

Original Article

Determination of Bond Yield to Maturity, Inflation as a Moderator

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Abstract: This study analyzes the factors influencing the Yield to Maturity (YTM) of bonds in the financial sector listed on the Indonesia Stock Exchange (IDX), with inflation as a moderating variable. The examined factors include bond maturity, bond ratings, the Bank Indonesia benchmark interest rate (BI Rate), and firm size. Data is sourced from financial reports and official publications by the Financial Services Authority (OJK) and IDX. Using multiple linear regression analysis with a moderation approach, the findings reveal that only bond ratings significantly affect YTM. Furthermore, inflation strengthens the influence of bond ratings on YTM. These results highlight the importance of considering bond ratings and inflation conditions in bond investment decision-making.

Keywords: BI Rate, Bond Ratings, Firm Size, Inflation, Yield to Maturity.

I. INTRODUCTION

The bond market plays a crucial role in the financial system, providing an alternative investment option with lower risk compared to stocks. One of the key metrics in bond investment is Yield to Maturity (YTM), which represents the return investors earn if the bond is held until maturity. Several factors influence YTM, including bond maturity, bond ratings, interest rates, and firm size.

In Indonesia, financial sector bonds listed on the IDX exhibit fluctuating YTM trends. According to the Indonesian Capital Market Statistics Report (OJK, 2023), corporate bond yields have shown significant variation in recent years. While economic theory suggests that inflation and interest rates should directly influence YTM, empirical findings indicate inconsistencies, highlighting the need for further investigation.

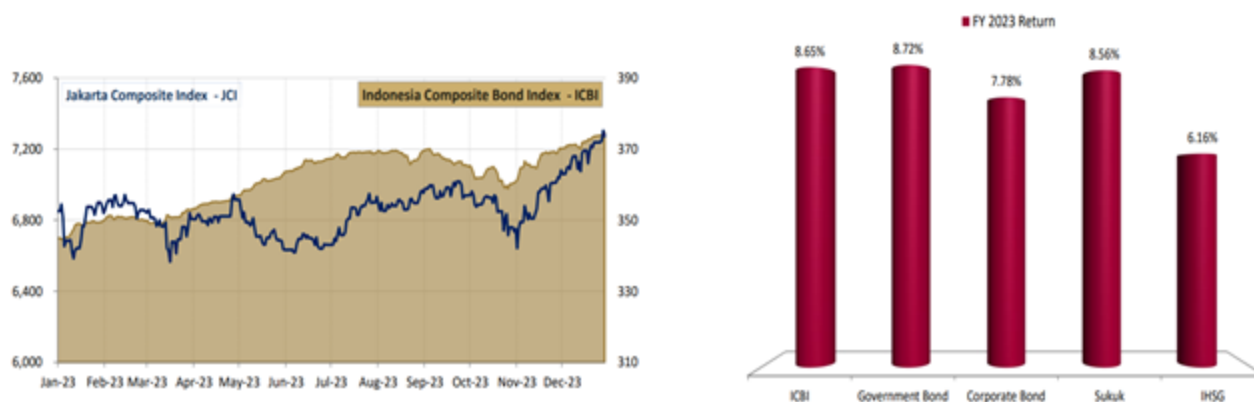


Figure 1: Performance Trends and Return Levels of ICBI and JCI in 2023

In 2023, the Indonesian bond market recorded positive returns, reflecting investor confidence in fixed-income instruments amid global and domestic economic dynamics. Based on the Indonesia Composite Bond Index (ICBI), bond market returns increased significantly by 8.65% (year on year/yoy). However, while the bond market performed positively, capital gains remained limited. This indicates that coupon returns were the primary driver of total bond return growth in 2023 and 2024.

Despite this growth, inconsistencies exist in YTM bond movements, where fundamental factors such as bond maturity, bond ratings, BI interest rates, and firm size do not consistently contribute to YTM changes. For example, longer-tenure bonds are expected to be more sensitive to interest rate fluctuations, yet in some periods, they exhibit lower volatility than short-term



bonds. Additionally, higher-rated bonds do not always reflect lower YTM, as mid-rated bonds sometimes offer more competitive returns than highly rated bonds. This suggests a mismatch between theoretical expectations and market reality.

Inflation plays a crucial role in shaping bond market dynamics in macroeconomic contexts. The Fisher Effect theory states that inflation positively correlates with interest rates, influencing bond YTM. However, empirical data shows that while BI interest rates increase in response to inflation, their impact on YTM does not always align with theory. For example, in 2024, inflation remained high, yet YTM bonds did not rise as expected. This suggests that inflation may act as a moderating variable, strengthening or weakening the relationship between bond fundamentals and YTM.

Previous research by Sianturi & Sihombing (2020) found that inflation, BI interest rates, exchange rates, foreign exchange reserves, and oil prices significantly affect the YTM of corporate bonds in Indonesia. In addition, research by Fama & Schwert (1977) and Mishkin (1990) shows that unexpected inflation can increase the bond market's volatility as investors adjust the yield rate they demand. In conditions of high inflation, investors tend to demand greater yields to offset the risk of declining money values, leading to an increase in YTM bonds. A study by Martellini et al. (2021) shows that the impact of interest rates on YTM is more significant on long-term bonds. Kurnianingsih (2021) also found that companies with larger assets tend to have lower funding costs and more stable YTM than small companies. This study aims to analyze the factors that affect YTM bonds in the financial sector listed on the IDX, focusing on the remaining life variable bonds, bond ratings, BI interest rates, and company size, as well as how inflation and company size are moderating variables in the relationship. The results of this research are expected to contribute to investors, bond issuing companies, and regulators understanding the factors that determine the YTM of bonds and how inflation moderates the relationship. Thus, this research is expected to provide deeper insights into investment decision-making in the Indonesian bond market.

II. LITERATURE REVIEW

A) Term Structure of Interest Rates

The term structure of interest rates explains the relationship between bond yields and their maturities. Theories such as the Pure Expectations Theory, Liquidity Preference Theory, Market Segmentation Theory, and Preferred Habitat Theory provide insights into how yield curves behave under different market conditions (Martellini et al., 2015).

B) Signaling Theory

Signalling theory, proposed by Spence (1973), suggests that issuers provide signals to the market through bond ratings. Investors interpret these ratings as indicators of a company's creditworthiness. High bond ratings typically signal lower risk, resulting in lower YTM, whereas lower ratings require higher returns to compensate for increased risk.

C) Bond Market Theory

Bonds serve as an alternative financing tool for corporations and governments. According to Adler et al. (2007), bonds are tradable debt securities that provide periodic interest payments and return the principal at maturity. Various types of bonds exist, including fixed-rate, floating-rate, zero-coupon, convertible, and junk bonds, each carrying distinct risk-return profiles.

D) Factors Affecting Bond Yield to Maturity and Inflation as a Moderating Variable

Several factors influence bond YTM, including bond maturity, bond ratings, Bank Indonesia interest rates, and firm size. Longer-maturity bonds generally offer higher YTM due to increased risk exposure over time (Frederick Macaulay, 1938), while higher-rated bonds typically have lower YTM as they are considered safer investments (Campbell & Taksler, 2003). Changes in the BI benchmark rate influence bond yields, with higher rates leading to increased YTM (Mishkin, 2007), whereas larger firms often issue bonds with lower YTM due to perceived stability and lower default risk (Kurnianingsih, 2021). Inflation also plays a crucial role in moderating the impact of these factors. The Fisher Effect suggests that higher inflation increases interest rates, raising YTM. However, empirical studies indicate mixed results, with some research showing that inflation does not always have a direct or proportional effect on YTM (Sianturi & Sihombing, 2020).

III. RESULTS AND DISCUSSION

This study examines the determinants of Yield to Maturity (YTM) bonds with inflation as a moderating variable. Based on regression analysis, some independent variables significantly influence YTM, while others do not. Moreover, the effect of inflation moderation on the relationship between independent variables and YTM is inconsistent. These results provide deeper insights into the factors determining bond YTM in Indonesia and the role of macroeconomic conditions in bond market dynamics.

Table 1: Data Analysis Results

Variable	Coefficient	Probability
C	53,5806	0,0527
AGE	0,0855	0,7002
RATING	-47,5496	0,0000

SBI	-2,8786	0,1494
SIZE	23,6667	0,3210
INF	-6,9532	0,3122
AGE*INF	0,0042	0,9406
RATING*INF	8,4747	0,0005
SBI*INF	0,7840	0,0910
SIZE*INF	-6,1498	0,3493

(Significant at $p < 0.05$)

Based on the regression results, the remaining life of the bond (AGE) has a positive coefficient but is not significant to YTM. These findings indicate that bond tenure is not the main factor determining yields in Indonesia's market conditions. Theoretically, Expectation Theory and Liquidity Preference Theory suggest that longer tenures should result in higher YTM due to greater risk exposure. However, in practice, other factors, such as bond liquidity and secondary market conditions, play a more significant role in determining YTM.

Bond ratings (RATING) significantly negatively influence YTM, indicating that higher bond ratings result in lower YTM. This aligns with risk and yield theory, where lower-rated bonds are perceived as riskier and must offer higher yields as compensation. In the Indonesian bond market context, this result reflects investors' preference for lower-risk bonds, leading to higher demand for highly rated bonds and lower YTM.

The Bank Indonesia Certificate (SBI) interest rate is found to have a negative relationship with YTM, but the effect is not statistically significant. In theory, changes in the SBI interest rate should influence bond YTM through monetary policy transmission. However, in this study, factors such as bond ratings and inflation expectations seem to have a more dominant role in determining YTM movements than SBI rate changes.

Company size positively correlates with YTM, but the effect is insignificant. Larger companies are generally assumed to have greater financial stability, which can lower YTM. However, in some cases, large companies have more complex debt structures and higher leverage, increasing financial risk and leading to higher YTM. Additionally, investor preferences for large companies' bonds may influence these outcomes.

Inflation as a moderating variable does not significantly strengthen or weaken the relationship between independent variables and YTM. Although the Fisher Effect theory states that inflation affects nominal interest rates and, ultimately, YTM, the results of this study suggest that other factors, such as monetary policy and market demand, play a more significant role in determining bond yields. The insignificance of inflation's moderating role may also be attributed to inflation instability in Indonesia, causing investors to focus more on other risk factors.

Overall, this study provides a better understanding of the factors affecting bond YTM in Indonesia. While bond ratings significantly influence YTM, other variables such as bond tenure, SBI interest rates, and company size do not show significant effects. Additionally, inflation as a moderating variable does not consistently strengthen the relationship between independent variables and YTM. Further research is needed to explore additional factors that may affect YTM, including bond market liquidity, fiscal policy, and investors' expectations regarding future interest rate movements.

From the researcher's perspective, the study results indicate that the primary factor influencing YTM in Indonesia remains closely related to credit risk and investor perceptions of issuer quality. Bond ratings are the most significant factor, demonstrating that investors prioritize investment security over other considerations. Therefore, maintaining a good credit rating is essential for companies aiming to issue bonds with competitive yields.

Additionally, the study results suggest that changes in monetary policy, such as SBI interest rate adjustments, have not been directly reflected in bond YTM. This may indicate that Indonesia's monetary policy transmission mechanism has not been fully effective in influencing the bond market. Therefore, regulators must implement better strategies to ensure that interest rate policies effectively impact investor behavior and the bond market as a whole.

Future research should consider additional variables such as bond market liquidity, investor expectations for fiscal policy, and the impact of global market volatility on YTM movements in Indonesia. By incorporating these factors, financial research can provide a more comprehensive understanding of bond market dynamics and strategies to enhance market efficiency.

IV. CONCLUSION

The results of this study show that bond ratings have a significant influence on the Yield to Maturity (YTM) of bonds, while other factors, such as the remaining life of the bond, the interest rate of Bank Indonesia Certificates (SBI), and firm size, do not have a statistically significant impact. These findings indicate that in the context of the Indonesian bond market, investors

tend to prioritize credit risk over other factors when determining expected yields.

Additionally, the results suggest that market mechanisms do not always align with theoretical expectations, particularly regarding the relationship between bond tenors and interest rate movements. Thus, understanding Indonesia's bond market structure and investor behavior is crucial in evaluating YTM dynamics.

Furthermore, inflation as a moderating variable does not significantly strengthen or weaken the relationship between fundamental factors and YTM. Although inflation is often considered a key macroeconomic factor affecting interest rates and bond markets, its impact on YTM does not always align with existing theories. This discrepancy may be attributed to other factors, such as monetary policy, investor expectations of economic stability, and bond market liquidity conditions. Therefore, more comprehensive macroeconomic policies are needed to better understand and manage the impact of inflation on the bond market.

This research contributes to understanding YTM dynamics in Indonesia and how specific factors influence its movement. However, further research is needed to explore additional factors, such as bond liquidity levels, investor expectations regarding fiscal and monetary policy, and the impact of global economic volatility on the domestic bond market.

By considering these aspects, stakeholders—including investors, bond-issuing companies, and regulators—can make more informed decisions in managing investment portfolios, funding strategies, and financial policies that support the stability of the Indonesian bond market.

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