 to 2024, and an average yield-to-maturity (YTM) of 2.734%, demonstrating a strong bond-like foundation.

Meanwhile, between December 29, 2017, and August 18, 2025, the annualized return of the convertible bond equivalent index reached 12.197%, yielding an annualised return 1.66 times that of the equally weighted equity index. The annualized volatility was only 12.61%, far lower than the 24.216% volatility of the stock index (Data from: Table 4). This “low volatility, high returns” characteristic is inconsistent with traditional risk-return theories.

Against the above-mentioned market background, this paper focuses on the following research theme: taking China's convertible bond market as the research object, this paper systematically analyses the absolute and relative risk-return characteristics of convertible bonds by constructing an equal-weighted index, applying the Index Model (IM), and incorporating core indicators of bond attributes (straight bond value, yield to maturity) and equity attributes (conversion value, conversion premium rate). It also verifies the applicability of the "higher risk, higher return" theory in this specific asset category and explores the risk-return distribution law of convertible bonds with different debt-equity attributes within this category.

1.2. Research Objectives and Significance

This study investigates the risk-return characteristics of convertible bonds as a specialized asset class, demonstrating that conventional financial theories emphasizing high-risk/high-return and low-risk/low-return scenarios don't universally apply. The theoretical contribution lies in bridging gaps in traditional risk-return frameworks by introducing "differentiated characteristics within specific asset classes," thereby expanding research dimensions in risk-return correlations. Practically, it provides investors with clear asset allocation strategies to resolve the persistent debate: "Does pursuing returns necessarily require taking higher risks?" Meanwhile, it offers quantitative references for institutional investors to construct convertible bond portfolios (such as the construction method of equal-weighted index and the application of the Index Model (IM)).

1.3. Research Methods and Framework

This paper adopts qualitative analysis methods such as text analysis and case analysis to explore the research topic, and employs quantitative analysis methods including comparative analysis, index construction, and Index Model (IM) analysis to conduct in-depth research on the topic.

The research framework of this paper is as follows:

Theoretical Foundation and Concept Definition

Clarify the core definition of convertible bonds, analyse their key terms, and elaborate on the dual attributes of convertible bonds—"debt" and "equity".

Research Design and Data Preparation

Lay the groundwork for the study by constructing an index for the research targets, selecting an appropriate data range, and determining core indicators and models.

Empirical Analysis

Draw research conclusions through the analysis of absolute risk-return and relative risk-return. Further conduct classified analysis within the asset subclass to reveal the distribution law of risk-return in this category.

Conclusions and Recommendations

Summarize the core conclusions based on the above analysis and put forward corresponding asset allocation recommendations.

2. Interpretation of Convertible Bonds

2.1. Basic Interpretation

1. Convertible Bond: A convertible bond (abbreviated as "convertible bond") is a special bond issued by listed companies or enterprises. Bondholders have the right to convert their bonds into common stock of the issuer at a predetermined conversion price within an agreed period. If the holder does not exercise the conversion option, the issuer must repay the principal and interest at face value

with the agreed interest rate upon maturity. This hybrid financial instrument combines both debt and equity characteristics.

2. Yield to Maturity (YTM): The annualized yield to maturity of a convertible bond when it is regarded as a "bond" itself.

3. Pure Bond Value (Bond Attribute): Without considering the right to convert into shares, the present value of the future cash flow (coupon interest, maturity principal) of the convertible bond, which is regarded as an ordinary corporate bond, discounted at the market interest rate of bonds with the same risk.

4. Conversion Value (Equity Attribute): The market value of each convertible bond that can be converted into shares currently. $\text{Conversion Value} = (\text{Face Value of Convertible Bond} \div \text{Conversion Price}) \times \text{Current Price of the Underlying Stock}$.

Sharpe Ratio: Quantifies the excess return obtained by an asset or investment portfolio per unit of risk borne. It is the ratio of the excess return obtained by investors for bearing additional risks to the uncertainty of returns. $\text{Sharpe Ratio} = (R_p - R_f) / \sigma_p$; where R_p is the return rate of the investment portfolio, R_f is the risk-free return rate, and σ_p is the standard deviation of the return rate of the investment portfolio.

2.2. Core Characteristics of Convertible Bonds

The core logic of convertible bonds lies in debt floor protection plus equity upside potential, and they possess the dual attributes of debt and equity. Holders of convertible bonds have dual options: they can either choose to hold the bond until maturity to earn interest or convert it into stocks at an appropriate time to profit from price differences. Convertible bonds span debt and equity markets, allowing investors to obtain exposure to both asset classes within a single contract.

The Debt Attribute of Convertible Bonds: A Fundamental Safeguard. As a type of bond, the debt attribute of convertible bonds provides holders with fixed returns (interest) and a guarantee of principal repayment upon maturity. This serves as the safety floor of convertible bonds, ensuring that holders still receive stable returns when stock prices are sluggish. When a convertible bond is issued, a stated coupon rate is specified, entitling the holder to fixed interest income. If the holder never exercises the conversion right, the issuer is obligated to redeem the bond at its par value and repay the principal to the holder upon maturity [2].

The Equity Attribute of Convertible Bonds: Profit Potential: As a convertible instrument, the equity attribute of convertible bonds grants holders the right to convert the bonds into stocks and share in the gains from stock price appreciation when stock prices rise, reflecting the potential profitability of the equity attribute. This is the core feature that distinguishes convertible bonds from ordinary bonds, as it endows holders with the right to benefit from rising stock prices [2].

Example: Suppose a convertible bond has a par value of RMB 100 and a conversion price of RMB 20 per share. Then, one convertible bond can be converted into 5 shares of common stock (calculated as $100 \div 20$). If the stock price rises to RMB 25 per share at the time of conversion, the market value of the converted shares will be RMB 125 (5×25). The holder can earn a price difference of RMB 25 by selling these shares.

The Dual Options of Convertible Bonds: Balancing Offensive and Defensive Traits: This dual option feature endows convertible bonds with the characteristic of balancing offense and defense. The optionality of convertible bonds constitutes their core advantage, placing the initiative in the hands of holders: When stock prices rise, holders can choose to convert the bonds into stocks to enjoy the gains from stock price appreciation; When stock prices are sluggish, holders can opt not to convert, continue holding the bonds to earn interest, and retrieve the principal upon maturity, thereby avoiding the risk of stock price declines [3].

3. Research Methods

3.1. Index Construction

This paper constructs an equal-weighted index of all-market convertible bonds and an equal-weighted index of all-market stocks in an equal-weighted manner, which are used to measure the market performance of all listed convertible bonds and the overall performance of listed stock prices, and have high market representativeness [4].

(1) Construction of the Equal-Weighted Index of Convertible Bonds:

Sample Space: All public offering convertible bonds listed on the Shanghai and Shenzhen Stock Exchanges with a listing period of more than 10 working days and a bond balance of more than 30 million yuan (inclusive).

Sample Selection Method: All convertible bonds in the sample space are used as constituent bonds.

Constituent Weight Rule: Calculated by equal weight.

Index Base Date: December 29, 2017, with a base point of 100.

Formula for the Equal-Weighted Index of Convertible Bonds: $\text{Real-Time Index} / \text{Previous Trading Day's Closing Index} = \Sigma (\text{Real-Time Transaction Price of Constituent Bonds} / \text{Previous Closing Price of Constituent Bonds}) / \text{Number of Constituent Bonds}$

Data Source: Wind Database

(2) Construction of the Equal-Weighted Stock Index:

Sample Space: All A-shares listed on the Shanghai, Shenzhen, and Beijing Stock Exchanges with a listing period of more than 10 working days.

Sample Selection Method: All A-shares in the sample space are used as constituent stocks. Constituent stocks are removed from the index components on the day of delisting.

Constituent Weight Rule: Calculated by equal weight.

Index Base Date: December 29, 2017, with a base point of 100.

Formula for the Equal-Weighted Index of All A-Shares: $\text{Real-Time Index} / \text{Previous Trading Day's Closing Index} = \Sigma (\text{Real-Time Transaction Price of Constituent Stocks} / \text{Previous Closing Price of Constituent Stocks}) / \text{Latest Number of Constituent Stocks}$

Data Source: Wind Database

3.2. Indicator Analysis

Calculate the return rate, volatility, and Sharpe ratio of the equal-weighted index of convertible bonds within the data research period to analyze the risk-return characteristics of the convertible bond investment variety itself.

Calculate the return rate, volatility, and Sharpe ratio of the convertible bond index relative to the equal-weighted stock index to further analyze the relative risk-return characteristics of the convertible bond investment variety.

3.3. Analysis of Risk-Return Characteristics of Convertible Bonds Using the Index Model (IM)

Model Name: Index Model (IM)

Required Parameters and Definitions: α_i : Excess return intercept term (alpha) of asset i. The formula is $\alpha_i = R_i - \beta_i \times R_M$, which represents the part of the actual return of the asset that cannot be explained by the market's systematic risk [5].

β_i : Systematic risk coefficient (beta) of asset i. The formula is $\beta_i = \text{Cov}(R_i, R_M) / \text{Var}(R_M)$, which measures the co-movement between the asset return and the market return and reflects the size of the asset's systematic risk.

R_i : Return of asset i; R_M : Return of the market portfolio; $\text{Cov}(R_i, R_M)$ is the covariance between the return of asset i and the market return; $\text{Var}(R_M)$ is the variance of the market return.

4. Research Results and Analysis

4.1. Analysis of Its Own Absolute Risk-Return Characteristics

Table 1. Summary Statistics of Yield to Maturity (YTM) for Newly Issued Convertible Bonds in China (2018–2024)

Year	New issues	Average YTM	Average YTM for Circulated
2018	67	2.199%	1.226%
2019	126	2.740%	0.613%
2020	195	2.817%	-1.636%
2021	113	2.831%	-1.857%
2022	147	2.834%	-3.631%
2023	132	2.925%	-3.747%
2024	41	2.791%	-1.117%
Total	821	2.734%	-1.450%

According to Table 1, this paper counts all convertible bonds issued in the Chinese market from 2018 to 2024, with an average issuance YTM of 2.734%. This reflects the prominent bond attribute of convertible bonds, providing fixed interest returns and principal repayment at maturity (their safety baseline) and confirming their low-risk nature. For all listed and traded Chinese-market convertible bonds (2018-2024), including high-equity ones with conversion value far exceeding RMB 100 after sharp rises, the average annual YTM is still -1.45%. Even with equal-weight purchases (resulting in negative YTM and no principal guarantee), the moderately low negative yield still offers investors some protection. These two datasets support convertible bonds’ low-risk feature.

However, does this low risk come at the cost of lower returns? This paper calculates the 2018-2025 returns via the constructed equal-weight convertible bond index (Fig.1):

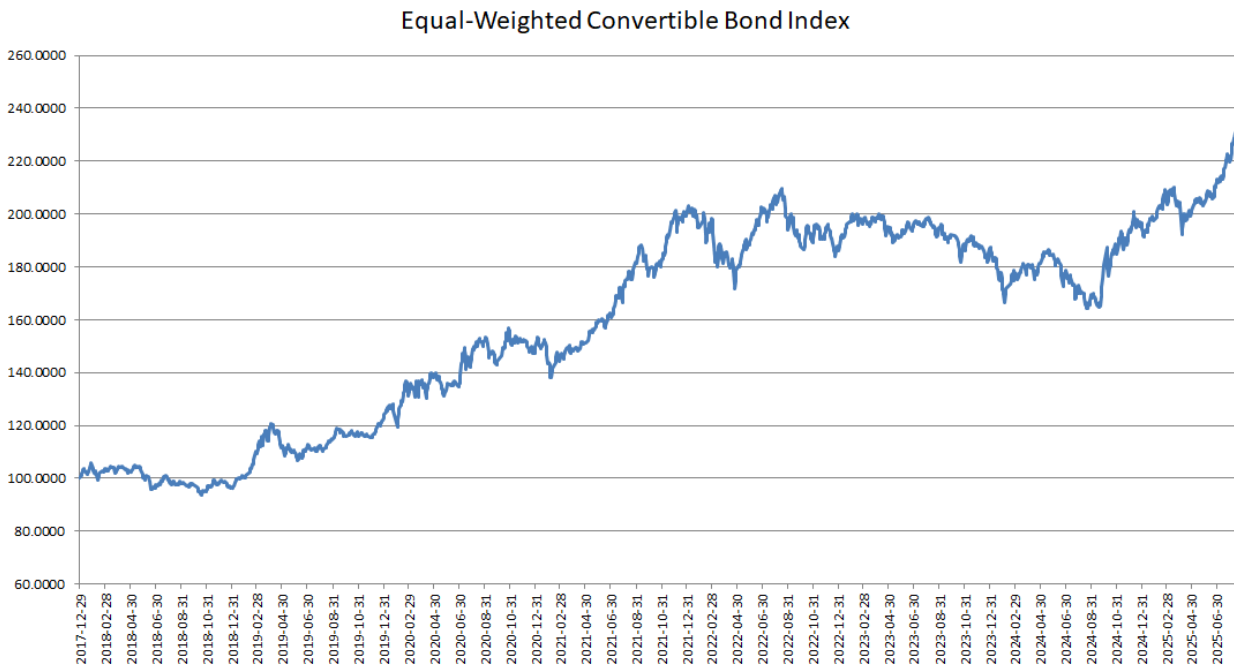


Figure 1. Cumulative Returns of the Equal-Weighted Convertible Bond Index

Table 2. Risk-Return Characteristics of the Equal-Weighted Convertible Bond Index

index	Annualized Return	Annualized Volatility	Sharpe Ratio
Convertible Bond Index	12.197%	12.610%	0.967

According to Table 2, from December 29, 2017, to August 18, 2025, the annualized return of the convertible bond equal-weight index reached 12.197%, showing considerable returns. Meanwhile, the annualized volatility during this period was only 12.61%, with a Sharpe ratio as high as 0.967. This indicates that the bond attribute of convertible bonds does not compromise their potential returns. Thus, in terms of their own risk-return characteristics, convertible bonds are an investment product with relatively low risk and low volatility.

4.2. Analysis of Relative Risk-Return Characteristics

This study also conducted a comparative analysis using the stock equal-weight index for the same period (Fig. 2):

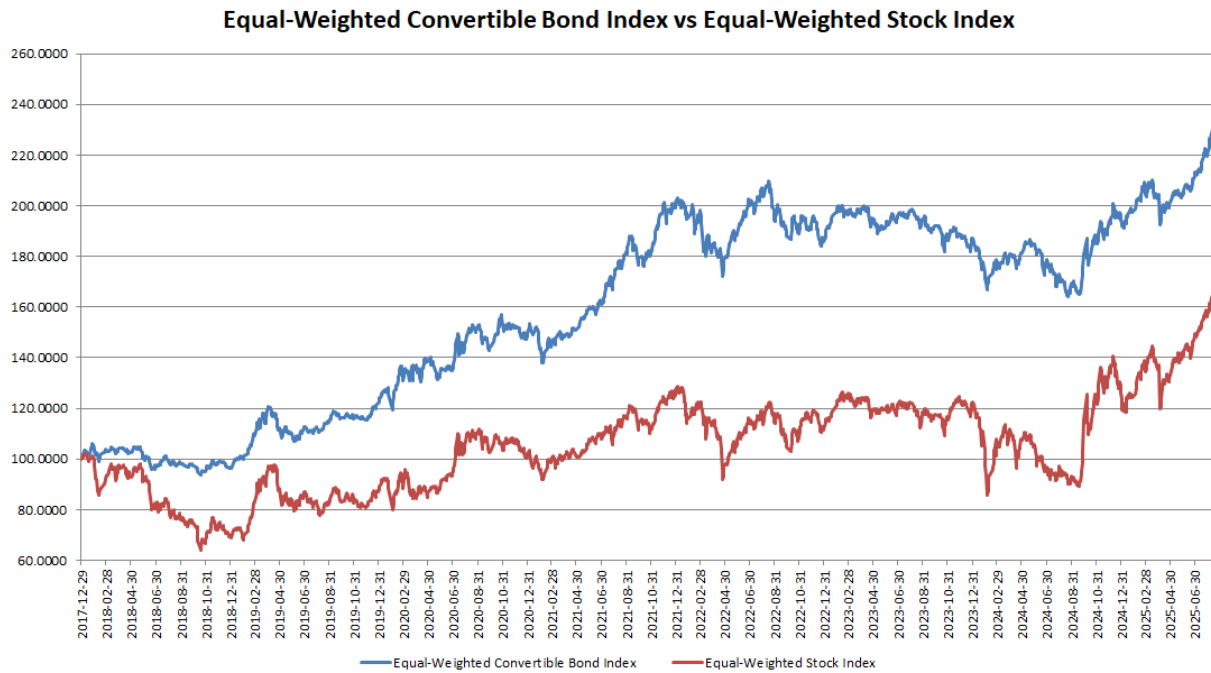


Figure 2. Comparative Cumulative Returns of Convertible Bond and Stock Indices

Table 3. Comparative Risk-Return Characteristics of Convertible Bond and Stock Indices

index	Annualized Return	Annualized Volatility	Sharpe Ratio
Convertible Bond Index	12.197%	12.610%	0.967
Stock Index	7.332%	24.216%	0.303

According to Table 3, the annualized volatility of the convertible bond index is only 52% of that of the stock index. This is clearly due to the downside protection offered by its bond floor, and its drawdown control also outperforms various types of equity assets. However, the return of convertible bonds does not decrease as a result. During the research period, the convertible bond index achieved a higher annualized return than the stock index, reaching 1.66 times the latter's return. From the perspective of the risk-return characteristics of these two major asset classes, convertible bonds have both higher returns and a higher Sharpe ratio than stocks. Therefore, from the perspective of long-term allocation, convertible bonds are a highly suitable asset for allocation.

4.3. Calculation Results Using the Index Model (IM)

$$\beta_i = \text{Cov}(R_i, R_M) / \text{Var}(R_M) = 0.82958 \quad (1)$$

$$\beta_i = \frac{\text{Cov}(R_i, R_M)}{\text{Var}(R_M)} = 0.82958$$

The β value is significantly less than 1, indicating that the overall volatility of convertible bonds is lower than the average level of the stock market, and their excess return rate is not brought about by the increase in volatility.

$$\alpha_i = R_i - \beta_i \times R_M = 6.115\% \quad (2)$$

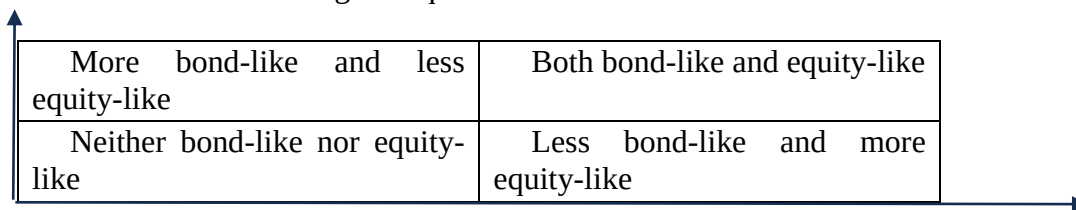
$$\alpha_i = R_i - \beta_i \times R_M = 6.115\%$$

The calculation shows that the convertible bond index has an obvious alpha value, with significant excess returns independent of the stock index.

The calculation results of the IM model further demonstrate the low-risk and high-return attributes of convertible bonds, and the source of this return is not brought about by the increase in volatility (which requires bearing greater risks).

4.4. Analysis of Return and Risk Characteristics of Convertible Bonds with Dominant Debt or Equity Features

Convertible bonds can be categorized into different types based on the relative strength of their equity features (stock-like characteristics) and debt features (bond-like characteristics). Some convertible bonds offer a relatively high yield to maturity, providing strong debt protection, while others have a low yield to maturity but exhibit prominent equity features. Generally, they can be divided into the following four quadrants:



More bond-like and less equity-like	Both bond-like and equity-like
Neither bond-like nor equity-like	Less bond-like and more equity-like

The debt-to-equity ratio indicator is constructed as follows: conversion value of the convertible bond / pure bond value. This indicator can be used to determine whether a convertible bond is equity-dominant or debt-dominant. When the debt-to-equity ratio is relatively high, the price of the convertible bond is mainly affected by the underlying stock, showing stronger equity features; when the ratio is low, the price of the convertible bond is closer to its pure bond value, with more prominent debt features [6].

Based on the strength of this indicator, this paper classifies convertible bonds into three types:

(1) Equity-dominant convertible bonds (conversion value / pure bond value > 1.15): These bonds exhibit strong stock-like characteristics. When the price of the underlying stock rises, they almost fully follow the trend of the underlying stock, and their returns are close to those of stocks.

(2) Neutral convertible bonds (0.85 < conversion value / pure bond value < 1.15): These bonds possess both certain stock-like and bond-like characteristics. They can benefit from the rise of the underlying stock while gaining a certain degree of defensiveness when the stock price falls.

(3) Debt-dominant convertible bonds (conversion value / pure bond value < 0.85): These bonds have obvious bond-like characteristics, with low conversion value. Their market price is close to their bond value, and they mostly reflect the fixed income of bonds [7].

After subdividing convertible bonds into debt-dominant and equity-dominant categories, this paper finds that the returns of the convertible bond index mainly come from equity-dominant convertible bonds. As the equity features strengthen, the volatility also increases, but the corresponding increase in returns is more significant. Therefore, the improvement in the Sharpe ratio is also obvious (Table 4).

Table 4. Risk-Return Characteristics of Convertible Bond Subcategories by Equity-Debt Ratio (2018-2024)

Type	Annualized Return	Annualized Volatility	Sharpe Ratio
Equity-Oriented	58.3%	19.7%	2.96
Neutral	6.7%	12%	0.56
Debt-Oriented	-2.2%	8.3%	-0.27

This research finding further indicates that among the subdivided categories of convertible bonds, they also conform to the symmetric distribution of risk and return, aligning with the general principle of higher volatility with higher returns and lower volatility with lower returns. As volatility increases, the annualized return of high-volatility convertible bonds also rises significantly; conversely, as volatility decreases, their annualized return drops remarkably.

5. Conclusion

5.1. Hybrid Financial Products Represented by Convertible Bonds Break the Matching Relationship Between Risk and Return

First, the low-risk attribute of convertible bonds is clear. Whether from the perspective of the issuance market or the secondary market, convertible bonds provide holders with a certain degree of yield-to-maturity protection. From the debt-feature perspective, this fully demonstrates that convertible bonds, as an investment instrument, possess low-risk characteristics. A study on the volatility of the equal-weighted convertible bond index shows that its annualized volatility is only 12.61%, while its Sharpe ratio is as high as 0.967. These figures also fully confirm the low-volatility and low-risk nature of convertible bonds, positioning them as an investment variety with relatively low risk and small fluctuations.

Second, the low-risk attribute of convertible bonds does not come at the cost of their return. Comparative studies with stock indices indicate that although the convertible bond index has significantly lower volatility than stock indices, its return does not decrease accordingly—in fact, it demonstrates significantly higher excess returns than stock indices, with a return multiple of 1.66x. The calculation results using the IM model further verify this research conclusion. The beta (β) value of the convertible bond index is significantly less than 1, meaning the overall volatility of convertible bonds is lower than the average level of the stock market, and their excess returns are not driven by increased volatility. The alpha (α) value is significantly positive, indicating that convertible bonds generate obvious excess returns independent of stock indices. This further proves the low-risk and high-return attributes of convertible bonds, and that such returns do not stem from increased volatility (i.e., taking on more risk). This is not only due to the downside protection provided by their debt floor (the minimum value supported by their bond features) but may also result from implicit mechanisms that enhance their equity characteristics, such as the conversion price adjustment mechanism.

Therefore, it can be observed that with the emergence of hybrid financial products, the logic of the symmetric distribution of risk and return, rooted in classical financial theories and common financial knowledge, is being broken. In investment practice, there are indeed exceptions to this symmetric distribution in certain segmented investment categories, such as convertible bonds.

5.2. Within the Segmented Categories of Convertible Bonds Themselves, Their Risk-Return Distribution Characteristics Still Show a Relatively Symmetrical Distribution Law

After classifying the convertible bond group into equity-oriented, bond-oriented, and neutral types, and then conducting research on their risk-return characteristics, it is found that most of the returns of the convertible bond index come from equity-oriented convertible bonds. With the increase in equity attributes, the volatility also increases. However, the resulting increase in returns is more obvious, leading to an improvement in the Sharpe ratio. This research result shows that within the segmented category of convertible bonds; it conforms to the symmetrical distribution of risk and

return and complies with the general knowledge of high volatility with high return and low volatility with low return. With the increase in volatility, the annualized return of high-volatility convertible bonds also increases significantly.

Compared with cross-variety comparisons, in different investment markets and different market participant groups, the market may not be fully efficient. There may be cases where the participation group of convertible bonds is mostly bond investment groups, leading to the neglect and underestimation of the potential equity option value. However, within the convertible bond variety, the risk-return distribution of different types of convertible bonds shows an obvious symmetrical distribution, which also indicates that for the same market and the same group of participants, the market is fully efficient. Increasing the tolerance for volatility can often lead to an increase in potential returns, and reducing volatility is bound to lead to a decrease in returns.

5.3. Asset Allocation Recommendations Based on the Risk-Return Ratio of Convertible Bonds

In investment practice, the pursuit of returns does not necessarily have to be accompanied by an increase in risk. Choosing low-to-medium risk investment varieties may also lead to obtaining higher investment returns. The return characteristics of convertible bonds show a significant asymmetry different from the general knowledge. Convertible bonds have low risk while also providing a relatively high return rate, with stability and good returns. Statistical data show that convertible bonds have long-term advantages in terms of average returns, providing a stable return foundation for investors. Therefore, in the selection of investment varieties, convertible bonds represent an attractive defensive allocation for investors pursuing stable returns. The return characteristics of convertible bonds also highlight their unique advantages as a defensive allocation tool. This attribute of "following the rise but not the fall" makes the convertible bond investment strategy particularly applicable during periods of market decline. It is suitable as a defensive component in an investment portfolio to reduce the overall risk exposure. In the selection of specific convertible bond individual securities for investment, it is more recommended to choose equity-oriented convertible bonds or neutral convertible bonds, as these two types of convertible bonds will have higher return rates.

5.4. Limitations and Improvements

The time span of the data cited in this study is insufficient. Only data since December 29, 2017, has been collected, covering a period of 7-8 years. The limited data sample may result in an incomplete coverage of securities market cycles; volatility and returns may exhibit specific characteristics influenced by the broader market cycle during this period, thereby affecting the research conclusions. Additionally, this study is limited to convertible bonds issued in the Chinese market and does not include a comparative analysis of data from other international markets, thereby limiting the external validity of our findings beyond the Chinese market.

The use of an equal-weighting method to construct the portfolio for the index model in the study also has limitations. In the convertible bond market, the weight distribution of different convertible bonds varies significantly. Incorporating weight considerations may exert certain impacts on the research conclusions.

The decomposition of the causes of return sources is insufficient. This study does not further focus on key indicators such as pure bond value, conversion value, conversion premium rate, convertible bond's downward adjustment clause, call clause, and put clause to explore the sources of excess returns in greater depth. As a result, it fails to provide more detailed and feasible operational plans for specific investment allocation recommendations.

5.5. Directions for Future Research

Further analysis can be conducted on the global market's convertible bond data, and comparative research can be carried out on data from international markets to further verify the research conclusions and solve the regional applicability issue.

The sources of returns for convertible bonds can be further decomposed. For example, the return of convertible bonds can be decomposed into four parts: changes in conversion value, changes in conversion premium, changes in pure bond value, and changes in coupon interest. The contribution of equity attributes and bond attributes can be further analysed to further point out the direction for our future convertible bond investment allocation.

References

- [1] Sharpe, W. F. Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk. *The Journal of Finance*, 1964, 19 (3): 425 – 442.
- [2] Tsiveriotis, K., Fernandes, C. Valuing convertible bonds with credit risk. *The Journal of Fixed Income*, 1998, 8 (2): 95 – 102.
- [3] Finnerty, J. D. Valuing convertible bonds and the option to exchange bonds for stock. *Journal of Corporate Finance*, 2015, 31: 91 – 115.
- [4] Haugen, R. A., Baker, N. L. The Efficient Market Inefficiency of Capitalization Weighted Stock Portfolios. *Journal of Portfolio Management*, 1991, 17 (3): 35 – 40.
- [5] Sharpe, W. F. A Simplified Model for Portfolio Analysis. *Management Science*, 1963, 9 (2): 277 – 293.
- [6] Zheng, Z. L., Lin, H. An Empirical Study on the Pricing of Convertible Bonds in China. *Journal of Financial Research*, 2004, (9): 86 – 97.
- [7] Zhang, Q. S., Liu, J. Discussion on the Construction of Convertible Bond Portfolio: Based on Conversion Premium Rate, Price and Industry Classification. *China Bond*, 2023, (11): 79 – 90.