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# The Effect of Fuel Price Fluctuations, Exchange Rates, and Profitability on Stock Returns and Inflation as Intervening Variables

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## ABSTRACT

This study aims to analyze the impact of fuel price fluctuations, exchange rates, and profitability on inflation and stock returns. The study employs statistical analysis utilizing SEM techniques and is tested using Smart PLS version 3.0. The study reveals that Fuel price fluctuations have no effect on Inflation. The direction of the relationship between Exchange Rate and Inflation is negative. Profitability has no effect on Inflation. Fuel price fluctuations have no effect on stock returns. Exchange rate has a significant effect with a positive direction on stock returns. Profitability has no direct effect on stock returns. Inflation has a significant effect directly with a negative direction on Stock Returns. Exchange rate has no effect on stock returns through inflation as an intervening variable. Profitability has a significant effect with a positive direction on stock returns through inflation as an intervening variable. The novelty in research is inflation as an intervening variable. Investors are advised that fluctuations in fuel prices and inflation rates need not be a primary concern in their investment decisions. Instead, the focus should be on assessing the potential impact of these factors on company profits. Consequently, investors should emphasize monitoring stock returns periodically while also taking into account variables that could influence a company's stock returns. The study is limited in its scope by examining only three independent variables—Fuel Price Fluctuations, Exchange Rates, and Profitability. Additionally, the research is confined to the period from 2013 to 2017.

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## 1. INTRODUCTION

Fuel oil (BBM) is a commodity that plays a pivotal role in all economic activities. Changes in oil prices directly impact operational costs, thereby affecting the profitability of direct investment activities. Investment aims at maximizing prosperity through profit maximization, leading investors to seek efficient and secure investment opportunities. Escalating fuel prices impose burdens not only on the general populace but also on the business sector. The resultant increase in production costs ripples through the economy, causing an overall rise in expenses and elevating production costs. This cascade effect encompasses heightened factory overheads due to escalating raw material expenses, amplified transportation costs, and employee wage demands that diminish corporate profits.

Stock price movements guide investors in selecting optimal stocks. Fluctuations in individual stock prices within the market stem from the interplay of demand and supply factors. A multitude of variables, both rational and irrational, influence these factors. Rational factors comprise company performance, interest rates, inflation rates, growth rates, foreign exchange rates, or stock price indices from other countries. Irrational factors include market rumors, speculative trends, personal recommendations, or speculative trading. As such, persistent increases or decreases are often followed by reversals, highlighting inherent errors termed overreactions or mispricing. Consequently, prolonged price increases are typically succeeded by subsequent declines, signifying a self-correcting pattern.

According to Dartanto (2005), rising oil prices lead to heightened production costs for goods and services, thereby burdening people's lives and impeding global economic growth. The removal of fuel subsidies has introduced uncertainty into Indonesia's economic landscape. Elevated fuel prices trigger parallel increases in operational costs, including food and transportation expenses. Conversely, when fuel prices drop, operational costs remain relatively constant, inducing economic fluctuations.

Ghalayini (2011) asserts that elevated oil prices prompt consumers to curtail oil consumption. This, in turn, raises the cost of goods and services, prompting consumers to reduce consumption and potentially leading to inflation driven by cost-push or demand-pull dynamics. The surge in oil prices drives up production costs for oil-dependent goods, which, in turn, elevates their prices, contributing to general price inflation. The amplified fuel prices can escalate costs, compelling countries to adjust strategies to remain competitive in the global market. Inflation stemming from cost-push dynamics is typically accompanied by decreased sales turnover (Sihono, 2008).

The government's decision to eliminate fuel subsidies reverberates across various sectors of the economy. As a vital fuel source driving economic activities, petroleum supply significantly influences industrial production processes, thereby affecting companies' operational costs. These heightened costs necessitate price adjustments in the market, ultimately impacting a company's stock returns.

(Fithriyana et al., 2014) discovered a positive correlation between fuel oil prices and stock prices, indicating that rising stock prices correspond with increased stock returns. Conversely, (Perdana, 2008) found that BBM prices do not adequately explain their effect on stock returns and trading volume, implying a negative relationship between BBM prices and returns.

Beyond government fuel subsidy policies, exchange rates hold considerable importance for companies. Particularly, fluctuations in the Indonesian rupiah exchange rate signify foreign exchange exposure. This study examines how changes in exchange rates influence stock returns, reflecting a company's performance and serving as a crucial consideration for potential investors. The study investigates how shifts in stock returns occur when the rupiah is perceived as weakening against the dollar or strengthening in comparison.

Alterations in exchange rates result in changes in company revenues and expenses, consequently impacting the company's overall profit and loss. These changes extend to operational performance and company valuation, especially within the company's internal operations. Such pronounced impacts are attributed to shifts in cash inflows and outflows, particularly for companies predominantly operating in domestic currency. Additionally, changes in exchange rates influence foreign debt amounts, thereby influencing the company's financial standing.

With fluctuations in the rupiah exchange rate, the company's revenue in rupiah also fluctuates. Variations in exchange rates between years constitute exchange rate changes. Previous studies suggest that changes in exchange rates may positively affect stock returns, implying that strengthened exchange rates lead to heightened return receipts for companies.

## 2. LITERATURE REVIEW

Modern portfolio theory is based on the assumption that all investors are risk-averse. This theory teaches how to combine stocks into a portfolio to achieve maximum profit with minimum risk. Risk in an investment can be mitigated by diversifying stocks within a portfolio. A portfolio is a collection of financial assets held or created as a single unit by an investor, investment company, or financial institution (Pratiwi, 2014). In portfolio theory, risk is defined as the degree of deviation from expected profits. Investment risk arises due to the uncertainty surrounding the timing and magnitude of returns that investors can expect to receive.

The capital market's rapid development in Indonesia is driven by the community's strong aspiration to enhance their economic conditions. The capital market encompasses activities related to the public offering and trading of securities, involving public companies that issue securities, as well as institutions and professions associated with securities. Capital market instruments are categorized into two groups: ownership instruments (equity), such as shares, and debt instruments, including corporate bonds. Investing in stocks involves more than just tracking stock prices; it also entails assessing stock returns. Stock returns represent the outcome of gains or losses resulting from stock investments, encompassing both capital gains and losses. The variability in company-generated stock returns is influenced by a combination of micro and macro factors.

From a macro perspective, factors impacting stock returns include inflation, Bank Indonesia interest rates, and exchange rates. At a micro level, factors such as profitability, liquidity, and solvency ratios play a pivotal role. All of these factors exert a substantial influence on stock returns. Inflation significantly affects public participation in stock purchases, thereby influencing stock prices. Consequently, higher levels of inflation and exchange rates can perturb share prices, thereby affecting resulting stock returns. These factors exert both direct and indirect impacts on stock prices. Moreover, apart from their influence on stock prices, these factors also impact a company's profitability, as the level of profitability directly ties into stock price and subsequently influences stock returns.

Qasthalani (2019) conducted research on food and beverage sub-sector companies listed on the Indonesia Stock Exchange for the period 2014-2017. The results showed that fluctuations in fuel prices and exchange rates had a significant negative effect on stock returns, while inflation had a significant positive effect on stock returns. Inflation also acted as an intervening variable in the relationship between fuel price fluctuations and stock returns and the relationship between exchange rates and stock returns.

Research conducted by [Lutfiyanto \(2021\)](#) on the stock price index shows that fluctuations in inflation, BI rate, money supply, and the rupiah exchange rate have a significant effect on the stock price index. However, this study did not examine intervening variables. [Rachman \(2022\)](#) conducted research on consumer sector companies listed on the [ISSI](#) from 2014 to 2018. The results showed that inflation, rupiah exchange rates, and interest rates had a significant effect on stock returns. However, this study did not examine intervening variables. In conclusion, there is both theoretical and empirical support indicating that fluctuations in fuel prices and exchange rates have a significant negative effect on stock returns, while inflation has a significant positive effect on stock returns. Inflation also acts as an intervening variable in the relationship between fuel price fluctuations and stock returns and between exchange rates and stock returns.

### Fuel Price Fluctuations

Fluctuation, as defined by the [Mardiyanti & Nadir \(2023\)](#), pertains to changes in price resulting from fluctuations in prices or specific variables. Price variations have a direct bearing on an item's price during a designated period. In relation to fuel oil, changes in fuel oil prices—whether increases or decreases—have a direct impact on the prevailing price of fuel oil.

According to the cobweb model, which explains the cyclical pattern of supply and demand prices, this model can be applied to commodities under three conditions. First, planning for future production assumes that current prices will continue. Second, the time required for production is determined before any changes can be made. Third, the price is determined by the amount of supply available. The Cobweb theory explains the cyclical aspect of a particular price and quantity pair over time ([Sudiyono, 2002](#)). In this model, there are fixed fluctuations where fuel price fluctuations occur due to competition and long-term variations where prices are set by producers and recipients depending on supply and demand.

Fuel price fluctuations are a complex economic phenomenon influenced by various theoretical and empirical factors. Theoretically, fuel prices are influenced by the basic principles of supply and demand, where an increase in demand or a decrease in supply can push up prices, and vice versa. In addition, factors such as global crude oil prices, currency exchange rates, government policies, and the seasonality of fuel use also play an important role in determining fuel prices. Empirically, world oil prices are the most important factor affecting fuel prices in almost all countries, with geopolitical tensions, weather changes, and government regulations also playing a significant role. Furthermore, seasonal factors and fluctuations in domestic currency exchange rates also influence fuel price changes.

Basic economic theory explains that fuel price fluctuations are mainly influenced by changes in supply and demand. When fuel supply increases while demand remains stable, prices tend to fall, and vice versa. These changes can be caused by variations in crude oil production, OPEC production policies, geopolitical conflicts in oil-producing regions, or shifts in global consumption patterns. Governments often have control over fuel prices through subsidies or taxes. Government decisions regarding fuel subsidies or additional taxes can affect fuel prices in the domestic market. Fuel prices can also be affected by currency exchange rates, especially if fuel is traded in foreign currency. Changes in exchange rates can make fuel more or less expensive for countries that import oil.

### Exchange Rate

Exchange rates represent the relative value of one currency compared to another. Exchange rate theory aims to elucidate the factors that shape the exchange rate between two currencies. Two fundamental theories include the Purchasing Power Parity (PPP) Theory, which posits that exchange rates should reflect the price comparisons of goods and services in two different countries ([Marantika, 2013](#)). The International Fisher Effect (IFE) Theory asserts that differences in interest rates between two countries can influence their respective currency exchange rates ([Sabilla et al., 2021](#)).

In addition to these theories, various economic and monetary factors contribute to the determination of exchange rates. For instance, an increase in a country's money supply often leads to a depreciation of its currency's exchange rate ([Marantika, 2013](#)). Conversely, higher foreign exchange reserves tend to bolster a country's currency exchange rate ([Marantika, 2013](#)). The volume of a country's exports and imports is another crucial factor, with greater exports generally resulting in a stronger exchange rate, while higher imports can lead to a weaker exchange rate ([Marantika, 2013](#)). Furthermore, the inflation rate plays a significant role, as countries with higher inflation rates often experience lower exchange rates for their currencies ([Purwanti, 2018](#)). In summary, exchange rates are influenced by a complex interplay of economic forces and a country's monetary policies. These factors collectively shape the dynamics of exchange rates in the global financial landscape.

### Profitability

Profitability is a metric utilized to evaluate a company's capacity to generate profit ([Kasmir, 2011](#)). Profitability, a measure of a company's ability to generate profits from its operational activities, carries significant implications for various aspects of a company's operations. These implications include its capacity to service debt,

invest in new products or services, and distribute dividends to shareholders (Pramaiswari & Fidiana, 2022). According to agency theory, managers often make decisions that prioritize their interests over those of shareholders. Consequently, they may opt to enhance a company's profitability to elevate share value and secure financial incentives. On the other hand, signal theory suggests that profitability can serve as a signal to investors regarding a company's performance (Ni et al., 2022). High profitability can signal effective management and promising prospects, potentially attracting investor interest. Trade-off theory underscores the importance of considering the balance between risk and return. Companies willing to take on higher risks may reap greater profits but also face increased potential losses.

A high level of profitability confers several advantages. Firstly, it enables companies to manage debt more easily and reduces the risk of default (Putranto, 2019). Secondly, it provides the financial resources needed to invest in the development of new products or services, thereby enhancing market share and long-term profitability (Apriliana, 2022). Additionally, high profitability allows companies to distribute larger dividends to shareholders, fostering investor confidence and attracting new investors (Astria et al., 2021). Moreover, it can drive up the value of a company's shares, benefiting shareholders and making the company more appealing to potential investors (Putri & Amin, 2022). Lastly, high profitability enhances a company's reputation, making it an attractive prospect for potential employees and business partners.

### Inflation

In line with Swatha's theory (Saragih & Musdholifah, 2017), "Inflation is the net sales of the Stock Return report. Net sales are acquired by aggregating sales results from all products (product lines) during a specific period, coupled with sales derived from market share (market share), encompassing territorial segments and groups of stock buyers over a designated timeframe." Additionally, another theory advanced by Kumia (2017) supports this notion, asserting that "Inflation signifies the capacity of products or services being sold."

Inflation theory is a branch of economics that studies the causes and effects of inflation, which is the increase in the general price level of goods and services in an economy over time (Simanungkalit, 2020). Inflation is influenced by various factors such as exchange rates, gross domestic product, interest rates, and currency values. Inflation theories seek to explain the causes of inflation, including the quantity theory of money, which posits that inflation is caused by an increase in the money supply (Melyani & Esra, 2021). Other theories include the cost-push theory, which suggests that inflation results from an increase in production costs, and the demand-pull theory, which argues that inflation arises from an increase in demand for goods and services (Iswandi et al., 2022). Inflation can have both positive and negative impacts on the economy, depending on the level and duration of inflation. Moderate inflation can promote economic growth, but high and sustained inflation can lead to economic instability and social unrest (Gumilang & Nadiansyah, 2021).

### Stock Returns

As according to Oktari et al. (2018), return denotes income expressed as a percentage of the initial investment capital. Income derived from stock investments encompasses the profit garnered from the buying and selling of shares (Putra & Kindangen, 2016). Return epitomizes the outcome yielded by investment, quantifying the disparity between the amount received and the amount initially invested (Okechukwu et al., 2019). In the realm of the stock market, investors engage in share purchases, necessitating confidence in navigating all associated risks and uncertainties (Aminah, 2021).

### Effect of Fuel Price Fluctuations on Inflation

Fluctuations in fuel prices can have an impact on inflation, as demonstrated by various studies. The impact of fuel price changes on inflation can be both direct and indirect. Direct effects include changes in the prices of goods and services directly related to fuel, such as transportation and heating costs. Indirect effects encompass shifts in firms' input costs and inflation or wage expectations. The impact of fuel price changes on inflation can be either short-term or long-term, contingent upon the nature of the shock and the economy's response.

Studies on the impact of fuel price fluctuations on inflation have been conducted in various countries, including Spain (Álvarez et al., 2017), Iran (Norouzi, 2021; Norouzia, 2019), Indonesia (Akhmad et al., 2019), and India (Muthu et al., 2021; Sharma et al., 2012). These studies have discovered that changes in fuel prices can significantly affect inflation, particularly in the short term. For instance, a study in Iran found that while gasoline price fluctuations can have several short-term social impacts, the Iranian government should control diesel fuel prices to prevent long-term inflation in those prices (Norouzi, 2021). Another study in Indonesia determined that rising fuel prices had a detrimental effect on the Indonesian economy, leading to increased inflation (Akhmad et al., 2019). In summary, fuel price fluctuations can wield a substantial influence on inflation, particularly in the



short term. Policymakers should remain cognizant of the potential impact of fuel price changes on inflation and adopt appropriate measures to mitigate their adverse effects.

Research conducted by [Pusposari \(2016\)](#) suggests that, partially, the price of gasoline significantly affects inflation in East Java, while the price of diesel fuel does not hold a significant effect on inflation in the region. Furthermore, the simultaneous impact of both gasoline and diesel prices influences inflation in East Java, signifying that fluctuations in these fuel prices collectively contribute to changes in the inflation rate.

### Effect of Exchange Rate on Inflation

[Kiftia's study \(2016\)](#) reveals a positive and substantial influence of the exchange rate on inflation in Indonesia. The exchange rate considered in the study pertains to the Rupiah (Rp) against the Dollar (USD). The impact of exchange rates on inflation is a topic that has been extensively studied. Research conducted by [Devia and Fadl \(2021\)](#) found that exchange rates affect inflation through the Exchange Rate Pass-Through Effect theory. The study also revealed that the Rupiah exchange rate has a substantial impact on inflation. Conversely, research by [Ilmas et al. \(2022\)](#) found that exchange rates have a negative and significant effect on exports in five ASEAN countries. This suggests that if the exchange rate in a country increases, exports will decrease, and vice versa. Consequently, the exchange rate can indirectly influence inflation through its impact on exports. In summary, this research demonstrates that exchange rates can significantly affect inflation. However, the direction and magnitude of this effect can vary depending on various factors, including economic conditions and national policies.

### Effect of Profitability on Inflation

Inflation emerges when price levels consistently rise, impacting individuals, businesses, and governments. The escalation of one or two goods alone does not qualify as inflation, but when such increases cascade to other goods, it signifies inflation ([Bank Indonesia, 2015](#)). As financial institutions, banks are particularly susceptible to risks linked to fund mobility. High inflation within a country drives heightened public consumption, thus affecting saving and financing patterns as the populace tends to allocate funds toward consumption activities due to escalating commodity prices. Numerous studies have examined the impact of inflation on profitability. The findings from these studies indicate that inflation negatively affects the profitability of financial institutions ([Rasheed & Ishaq, 2022](#)) but does not significantly contribute to profitability ([Jeevitha et al., 2019; Maralutua & Pulungan, 2022](#)). Moreover, certain studies have identified a positive correlation between inflation and business profitability ([Arben Tërstena et al., 2023](#)). Overall, the relationship between profitability and inflation is intricate and may hinge on various factors, including industry, institution type, and economic conditions.

### The Effect of Fuel Price Fluctuations on Stock Returns

Government policies regarding the withdrawal of fuel subsidies inherently introduce fluctuations in fuel prices, synchronizing with global oil price shifts. Consequently, this leads to price volatility in the Indonesian oil market. Research by [Liu \(2017\)](#) indicates a positive and significant medium-to-long-term effect resulting from changes in oil prices. Fluctuations in fuel prices have been demonstrated to impact stock returns in various industries, including the airline and petroleum sectors. Research has indicated that oil price fluctuations predominantly affect the Oil and Gas and Mining industries ([Randjbaran et al., 2018](#)). Within the aviation sector, fuel price shocks lead to fluctuations in airline stock returns, with American Airlines, Delta Air Lines, United Airlines, and US Airways showing statistically significant negative relationships between their stock returns and fuel price shocks ([Hsu, 2017](#)). In the petroleum industry, changes in oil prices can influence the stock prices of oil companies, and these stock price shifts undoubtedly affect the stock returns of such firms ([Sedighi et al., 2019](#)). In summary, the impact of fuel price fluctuations on stock returns varies depending on the industry and the specific companies involved.

### Effect of Exchange Rates on Stock Returns

[\(Faoriko, 2013\)](#) study highlights the simultaneous and significant impact of exchange rates on stock returns within the manufacturing sector, focusing on the 2008-2010 period for companies listed on the IDX. Additionally, another study conducted by [Purnomo and Widyawati \(2013\)](#) yielded differing findings, indicating that exchange rates, when considered individually, do not exert a notable influence on stock returns.

### Effect of Profitability on Stock Returns

According to [Brigham and Houston \(2014\)](#), Return on Assets (ROA) is the ratio of net income to total assets, serving as a measure of a company's ability to generate profits from its total assets. As noted by [Subramanyam and Wild \(2013\)](#), ROA reflects a company's proficiency in managing assets that contribute to pre-tax profits. ROA is a key financial indicator commonly employed to assess a company's performance. The higher the ROA, the stronger the company's performance, as it signifies a higher return on its total assets.

Companies boasting a substantial ROA tend to attract investors, as the potential benefits they offer are more significant, and vice versa. Consequently, ROA has a positive impact on stock returns. A higher ROA value indicates that the company is more effective in utilizing its assets to generate net income. This heightened efficiency captures the interest of investors, leading to increased demand for the company's shares. As investor interest grows, share prices are likely to rise accordingly.

ROA, according to (Kasmir, 2017), is a ratio that shows the yield (return) on the total assets used in the company. ROA is a profitability ratio that measures a company's ability to invest in total assets used to make a profit. A high ROA value will give a positive signal to investors that the company is in favorable conditions and has an impact on increasing the attractiveness of the company, making the company more attractive to investors, because the stock return will be even greater.

### Effect of Inflation on Stock Returns

Inflation is the continuous rise in the prices of goods and services, leading to a decrease in people's purchasing power and a subsequent decline in sales levels. Reduced sales, in turn, result in lower revenues for companies, leading to a decrease in their profits. A drop in company profits can cause a decline in stock prices, consequently reducing returns for shareholders. Conversely, a decrease in the inflation rate makes raw materials more affordable, reducing production costs for companies. This, in turn, encourages companies to increase their product sales. As sales levels rise, company profits also increase. The uptick in company profits drives up stock prices, ultimately leading to higher returns for shareholders (Afiyati, 2019).

According to research conducted by Geriadi and Wiksuana (2017), exploring the impact of inflation on stock returns within property and real estate firms listed on the Indonesian stock exchange, inflation exhibits a significant and negative effect on stock returns. Systematic risk and profitability were considered as mediating variables.

### The effect of inflation mediates fuel price fluctuations on stock returns

Fluctuations in fuel prices, including crude oil and gasoline, can directly impact fuel-dependent companies, particularly those in the transportation and manufacturing industries. This is because rising fuel prices can elevate production costs, subsequently reducing a company's profits and stock returns (Dewi & Wirawati, 2022). In addition to their direct impact, fuel price fluctuations can also trigger inflation, especially if increased transportation and production costs lead to a general price increase. High inflation can erode the real value of stock returns, with inflation acting as a mediator between fuel price fluctuations and stock returns. However, the role of inflation as a mediator may vary depending on several factors, such as the speed at which changes in fuel prices are reflected in the inflation index, the extent to which companies can adjust product prices, and other macroeconomic variables (Lukman, 2023).

In a study by Suriyani and Sudiarta (2018), positive outcomes emerged when examining the potential mediating effect of inflation on fuel price fluctuations and stock returns. However, testing the direct effect of inflation on stock returns yielded negative and statistically insignificant results, indicating no substantial impact.

### The effect of inflation mediates exchange rates on stock returns

In research conducted by Liu (2017) indicates that the influence of fuel prices on stock returns can vary depending on the research period. Over longer periods, the effect tends to be positive, whereas shorter or medium-term periods may result in a negative influence.

Inflation exerts a negative effect on stock returns (Kusumaningtyas et al., 2021; Suharyanto & Zaki, 2021). Both studies found that high inflation leads to a decrease in stock returns, and vice versa. Additionally, macroeconomic factors such as interest rates and exchange rates influence stock returns, although the effects are not consistent across studies. For instance, one study reported a negative impact of interest rates on stock returns (Yaro et al., 2021), while another found no significant effect (Kusumaningtyas et al., 2021). Similarly, one study identified a negative impact of exchange rates on stock returns (Kusumaningtyas et al., 2021), while another observed a positive but insignificant impact (Yaro et al., 2021). In summary, investors should consider macroeconomic factors like inflation, interest rates, and exchange rates when making investment decisions, as these factors can introduce investment risks (Stevany et al., 2022; Suryani & Mardiana, 2022).

### The effect of inflation mediates profitability on stock returns

Inflation prompts shifts in the costs incurred by companies to acquire assets, subsequently affecting overall profitability. Higher inflation raises asset prices, while lower inflation diminishes asset values. This, in turn, impacts generated profits. Increased profits enhance investment demand, leading to higher expected stock returns from investors. Conversely, reduced profits lead to decreased investment demand, resulting in diminished

stock returns. Inflation can affect a company's profitability as it can erode the purchasing power of the company's profits. During high inflation, companies may face increased costs for raw materials, labor, and other inputs, which can squeeze profit margins. However, some companies can raise the prices of their products, maintaining or even increasing their profitability during moderate inflation. The impact of inflation on stock returns is also complex. High and unexpected inflation can cause uncertainty and volatility in financial markets. Investors may demand higher returns to offset the loss of purchasing power due to inflation. Historically, stocks have been considered a hedge against inflation in the long run as companies can potentially raise their prices and earnings in response to inflation. However, the short-term effects may vary.

Profitability is a fundamental factor in stock returns. Companies that can maintain or increase their profitability in an inflationary environment are often considered more valuable and can experience positive stock returns. However, the relationship is not direct. Inflation can negatively affect profitability, but other factors such as interest rates, economic conditions, and industry dynamics also play a role. Inflation can also result in changes in interest rates by central banks, which can increase a company's borrowing costs, affect profitability and potentially limit stock returns.

Investors often adjust their asset allocation in response to inflation expectations. They may allocate more assets to stocks, real estate or commodities that have historically performed well during inflationary periods. These changes in investor behavior can affect stock returns. Companies in sectors that are more sensitive to inflation (e.g. commodities) may see higher stock returns during inflationary periods. In conclusion, while inflation may mediate the relationship between profitability and stock returns, it is just one of many factors at play. The impact of inflation on stock returns may vary depending on the overall economic environment, central bank policies, industry dynamics, and a company's ability to adapt to changing inflationary conditions. Investors need to consider a variety of factors when assessing how inflation may affect their investment portfolio.

This proposition finds support in Khan et al. (2017), which highlights a significant negative impact of the inflation variable. Similar findings were echoed by Haryani and Priantinah (2018), who concluded that inflation exerts a negative and significant influence on stock returns. Some studies suggest that inflation has no significant positive impact on profitability (Maralutua & Pulungan, 2022), while others indicate a positive influence (Batsinda & Shukla, 2019; Kusumaningtyas et al., 2021). However, none of these studies directly examined the mediating effect of inflation on profitability and stock returns. Consequently, it is challenging to draw definitive conclusions regarding whether inflation mediates the relationship between profitability and stock returns. Further research is needed to investigate this aspect."

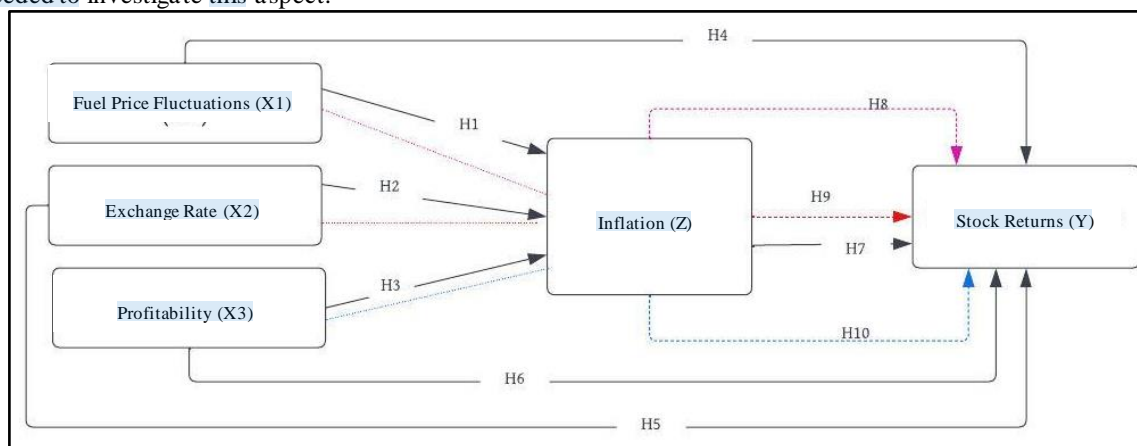


Figure 1. Research Framework

Hypotheses:

- H1 : Fuel Price Fluctuations have a positive and Significant effect on Inflation
- H2 : Exchange Rate has a positive and Significant effect on Inflation
- H3 : Profitability has a positive and significant effect on Inflation
- H4 : Fuel Price Fluctuations have a positive and Significant effect on Stock Returns
- H5 : Exchange Rate has a positive and Significant effect on Stock Returns
- H6 : Profitability has a positive and significant effect on Stock Returns
- H7 : Inflation has a positive and significant effect on Stock Returns
- H8 : Inflation mediates fuel price fluctuations on stock returns
- H9 : Inflation mediates Exchange Rate on Stock Returns
- H10: Inflation mediates Profitability on Stock Returns



### 3. METHOD

As for writing this research using a type of quantitative research. This research takes the scope of the Indonesian capital market. The population in this study is the banking sector on the Indonesia Stock Exchange during the 2013-2017 research period. The sample selection method in this study is a purposive sampling method. The data used in this study are secondary data from the official website of the Indonesia Stock Exchange for return data, Bank Indonesia (Bank Indonesia, 2022) for data on SBI exchange rates and interest rates, BPS (Central Bureau of Statistics) for inflation data, as well as BPH migas and wikipedia sites for fuel oil prices. The data analysis technique in this study is path analysis using SmartPLS 3.0 software. Criteria Sampling as follows:

1. The company has consistently joined the Indonesian Stock Exchange (IDX) during the research period, namely 2013-2017
2. The company has consistently been included in the banking sub-sector over the years the research period is 2013-2017
3. The company published complete financial reports and annual reports during the study period, namely 2013-2017
4. The company distributed dividends during the study period, namely 2013-2017

Based on the sampling criteria, 12 companies were obtained as samples in this study.

**Table 1. Sample Bank Sub Sector Companies**

No.	Stock code	Company name
1.	AGRO	Bank Rakyat Indonesia Agroniaga Tbk
2.	BBCA	Bank Central Asia Tbk
3.	BBMD	Bank Mestika Dharma Tbk
4.	BBNI	Bank Negara Indonesia
5.	BBRI	Bank Rakyat Indonesia (Persero) Tbk
6.	BBTN	Bank Tabungan Negara (Persero) Tbk
7.	BDMN	Bank Danamon Indonesia Tbk
8.	BJBR	Bank Pembangunan Daerah Jawa Barat dan Banten Tbk
9.	BJTM	Bank Pembangunan Daerah Jawa Timur Tbk
10.	BMRI	Bank Mandiri (Persero) Tbk
11.	BNBA	Bank Bumi Arta Tbk
12.	SDRA	Bank Woori Saudara Indonesia 1906 Tbk

#### Independent Variable

The independent variable is a variable that explains or influences other variables. This study uses 3 independent variables, namely fuel price fluctuations, exchange rates, and profitability.

#### 1. Fluctuations in the Price of Fuel Oil (BBM)

Change in Price (Value of Fluctuation) =  $h.t1 - h.t0$

$$\text{Fluctuation percentage} = \frac{h.t1 - h.t0 \times 100\%}{h.t0} \quad (1)$$

Where assumed:

h. t1: Price of the Year

h. t0: Last Year's Prices

source:

[http://www.onemathematicalcat.org/algebra\\_book/online\\_problems/calc\\_percent\\_inc\\_dec.m](http://www.onemathematicalcat.org/algebra_book/online_problems/calc_percent_inc_dec.m)

#### Exchange rate

$$Q (Rp) = (SP)/p \quad (2)$$

Where:

Q : Real exchange rate (Rupiah)  
 S : Nominal exchange rate  
 Q : Domestic price level  
 p : Price level abroad  
 source: <https://www.inforexnews.com/strategi-trading-forex/nilai-tukar-kurs>

Profitability  
 Return on Assets (ROA)  
 ROA = (profit after tax/total asset) x 100%

**1 Dependent Variable**

The dependent variable is the variable that is explained or influenced by the independent variable.

**Stock returns**

Stock return in this study is measured by Capital Gain. Capital Gain, is the management and increase of stock prices that can provide benefits for investors.

$$\text{Stock returns} = \frac{\text{Stock price (t)} - \text{Stock price (t-1)}}{\text{Stock price (t-1)}} \quad (3)$$

**Intervening Variable**

Intervening variables are variables that theoretically affect the relationship between the independent variable and the dependent variable into an indirect relationship but cannot be measured and observed. This variable is a variable between the independent variable and the dependent variable, so that the independent variable does not directly affect the change or emergence of the dependent variable.

**Inflation**

Consumer Price Index (CPI)

$$\text{CPI} = (\text{Pn}/\text{Po}).100\%$$

Then we find the inflation rate:

$$\text{inflation on 'n' year} = (\text{CPI} - \text{CPI}_{-1}) / (\text{CPI}_{-1}).100\% \quad (4)$$

Pn = current price.  
 Po = price in the previous year.  
 CPI(n) = CPI in base year.  
 CPI(n-1) = CPI in the previous year.

source: (Ma'ruf, 2023)

**4. RESULT AND DISCUSSION**

**Validity and Reliability Test**

The convergent validity of each indicator in measuring latent variables is assessed based on the magnitude of the loading factor. An indicator is considered valid if its loading factor is both positive and greater than 0.5 (Hair et al., 2014). The loading factor values are presented in the following table.

**Table 2. Convergent Validity Test with Loading Factor**

Indicator	Loading Factor	Conclusion
Profitability	1,000	Valid
Inflation	1,000	Valid
Stock returns	1,000	Valid
Exchange rate	1,000	Valid
Fuel Price Fluctuations	1,000	Valid

Based on the table 2, it is evident that the loading factor values for each indicator, including Profitability, Inflation, Stock Returns, Exchange Rate, and Fuel Price Fluctuations, all exceed 0.5. This indicates that all indicators can be considered valid measures of their respective latent variables.

Furthermore, discriminant validity can be assessed by comparing the square root of the Average Variance Extracted (AVE) for each construct with the correlations between that construct and others in the model. When the square root of AVE for a construct is greater than the correlation value between that construct and others in the model, it demonstrates good discriminant validity (Fornell & Larcker, 1981). The correlation results for the latent variables and the square roots of AVE are presented in Table 3

**Table 3. Validity Test discriminant validity**

	<b>Profitability</b>	<b>Inflation</b>	<b>Stock returns</b>	<b>Exchange rate</b>	<b>Fuel Price Fluctuations</b>
Profitability	<b>0,746</b>				
Inflation	0,753	<b>0,832</b>			
Stock returns	0,515	0,715	<b>0,889</b>		
Exchange rate	0,653	0,708	0,651	<b>0,857</b>	
Fuel Price Fluctuations	0,670	0,734	0,668	0,822	<b>0,908</b>

Based on the data in Table 3, it can be concluded that the root AVE values for all constructs exceed the correlations between them. Specifically, the AVE root for Profitability is 0.746, greater than its correlations with Inflation, Stock Returns, Exchange Rates, and Fuel Price Fluctuations. Similarly, the AVE root for Inflation is 0.832, exceeding its correlations with Stock Returns, Exchange Rates, and Fuel Price Fluctuations. Stock Returns have an AVE root of 0.889, surpassing its correlations with Exchange Rates and Fuel Price Fluctuations, and the AVE root for Exchange Rates is 0.857, greater than its correlation with Fuel Price Fluctuations. Finally, Fuel Price Fluctuations have a root AVE of 0.908. These results indicate strong discriminant validity among all constructs in the dataset

To test the reliability of a construct or variable, it can be measured by the composite reliability of the indicator block that measures the construct. The construct is declared reliable if the composite reliability value is above 0.70 (Hair Jr et al., 2021). To test the reliability is also measured by combach alpha. (Hair et al., 2014) states that combach alpha in PLS is said to be good if it is  $\geq 0.5$ , and it is said to be sufficient if it is  $\geq 0.3$ . If a construct meets these criteria, it can be said that the construct is reliable.

**Table 4. Reliability Test Result**

Indicator	<b>Cronbach's Alpha</b>	<b>Composite Reliability</b>
Profitability	1,000	1,000
Inflation	1,000	1,000
Stock returns	1,000	1,000
Exchange rate	1,000	1,000
Fuel Price Fluctuations	1,000	1,000

Table 4, has an AVE value  $> 0.5$ , for that all latent variables are said to be valid, Cronbach's Alpha value  $> 0.7$ , for that all latent variables are said to be reliable, so they can be used for further research and analysis.

**Coefficient of determination (R-Square)**

The test results show that the R Square value for the firm value variable is 0.460. This value indicates that the company value variable can be explained by the variable Fuel Price Fluctuations, Exchange Rates, Profitability, and Inflation of 46%, while the remaining 54% is influenced by other variables not included in the research model.

**T test (T-Statistics)**

The inner model value indicates a significant level of hypothesis testing in a study. The influence of the structure between variables is said to be significant if the p value or t statistic  $> t$  table (Ghozali, 2014).

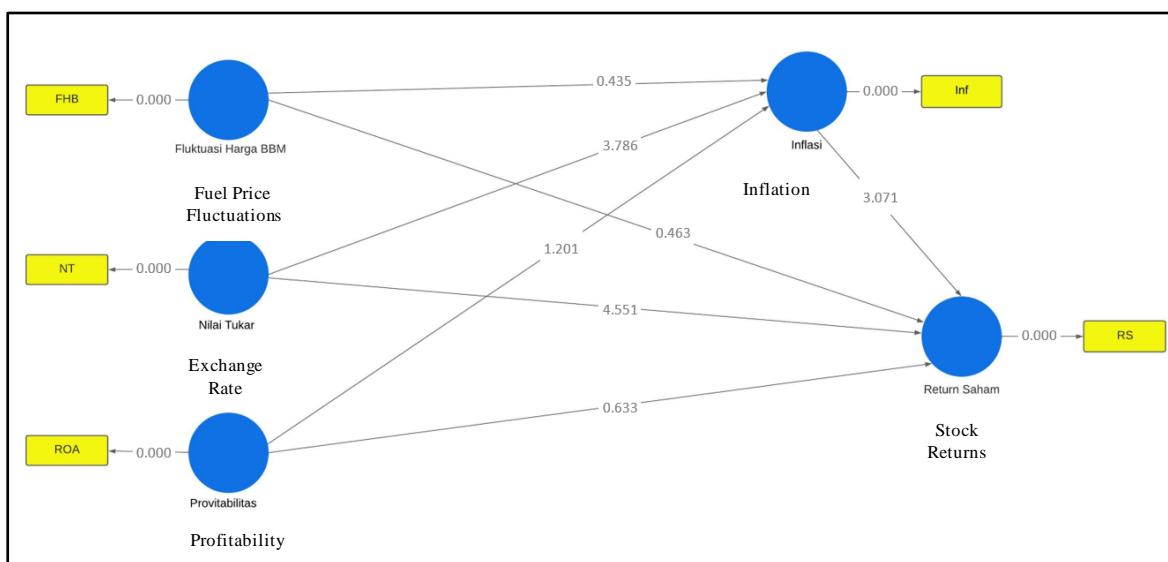


Figure 2. Path Analysis Results

Table 5. Value of Specific Direct Effects

	Original Sample (O)	Sample Mean (M)	Standard deviation (STDEV)	Q Statistics ((O/STDEV))	P Value	Conclusion
Fuel Price Fluctuations -> Inflation	-0.052	-0.046	0.117	0.444	0.657	Rejected
Exchange Rate -> Inflation	-0.428	-0.437	0.116	3,707	0.000	Accepted
Profitability -> Inflation	0.155	0.155	0.122	1,267	0.206	Rejected
Fuel Price Fluctuations -> Stock Return	0.042	0.042	0.090	0.465	0.642	Rejected
Exchange Rate -> Stock Return	0.552	0.559	0.126	4,368	0.000	Accepted
Profitability -> Stock Return	-0.089	-0.098	0.143	0.624	0.533	Rejected
Inflation -> Stock Return	-0.238	-0.240	0.073	3,243	0.001	Accepted

The test results show that fuel price fluctuations do not directly affect inflation. This is because the T-Statistics value of 0.444 is less than the T-Table value, which is 1.962. Therefore, it can be concluded that fuel price fluctuations have no effect on inflation. As a result, this hypothesis is rejected.

The test results show that the exchange rate has a significant negative effect on inflation. This is indicated by the T-Statistics value of 3.707, which is greater than the T-Table value of 1.962. The original sample estimate value is -0.428, confirming a negative relationship between the Exchange Rate and Inflation. This suggests that as the exchange rate increases, inflation tends to decrease, indicating a negative correlation.

The test results show that Profitability has no direct effect on inflation. This is because the T-Statistics value of 1.267 is less than the T-Table value of 1.962. Consequently, it can be concluded that Profitability does not impact inflation. Therefore, this hypothesis is rejected.

Similarly, the test results demonstrate that fuel price fluctuations do not directly affect stock returns. The T-Statistics value of 0.465 is less than the T-Table value of 1.962. Hence, it can be concluded that fuel price fluctuations do not influence stock returns. Consequently, this hypothesis is rejected.

Conversely, the test results reveal that the exchange rate has a significant positive effect on Stock Return. This is indicated by the T-Statistics value of 4.368, which exceeds the T-Table value of 1.962. The original sample estimate value is 0.552, indicating a positive relationship between the Exchange Rate and Stock Return. This suggests that as the exchange rate becomes more favorable, stock returns tend to increase, demonstrating a positive correlation.

Furthermore, the test results indicate that Profitability has no direct effect on Stock Return. The T-Statistics value of 0.624 is lower than the T-Table value of 1.962. Thus, it can be concluded that Profitability does not impact Stock Return. Consequently, this hypothesis is rejected.

Lastly, the test results show that inflation has a significant negative effect on stock returns. This is indicated by the T-Statistics value of 3.243, which surpasses the T-Table value of 1.962. The original sample estimate value is -0.238, indicating a negative relationship. This implies that higher inflation is associated with lower stock returns, highlighting a negative correlation.

**Table 6. Indirect Effects**

	Specific Indirect Effects	Sample Mean (M)	Standard deviation (STDEV)	Q Statistics ( O/STDEV )	P Value	Conclusion
Fuel Price Fluctuations -> Inflation -> Stock Return	0.012	0.011	0.029	0.423	0.672	Rejected
Exchange Rate -> Inflation-> Stock Return	-0.037	-0.040	0.034	1,086	0.280	Rejected
Profitability -> Inflation -> Stock Return	0.102	0.107	0.048	2.125	0.034	Accepted

The test results show that fuel price fluctuations have no effect on stock returns through inflation as an intervening variable. This is because the T-Statistics value of 0.423 is less than the T-Table value, which is 1.962. Therefore, it can be concluded that fuel price fluctuations have no effect on stock returns through inflation as an intervening variable. As a result, this hypothesis is rejected.

The test results show that the exchange rate has no effect on stock returns through inflation as an intervening variable. This is because the T-Statistics value is 1.082, which is less than the T-Table value of 1.962. Thus, this hypothesis is rejected.

The test results show that Profitability has a significant positive effect on stock returns through inflation as an intervening variable. This is indicated by the T-Statistics value of 2.125, which exceeds the T-Table value of 1.962. The original sample estimate value is 0.102, indicating a positive relationship between Profitability and Stock Return through Inflation as an intervening variable. Therefore, it can be concluded that the hypothesis is supported and accepted.

### 1 The Effect of Fuel Price Fluctuations on Inflation

This study suggests that the price of fuel oil has no effect on inflation. However, this finding contradicts previous research conducted by [Simanullang \(2017\)](#), which demonstrated that an increase in fuel oil prices has a positive and significant impact on inflation in Indonesia. This phenomenon occurs because when fuel prices rise, the costs of basic and secondary needs also increase due to elevated production costs. Consequently, people's purchasing power declines, leading to stagnant money circulation and ultimately causing inflation. This assertion is supported by the findings of another study by [Panjaitan & Wardoyo \(2017\)](#), which indicates that the money supply and BI Rate significantly influence the rate of inflation in Indonesia.

### Effect of Exchange Rate on Inflation

The study reveals a negative relationship between the exchange rate and inflation: as the exchange rate decreases (increases), the inflation rate also decreases. This highlights the importance of monitoring exchange rates to manage and reduce inflation in a country. This result is consistent with research conducted by [Simanullang \(2017\)](#), which suggests that exchange rates partially have a positive and significant impact on inflation in Indonesia. Other studies further reinforce this conclusion. Research by [Agustina \(2014\)](#), [Ningsih & Kristiyanti \(2019\)](#), and [Susmiati et al. \(2021\)](#) collectively demonstrate that the exchange rate indeed influences the inflation rate positively ([Agustina, 2014](#); [Ningsih & Kristiyanti, 2019](#); [Susmiati et al., 2021](#)).

### Effect of Profitability on Inflation

The study's findings indicate a negative and insignificant relationship between profitability and inflation. Inflation can lead to customer hesitancy to save money due to decreasing currency value. Consequently, the banking sector's role as an intermediary institution for fund collection diminishes, and people become more inclined to invest in non-productive ventures at the expense of productive investments. This scenario affects companies' ability to access financing and, consequently, their profitability. The link between high inflation and macroeconomic instability is not novel; an unstable macroeconomic environment resulting from high inflation heightens bank risk and diminishes profits. Inflation's repercussions on the economy are significant. In cases of uncontained inflation, such as hyperinflation, the economy becomes fragile and chaotic. Rapid price increases place considerable burden on individuals trying to cope with escalating daily necessities costs. For businesses, inflation leads to elevated operational and production expenses, impacting the company's profitability. Notably, even though inflation rises, certain companies manage to maintain relatively stable profits, as indicated by [Adyatmika & Wiksuana \(2018\)](#). The quality of inflation can rejuvenate purchasing power, thereby affecting macroeconomic factors influencing company profitability ([Hasan et al., 2013](#)).



### The Effect of Fuel Price Fluctuations on Stock Returns

This aligns with research conducted by Liu (2017), which states that changes in oil prices have no significant short-term effect on stock returns but exhibit a positive and significant impact over medium and long timeframes. Fluctuations in oil prices can trigger variations in stock prices, influencing stock returns. Therefore, if the analysis period used to examine the impact of fuel price fluctuations on stock returns is short, it may yield a negative yet insignificant effect. As such, the ebbs and flows in fuel prices might not substantially affect stock returns.

However, research by Murtaseb & Al-Assaf (2017) presents contradictory findings to this study. Their research suggests that an increase in fuel prices positively influences stock returns. As fuel oil prices rise, so do stock returns. This outcome is attributed to the study's utilization of an extended time span. In another study by Fithriyana et al. (2014), the findings indicate that fuel price increases can indeed affect both stock prices and stock sales volume. A drop in stock prices corresponds with a decrease in stock returns, indicating a negative correlation between fluctuations in fuel prices and stock returns. This is due to the heightened costs borne by companies when fuel prices surge. Increased company expenses are reflected in elevated share prices, which in turn prompt investors to exercise caution, resulting in reduced stock returns.

### Effect of Exchange Rates on Stock Returns

This study identifies a negative yet significant effect of exchange rates on stock returns. Consequently, fluctuations in the exchange rate, whether upward or downward, do not significantly impact stock returns. This aligns with findings from research by Pradipsa (2015), where the exchange rate was observed to exert a negative and substantial influence on stock returns.

While the exchange rate is characterized by constant fluctuations, often trending towards depreciation, the market has become accustomed to and adept at anticipating these variations. This resonates with research by Wiradharma et al. (2016), which posits that exchange rates exert no discernible effect on stock returns. The weakening of the exchange rate ushers in shifts in market dynamics. Prices may surge, particularly for imported goods paid for in foreign currencies. Consequently, purchasing power dwindles, potentially leading to inflation.

### Effect of Profitability on Stock Returns

The analysis results reject the notion that Return on Assets (ROA) significantly affects stock returns. This implies that effective management of total assets may not translate to an increase in stock returns. Furthermore, the utilization of diminishing assets can impede daily business operations and transactions (sales), ultimately diminishing profits and overall company performance. These findings diverge from those of research by (Alviara & Yuniati, 2022; Aminah, 2021; Miladyah, 2020; Suci, 2022). However, this study concurs with research by Aldiena & al Hakim (2019).

### Effect of Inflation on Stock Returns

This study reveals a significant yet negative relationship between inflation and stock returns. Low inflation leads to reduced goods prices and enhanced consumer purchasing power. Consequently, stock returns are influenced, as inflation consistently affects prices over time. This contrasts with research conducted by Suriyani and Sidharta (2018), which found a negative yet insignificant effect of inflation on stock returns, indicating a lack of impact.

In contrast, research by Geriadi & Wiksuana (2017) discovered a negative and significant results regarding inflation's influence on stock returns. Notably, this disparity in findings can be attributed to the focus of Geriadi and Wiksuana's research on property companies, which display heightened sensitivity to inflation, capable of altering a company's returns unpredictably.

### The effect of inflation mediates fuel price fluctuations on stock returns

The results of this study indicate that the relationship between fluctuations in fuel oil prices and stock returns, mediated by inflation, is negative and insignificant. This suggests that fuel price fluctuations do not exert an indirect influence on stock returns through inflation. This finding aligns with research conducted by Liu (2017), which asserts that the impact of fuel prices can be either positive or negative, depending on the research period. Longer research periods tend to yield positive results, while shorter or medium-term periods result in negative outcomes.

When examining the direct influence of fuel oil price fluctuations on stock returns, the results are negative and not statistically significant. However, when conducting a mediated path analysis through inflation, the results shift to positive but remain insignificant. This implies that while direct and indirect effects yield different outcomes, neither exerts a substantial impact on stock returns.

### 1 The effect of inflation mediates exchange rates on stock returns

The findings of this study demonstrate a negative but insignificant relationship between exchange rates and stock returns when mediated by inflation. This finding concurs with the research conducted by [Suriyani & Sudiarta \(2018\)](#), which revealed positive results when testing the effect of exchange rates on inflation rates. However, when investigating the effect of inflation on stock returns, the results were negative and insignificant, implying no discernible impact. This highlights that the exchange rate can influence inflation, but its indirect effect on stocks through inflation remains negative yet insignificant.

As per [Suriyani & Sudiarta \(2018\)](#), this is attributed to high inflation leading to increased goods prices and decreased consumer purchasing power. This effect does not substantially influence stock returns, as inflation consistently impacts prices over time.

### The effect of inflation mediates profitability on stock returns

Based on the test results, it is evident that Return on Assets (ROA) moderated by inflation has a significant positive impact on stock returns. These findings indicate that investors should consider inflation's effect when assessing the company's asset capability to generate future profits. The study reveals that higher inflation can diminish the company's asset-generated profit capacity due to increased asset costs and maintenance expenses. Consequently, the company's profit-generating potential diminishes, leading to a decrease in ROA. Elevated inflation weakens the company's profit generation ability, ultimately impacting investors' long-term stock investments. Thus, it can be interpreted that inflation weakens the link between ROA and stock returns. Conversely, as inflation diminishes, the connection between ROA and stock returns strengthens.

## 5. CONCLUSION

The results of this study have several implications that can be useful in making economic and business decisions. Firstly, fuel price fluctuations have no effect on inflation, which means that changes in fuel prices will not directly affect the inflation rate. Therefore, fuel price policies can be set without worrying about the impact of inflation. Secondly, the exchange rate has a negative relationship with inflation, suggesting that currency appreciation can help control inflation. Monetary and fiscal policy decisions that impact the exchange rate should be carefully considered to minimize the impact of inflation. Thirdly, profitability has no effect on inflation, which suggests that firms can increase their profitability without having to worry about its effect on inflation. This provides flexibility for companies in managing their profits. Furthermore, fuel price fluctuations have no effect on stock returns, indicating that investors do not have to worry too much about changes in fuel prices when making investment decisions. However, in terms of stock investment, the exchange rate has a positive influence on stock returns, while inflation has a negative influence. This means that investors should consider changes in exchange rates and inflation rates when making their investment decisions. In addition, the results also show that profitability can affect stock returns through its effect on inflation. Therefore, companies can increase their stock returns by increasing their profitability, which can reduce the negative impact of inflation on stock returns. However, exchange rates have no effect on stock returns through inflation as an intervening variable. This means that changes in exchange rates do not directly affect stock returns through inflation but have a direct impact. On the other hand, profitability has a positive effect on stock returns through inflation as an intervening variable, suggesting that increasing profitability can help reduce the negative impact of inflation on stock returns through the intervention of inflation variables.

From a theoretical perspective, this study contributes to the understanding of the relationship between exchange rates and inflation. The fact that the direction of the relationship between exchange rates and inflation is negative indicates the importance of other factors that can affect inflation, such as domestic factors, monetary policy, and other variables. This encourages further research to identify these factors and their greater influence on inflation. With this understanding, economic and business stakeholders can make better decisions in managing inflation risk and optimizing their investment returns.

In light of these findings, there are several important recommendations to consider. For the government, it is crucial to maintain a vigilant and proactive stance when it comes to monitoring and managing fluctuations in fuel prices, even though they may have only an indirect impact on the inflation rate. By doing so, the government can effectively uphold the stability of prices for other goods and services and, in turn, mitigate the potential social impact on consumers. Investors, on the other hand, should be attentive to changes in exchange rates and carefully assess how such shifts may influence their investment portfolios. Understanding the dynamics of currency fluctuations can be essential for making informed investment decisions. From a corporate perspective, it is advisable to incorporate exchange rates into risk management strategies, especially for companies with substantial international exposure. This integration can help mitigate the potential risks associated with currency fluctuations, ensuring a more secure financial position. Lastly, further research is warranted to explore additional factors that

may contribute to inflation and stock performance. A deeper examination of the causal relationships between various variables in market dynamics is needed to provide a more comprehensive understanding of these complex economic interactions. Such insights can inform better decision-making strategies for economic and business stakeholders.

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