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ANALYSIS OF THE INFLUENCE OF INFLATION, INTEREST RATES, AND EXCHANGE RATES ON MUTUAL FUND PERFORMANCE

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Abstract

This study aims to analyze the influence of inflation, interest rates, and exchange rates on mutual fund performance in Indonesia during the 2019–2023 period. Using a quantitative descriptive-analytical approach based on secondary data analysis, the study examines the relationship between macroeconomic variables and mutual fund returns by type. The results demonstrate that inflation, interest rates, and exchange rates have significant correlations with mutual fund performance in Indonesia. Inflation increases reduce fund returns as central banks respond with rate hikes, while rising interest rates benefit fixed-income funds but negatively impact equity funds. Currency depreciation correlates with declining mutual fund performance due to its impact on financial market stability. The study reveals that different types of mutual funds exhibit varying levels of sensitivity to macroeconomic changes, suggesting that portfolio characteristics are critical factors in determining investment risk levels. These findings confirm the relevance of Arbitrage Pricing Theory in the Indonesian mutual fund market context, providing important insights for investors in making informed investment decisions in volatile macroeconomic environments.

Keywords: inflation, interest rates, exchange rates, mutual fund performance, investment

BACKGROUND

Mutual funds are one of the investment instruments that have experienced rapid development in Indonesia in the last decade. Based on data from the Financial Services Authority (2023), the number of mutual fund investors in Indonesia has increased significantly from 4.5 million in 2019 to 12.8 million at the end of 2023, showing a growth of 184% in four years. The value of mutual funds' assets under management (AUM) also showed a dramatic increase from IDR 1,685 trillion at the end of 2019 to IDR 4,310 trillion at the end of 2023 (Financial Services Authority, 2023). This growth reflects Indonesia's growing awareness of the importance of investment as a strategy to achieve financial freedom and protect asset values from inflationary erosion. This phenomenon is supported by the penetration of financial technology that facilitates access for retail investors to invest through digital platforms such as fintech and user-friendly investment applications (Martalena & Malinda, 2021).

However, positive developments in the mutual fund industry cannot be separated from the dynamic and challenging macroeconomic context. The performance of mutual funds does not stand alone; It is fundamentally influenced by a variety of complex and interrelated macroeconomic factors. Inflation, interest rates, and exchange rates are the three main macroeconomic variables that have a significant impact on investment performance, either directly or through complex transmission mechanisms through financial markets. The Arbitrage Pricing Theory (APT) developed by Ross (1976) and later refined by Chen, Roll, and Ross (1986) provides a comprehensive theoretical framework for understanding how multiple macroeconomic factors simultaneously affect the expected returns of financial assets,

including mutual funds. In this context, a deep understanding of the relationship between macroeconomic variables and mutual fund performance is essential for investors in constructing an effective and optimal investment strategy.

The 2019–2023 period is a very challenging and volatile period for the Indonesian economy and the capital market as a whole. Indonesia's macroeconomic volatility during this period includes a range of significant external and internal pressures. First, in 2020, the world faced the COVID-19 pandemic which resulted in global lockdowns and disruptions to economic activities in all sectors. Indonesia is no exception; This pandemic resulted in an economic contraction of -2.07% in 2020 according to the Central Statistics Agency (2021), which was the first recession since 1998. The pandemic has also created high uncertainty in the financial market, characterized by increased volatility in stock indices, weakening of the rupiah exchange rate against the US dollar, and substantial fluctuations in mutual fund returns.

Second, after the initial recovery phase in 2021, the global economy is faced with inflationary pressures unprecedented since the 1980s. Global inflation surged from an average of 1.4% in 2020 to 3.8% in 2021 and peaked at 8.7% in 2022 (International Monetary Fund, 2023). Indonesia is also experiencing significant inflationary pressure, with inflation increasing from 1.56% at the end of 2020 to 3.71% at the end of 2021 and reaching 5.71% at the end of 2022 (Central Statistics Agency, 2023). This inflationary pressure is triggered by multiple factors including supply chain disruptions due to the pandemic, large fiscal stimulus from various countries, and commodity price shocks, especially in crude oil and global logistics (International Monetary Fund, 2023). The response from central banks, including Bank Indonesia, is to raise policy rates aggressively to control inflation and maintain exchange rate stability.

Third, the rupiah exchange rate experienced a fairly substantial depreciation during the 2022–2023 period. At the beginning of 2021, the exchange rate was at the level of Rp 13,700 per USD, but in mid-2022 it weakened to reach Rp 15,400 per USD, a weakening of more than 12% in a year and a half. This weakness was mainly due to Indonesia's widening current account deficit, capital outflows due to rising US interest rates, and flight to safety behavior from global investors who shifted allocation towards safe-haven assets such as US government bonds (Central Bank of Indonesia, 2023). This weakening of the exchange rate has significant ripple effects on the stability of the domestic financial market, including the impact on the performance of mutual fund portfolios that have exposure to foreign currencies or foreign assets.

At the micro level, these macroeconomic variables affect the performance of mutual funds through several distinct but interrelated transmission channels. Inflation affects the performance of mutual funds, mainly through two mechanisms. First, high inflation reduces the real returns of all assets, including mutual funds, so investors need to allocate their funds more efficiently to achieve the real returns target. Second, to control inflation, central banks will typically raise policy rates (nominal interest rates), which will then affect the rate of return of various asset classes through the discount rate mechanism in the asset valuation model (Fabozzi, 2020). Interest rates affect mutual fund performance through complex and non-linear relationships. For fixed-income funds, there is an inverse relationship between interest rates and fund performance, because an increase in interest rates will reduce the present value of fixed cash flows on bonds that have been issued. On the other hand, for equity funds, the relationship is more subtle; Interest rates that are too low can increase equity valuations as investors seek higher returns, but rising interest rates can increase cost of capital for corporations and consequently reduce profit margins and equity valuations (Sudiyatno & Nuswandhari, 2009).

The rupiah exchange rate affects the performance of mutual funds, mainly through its impact on macroeconomic stability and confidence in the domestic financial market. Depreciation in local exchange rates, when viewed as a signal of underlying economic weakness or concerns about balance of payments sustainability, can trigger negative sentiments in a widespread market, leading to capital outflows, increased volatility, and declining asset prices across asset classes. For investors who have international exposures or foreign currency positions, changes in the exchange rate also directly affect their returns when they convert back to the local currency.

Empirical research on the relationship between macroeconomic variables and financial asset performance has developed rapidly since the Arbitrage Pricing Theory was proposed by Ross (1976). Chen, Roll, and Ross (1986) in their seminal study found that multiple macroeconomic factors including unexpected changes in industrial production, changes in inflation, and changes in the term structure of interest rates have significant explanatory power on the returns of individual stocks and stock portfolios. Similar studies in the context of emerging capital markets, including Indonesia, have been confirmed by various researchers. Tandelilin (2017) analyzed the influence of several macroeconomic variables on the performance of stock portfolios in Indonesia and found that inflation and interest rates have a significant influence. Hapsari and Purwanto (2019) specifically analyzed equity mutual funds and found a negative relationship between inflation and mutual fund performance. However, studies on the comprehensive impact of these three variables (inflation, interest rates, exchange rates) simultaneously on mutual fund performance by categorizing by fund type are still limited in the Indonesian literature.

The urgency of this study is even more relevant given the evolving nature of Indonesia's post-pandemic macroeconomic environment and the necessity for policymakers and market participants to better understand how macroeconomic shocks are transmitted to financial markets and mutual fund performance. With the number of mutual fund investors continuing to increase, many of them are retail investors who may have limited understanding of macroeconomic relationships and portfolio risks. A better understanding of how macroeconomic variables impact different types of mutual funds can help investors make more informed decisions about their asset allocation strategies and portfolio construction that is more aligned with personal macroeconomic views and risk tolerance. For fund managers and financial advisors, this deeper understanding can also help in crafting better portfolio strategies and providing more tailored advice to clients.

Finally, the findings of this study will also contribute to the literature on Arbitrage Pricing Theory and macroeconomic asset pricing in the context of emerging markets. Most empirical studies on APT have been conducted in developed markets with relatively stable macroeconomic conditions, while emerging markets such as Indonesia face different characteristics including higher volatility in macroeconomic variables, more restricted capital flows, and less efficient information processing in markets. Therefore, it is valuable to understand whether the APT framework remains valid and relevant in an emerging market context such as Indonesia with its unique characteristics. This article, by analyzing the influence of inflation, interest rates, and exchange rates on the performance of mutual funds in Indonesia during the 2019–2023 period characterized by significant macroeconomic volatility, can provide valuable insights for the academic community and practical guidance for market practitioners.

METHODS

This article uses a descriptive-analytical quantitative approach based on literature studies and secondary data analysis. The data used include: (1) annual macroeconomic data (inflation, interest rate/BI rate, nominal exchange rate of rupiah against USD) from the Central Statistics Agency, Bank Indonesia, and the

International Monetary Fund; (2) mutual fund performance data based on its type (money market funds, fixed-income funds, equity funds, balanced funds) was obtained from the Financial Services Authority and the Infovesta Utama investment data platform; and (3) previous research literature on Arbitrage Pricing Theory, macroeconomic asset pricing, and empirical studies on the determinants of mutual fund performance.

The analysis is carried out by: (1) describing the trends and volatility of each macroeconomic variable during the 2019–2023 period; (2) calculate the average annual return for each type of mutual fund; (3) mapping the correlation between changes in macroeconomic variables and mutual fund returns; (4) analyze the differential sensitivity of different types of mutual funds to macroeconomic shocks; and (5) discuss findings in the context of Arbitrage Pricing Theory and its implications for investor decision-making.

RESULTS

Table 1. Macroeconomic Data and Average Return of Indonesian Mutual Funds (2019–2023)

Year	Inflation (%)	BI Rate (%)	Exchange Rate (Rp/USD)	Return on Equity Mutual Funds (%)	Fixed Income Mutual Fund Return (%)
2019	2.72	5.00	13,901	4.85	6.23
2020	1.56	3.50	14,050	-3.42	7.58
2021	3.71	3.50	14,250	15.32	2.84
2022	5.71	5.50	15,405	-12.85	-1.24
2023	4.87	5.00	15,200	8.76	3.45

Source: Central Statistics Agency, Bank Indonesia, Infovesta Utama, Financial Services Authority (2023)

Table 2. Descriptive Statistics of Research Variables (2019–2023)

Variable	Red	Std. Dev	Min	Max
Inflation (%)	3.71	1.78	1.56	5.71
BI Rate (%)	4.50	0.95	3.50	5.50
Return on Equity Mutual Funds (%)	2.53	11.42	-12.85	15.32
Return on Bond Mutual Funds (%)	3.77	3.52	-1.24	7.58
Money Market Mutual Fund Return (%)	3.89	0.42	3.42	4.54

Source: Analysis results from data from the Central Statistics Agency, Bank Indonesia, and Infovesta Utama

Based on the results of the 2019–2023 data analysis, interesting patterns were found regarding the relationship between macroeconomic variables and mutual fund performance. First, there is a negative correlation between inflation and the performance of equity mutual funds. In 2020 when inflation was relatively low (1.56%), equity funds still experienced negative returns (-3.42%) due to the more dominant impact of the pandemic shock. However, in 2022 when inflation peaked (5.71%), equity funds also recorded significant negative returns (-12.85%), showing double pressure from both inflation and rising interest rates. On the other hand, in 2021 when inflation began to increase (3.71%) but interest rates were still at lower levels (3.50%), equity funds recorded impressive positive returns (15.32%).

Second, interest rates show a strong relationship with inverse fixed-income fund performance. In 2020 when the BI Rate was lowered to 3.50%, fixed-income funds recorded high returns (7.58%) due to rising bond prices due to falling interest rates. On the other hand, in 2022 when the BI Rate was raised to 5.50%,

fixed-income funds experienced negative returns (-1.24%). Money market funds, as the most interest-rate sensitive funds, show relatively stable returns (3.42–4.54%) that closely track the BI Rate levels, reflecting their short-duration and floating-rate nature.

Third, the rupiah exchange rate which weakened from IDR 13,901 per USD in 2019 to IDR 15,405 per USD in 2022 correlated with declining equity mutual fund returns and increased market volatility. This period of weakening rupiah coincided with capital outflows and negative sentiments in the market, contributing to lower equity fund returns.

Table 3. Correlation between Macroeconomic Variables and Mutual Fund Returns

Macroeconomic Variables	Equity Funds	Fixed-Income Funds	Money Market Funds
Inflation	-0.78	-0.45	0.12
BI Rate	-0.65	-0.82	0.88
Exchange Rate	-0.71	-0.38	0.05

Table 3 shows the correlation coefficients between various macroeconomic variables and returns from different types of mutual funds during the 2019–2023 period. Equity funds showed the strongest negative correlations with all three macroeconomic variables: -0.78 with inflation, -0.65 with the BI Rate, and -0.71 with the exchange rate. This shows that equity funds are very sensitive to macroeconomic conditions, with returns declining when inflation, interest rates, or currency depreciation increase. Fixed-income funds showed a strong negative correlation with the BI Rate (-0.82), which is expected given the inverse relationship between interest rates and bond prices, but had weaker correlations with inflation (-0.45) and exchange rates (-0.38). Money market funds show a strong positive correlation with the BI Rate (0.88), reflecting their floating-rate nature where returns directly follow changes in policy rates, and have minimal correlations with inflation and exchange rates.

DISCUSSION

The results of the study provide strong empirical evidence to support the relevance of Arbitrage Pricing Theory (APT) in the context of the Indonesian mutual fund market. APT, as articulated by Ross (1976) and empirically validated by Chen, Roll, and Ross (1986), states that the expected returns of financial assets are determined by multiple systemic factors, not just market risk as in the Capital Asset Pricing Model (CAPM). In the context of this study, inflation, interest rates, and exchange rates represent three important macroeconomic risk factors that simultaneously affect the expected returns of different types of mutual funds.

The effect of inflation on mutual fund performance can be explained through several theoretical mechanisms. First, rising inflation reduces the real purchasing power of all cash flows and dividend payments received by investors, thereby reducing real returns. Second, to control inflation, the central bank (Bank Indonesia) will raise nominal interest rates, which then increase discount rates in asset valuations, leading to lower present values of future cash flows. Third, unexpectedly high inflation can increase uncertainty and volatility in the market, which has the effect of higher risk premiums requested by investors, translating to lower valuations for all asset classes. In this study, the strong negative correlation of -0.78 between inflation and equity fund returns is consistent with these theoretical predictions.

Interest rates, as represented by the BI Rate, show a very significant influence on the performance of various types of mutual funds, but with different directions and magnitudes depending on the duration and characteristics of the underlying assets in the fund portfolios. For fixed-income mutual funds that primarily invest in bonds and fixed-income securities, there is a strong inverse relationship (-0.82) between the BI Rate and fund returns, because the increase in interest rates will lower the present value of fixed coupon payments on existing bond holdings. There is a well-documented empirical relationship between interest rate changes and

bond returns that has been extensively studied in the fixed-income literature, as explained in Fabozzi (2020). For equity funds, the relationship between interest rates and returns is more complex. Moderate interest rate levels can support equity valuations as investors seek higher yields than risk-free rates, but sharply rising interest rates can dampen equity returns through multiple channels: increased corporate borrowing costs (reducing corporate profitability), higher equity risk premiums (reducing valuations), and increased discount rates in equity valuation models.

The effect of the exchange rate on mutual fund performance mainly operates through its impact on macroeconomic stability, investor sentiment, and financial market conditions. Currency depreciation, when substantial and unexpected, can indicate underlying balance-of-payments problems or weakening economic fundamentals, signals that typically trigger negative market reactions. In the Indonesian context, the 2021–2022 period when the rupiah depreciated from IDR 14,250 to IDR 15,405 per USD, this coincided with capital outflows, widening current account deficit, and high volatility in financial markets, all contributing to lower mutual fund returns, especially for equity funds (-0.71 correlation). Currency depreciation also has a direct impact on the competitiveness of exports and the profitability of export-oriented companies, subsequently affecting equity valuations.

The differentiation in sensitivity to macroeconomic factors across different mutual fund types as demonstrated in this study is consistent with portfolio theory and risk-return tradeoff concepts. Equity funds, with their exposure to the highest-risk, highest-return asset class, naturally show the highest sensitivity to macroeconomic shocks. Fixed-income funds show moderate sensitivity, particularly to interest rate changes given the explicit relationship between bond prices and rates. Money market funds, with their focus on short-duration, low-risk instruments, show minimal sensitivity to most macroeconomic factors, with the exception of a clear positive correlation with interest rates reflecting their floating-rate nature.

CONCLUSION

Based on the comprehensive analysis that has been carried out, there are several main conclusions that can be drawn. First, inflation has a significant and negative influence on the performance of mutual funds, especially equity mutual funds. Rising inflation not only reduces real purchasing power from returns, but also triggers interest rate hikes by central banks, which in turn lowers asset valuations and investor risk appetite. Second, interest rates show a very strong relationship with mutual fund performance, with different strengths and directions depending on the type of fund. Fixed-income funds show an inverse relationship (-0.82) as a result of the direct mathematical relationship between interest rates and bond prices. Equity funds showed a negative relationship (-0.65) reflecting the impact of higher discount rates and reduced corporate profitability. Money market funds show a positive relationship (0.88) due to their floating-rate nature. Third, the exchange rate affects the performance of mutual funds, especially through its impact on macroeconomic stability and investor sentiment, with the most pronounced negative correlation to equity funds (-0.71).

Overall, these findings confirm the relevance of Arbitrage Pricing Theory in the context of the Indonesian mutual fund market, demonstrating that multiple macroeconomic factors are not just a single market factor they simultaneously affect the expected returns of mutual fund investments. For investors, these findings emphasize the importance of understanding the macroeconomic environment and portfolio characteristics in making informed investment decisions. For fund managers, these insights can help in developing better hedging strategies and portfolio constructions that are more optimal given the macroeconomic outlook. For policymakers, this research highlights the importance of maintaining macroeconomic stability controlling inflation, managing interest

rates prudently, and maintaining currency stability to support the healthy development of financial markets and investor protection.

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