

The Effect of Money Supply, Inflation, Investment, and Exchange Rate On Gross Domestic Product (GDP) in Indonesia

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ABSTRACT

Gross Domestic Product (GDP) represents the total output of value added produced by all business units within a country. Indonesia's GDP tends to fluctuate due to various factors such as money supply, inflation, investment, and exchange rates. This study aims to analyze the effects of these factors on Indonesia's GDP using a quantitative approach with multiple linear regression analysis. The research employs secondary data from the World Bank covering the 1993–2023 period. Results indicate that money supply and investment positively influence GDP, whereas inflation and exchange rates exert negative impacts. Simultaneously, all variables significantly affect GDP based on the F-statistic. The findings provide insights for policymakers to manage macroeconomic variables for sustainable economic growth.

INTRODUCTION

Economic growth is a primary indicator of a nation's progress. One of the most common metrics used to measure economic growth is Gross Domestic Product (GDP), which reflects the total value of goods and services produced within a country over a specific period (Saputri et al., 2020). GDP not only serves as a benchmark for national economic performance but also reflects a government's ability to manage economic resources to enhance public welfare (Warkawani et al., 2020). In the Indonesian context, a deep understanding of the factors influencing GDP is crucial, especially given the country's economic dynamics over the past three decades.

Since 1993, Indonesia has faced various economic challenges, ranging from the 1997-1998 Asian financial crisis to the 2020 COVID-19 pandemic. The 1997-1998 monetary crisis, for instance, demonstrated how the depreciation of the rupiah led to soaring inflation and a sharp decline in GDP. Conversely, the COVID-19 pandemic posed different challenges, as disruptions to global supply chains and mobility restrictions caused a significant economic contraction (Rizvi et al., 2024). Throughout these periods, variables such as money supply, inflation, investment, and exchange rates have played pivotal roles in shaping economic performance.

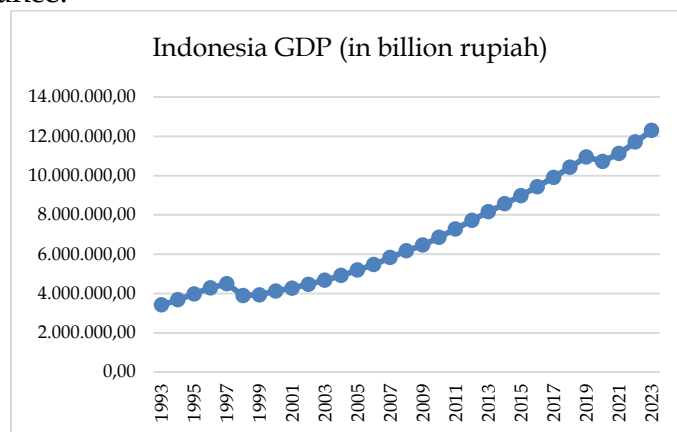


Figure 1. Graph of Indonesia GDP Level

Source: World Bank Open Data

The graph above illustrates the changes in Indonesia's GDP, sourced from the official World Bank website, highlighting the fluctuations in the country's economy over time. Indonesia's GDP reached its lowest point in 1998, contracting by 13.3%, with GDP figures of IDR 4,487 trillion in 1997 and IDR 3,898 trillion in 1998. The financial crisis had a significant impact, marked by high inflation, financial instability, and a sharp depreciation of the rupiah, exacerbated by Indonesia's reliance on imports for capital goods and raw materials. This resulted in reduced investment, slowed domestic production, and decreased purchasing power (Wanda & Kartika, 2021). Similarly, in 2020, GDP declined by 2.07% due to the global COVID-19 pandemic, which led to lockdowns and disruptions across various economic sectors (Rizvi et al., 2024). Unlike the financial crisis of 1998, the COVID-19 pandemic triggered a health crisis that directly affected real economic activities, causing a sharp contraction in key sectors such as production, trade, and services due to mobility

restrictions, supply chain disruptions, and declining domestic and global demand (Rangkuty et al., 2022).

One of the main elements that affect a country's economic health is monetary stability (Panjaitan et al., 2021). Monetary stability is influenced by a number of factors, including GDP, inflation, investment, and government monetary and fiscal policies (Kistianingsih, 2019). The amount of money in circulation is one of the main indicators that can be used to assess a country's economic welfare.

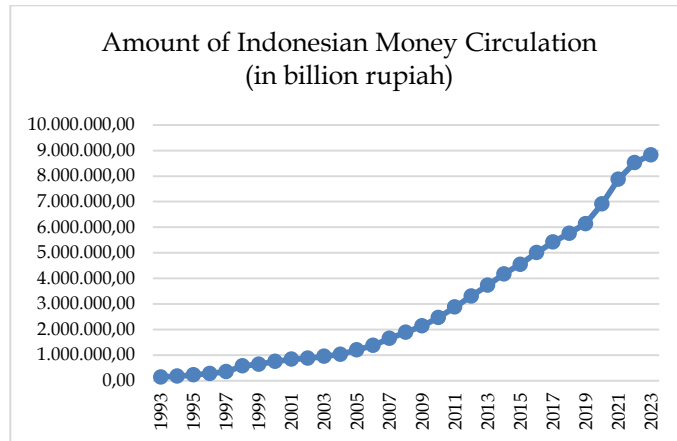


Figure 2. Graph of the Amount of Money in Circulation in Indonesia

Source: World Bank Open Data

The money supply has grown significantly, from IDR 144 trillion in 1993 to IDR 8,827 trillion in 2023. This total money supply, including bank deposits and physical currency, reflects the expansion of the financial sector and the increased ability of banks to meet liquidity needs for businesses and the public. Over the last three decades, the money supply has surged, indicating rising liquidity in the economy. However, if the money supply increases rapidly without a corresponding rise in the production of goods and services, inflationary pressures may occur. Inflation, a key factor affecting GDP, is a measure of economic health and consumer purchasing power. Excessive inflation can undermine investment as it erodes purchasing power, while stable and controlled inflation is believed to foster a conducive environment for sustainable GDP growth (Wanda & Kartika, 2021).

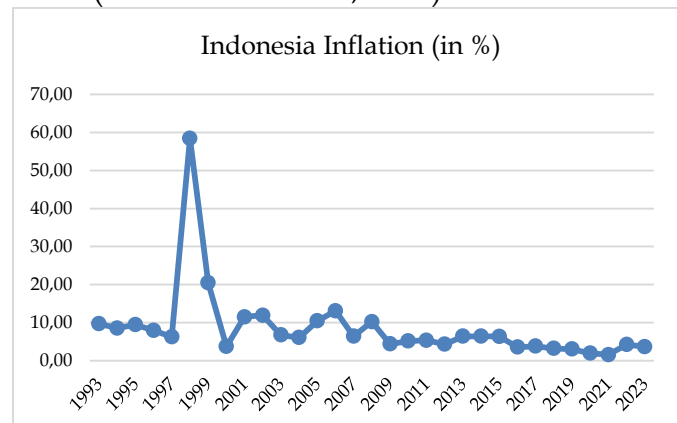


Figure 3. Graph of Indonesia's Inflation Rate

Source: World Bank Open Data

The graph shows the fluctuating inflation rate in Indonesia, peaking in 1998 during the Asian financial crisis, which caused inflation to reach 58.45%. This inflation was driven by the crisis, which also increased national debt, triggered a banking panic, and raised interest rates (Wanda & Kartika, 2021). After the crisis, the government and Bank Indonesia worked to stabilize prices, and inflation returned to a more controlled range of 1.5% to 10% in the following years. In 2023, inflation was recorded at 3.67%, reflecting a more stable economy, though still influenced by global factors like energy prices and food supply. High inflation tends to discourage investment due to economic uncertainty, reduced purchasing power, and the need for central banks to raise interest rates, making borrowing more expensive (Jufrida et al., 2017). Investment, both foreign and domestic, is a crucial factor in boosting GDP by increasing production and creating jobs (Yuniarti et al., 2020). Foreign direct investment (FDI) plays a key role in funding development projects in Indonesia. In 2022, FDI increased to 1.8727%, up from 1.7879% in 2021. However, challenges remain in attracting investment, such as bureaucracy issues and insufficient infrastructure (Pratama & Soebagiyo, 2022).

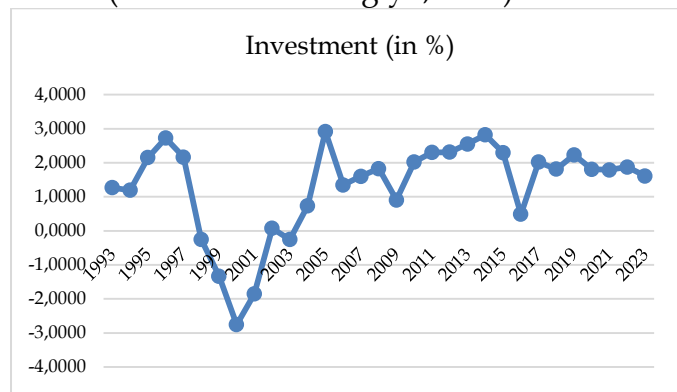


Figure 4. Indonesia Investment Graph

Source: World Bank Open Data

Foreign Direct Investment (FDI) reflects the inflow of foreign capital into a country, serving as a key indicator of its economic attractiveness to global investors. In 1993, FDI was recorded at 1.2683%, but fluctuated in subsequent years due to both internal and external factors. The 1998 financial crisis led to a negative FDI value of -0.2523% as foreign investors withdrew their investments. However, FDI improved after the crisis, supported by economic recovery and pro-investment government policies, such as regulatory reforms and incentives. By 2023, FDI increased to 1.6107%, showing sustained foreign interest despite regional competition. Exchange rates also play a critical role in economic performance, influencing trade competitiveness and trade balances (Wiriani & Mukarramah, 2020). Exchange rate fluctuations can impact both local and foreign investment decisions, with investors favoring countries with stable currencies (Putra, 2022). In 2023, the Indonesian rupiah showed significant volatility against the US dollar, driven by global factors such as US monetary policy and international economic conditions, creating uncertainty that could affect GDP (Malec et al., 2024).

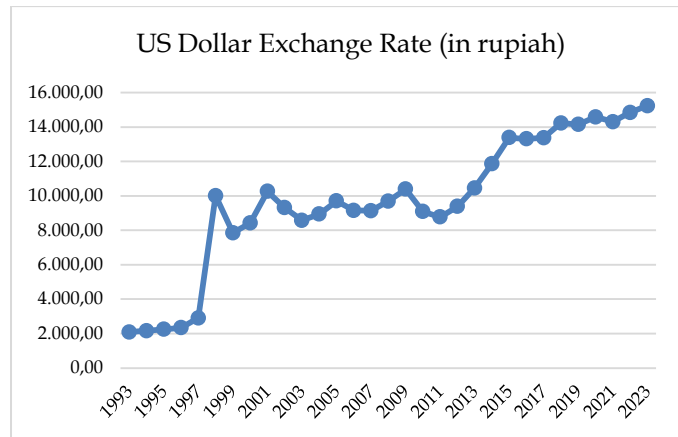


Figure 5. Graph of Exchange Rates Per US\$

Source: World Bank Open Data

The exchange rate of the Indonesian rupiah against the US dollar is a key indicator of macroeconomic stability. In 1993, the rate was 2,087.10 rupiah per dollar, but during the 1998 crisis, it devalued sharply to 10,000 rupiah per dollar, worsening inflation and import prices (Cakra et al., 2023). After the crisis, the rupiah gradually stabilized, though it continued to fluctuate due to global economic changes, oil prices, and foreign capital flows. By 2023, the exchange rate had reached 15,236.88 rupiah per dollar, reflecting long-term depreciation but more stability than during the previous crises. The balance of payments is highly sensitive to exchange rate changes (Arfiani, 2019). Additionally, currency depreciation increases export competitiveness by lowering domestic product prices in foreign currencies, thus boosting demand abroad (Kumar et al., 2023).

Moreover, the exchange rate is another important variable in this analysis. Exchange rate fluctuations can affect export competitiveness, import costs, and overall macroeconomic stability. In 1998, the devaluation of the rupiah against the US dollar created significant inflationary pressures, disrupted national economic stability, and reduced export competitiveness (Cakra et al., 2023). In the long term, exchange rate stability is key to creating a conducive investment climate and sustaining economic growth.

This study aims to analyze the impact of money supply, inflation, investment, and exchange rates on Indonesia's GDP during the period 1993-2023. Employing a quantitative regression approach, this study will combine secondary data from reliable sources such as the World Bank to provide a comprehensive overview of the relationship between these variables. This study not only seeks to deepen our understanding of Indonesia's economic dynamics but also to offer insights that can inform the formulation of more effective economic policies.

A major contribution of this study lies in its analysis covering an extended time period, encompassing significant events such as the 1997-1998 monetary crisis and the COVID-19 pandemic. This approach enables the study to provide a broader perspective on how economic factors influence GDP under various conditions. Additionally, this study combines four key variables in a single regression model, which is less common in previous research. As such, this study is expected to make a significant contribution to enriching the

literature on the factors influencing GDP, particularly in the context of developing countries like Indonesia.

THEORETICAL REVIEW

Gross Domestic Product (GDP) Theory

Gross Domestic Product (GDP) is the primary indicator used to measure a country's economic growth. It reflects the total value of goods and services produced within a country's borders during a specific period, whether by domestic or foreign entities. GDP theory emphasizes that economic growth is influenced by various factors, including consumption, investment, government spending, and net exports. There are two main approaches to measuring GDP: using current prices (nominal GDP) and constant prices (real GDP). Nominal GDP measures the total value of output at the prices prevailing in that year, while real GDP adjusts for inflation by using base-year prices (Mankiw, 2020). An increase in real GDP indicates healthy economic growth, while a decrease signals an economic contraction. Studies by Komalasari et al. (2024) and Mashita (2023) have shown that increases in these components, particularly investment and consumption, significantly drive GDP growth. In addition, research by BPS (2022) shows that real GDP growth is influenced by various factors, including inflation, investment, and consumption. Therefore, changes in economic components such as the money supply, inflation, and investment can directly impact GDP.

Money Supply Theory

The money supply refers to the total amount of money circulating in an economy, both in the form of currency (M1) and quasi-money (M2). The money supply plays a crucial role in determining aggregate demand within an economy. This theory states that increasing the amount of money in circulation can drive GDP growth through increased consumption and investment. Keynesians state that increasing people's purchasing power due to increasing money in circulation will drive aggregate demand. Research by Devinda et al. (2023) shows that the amount of money in circulation has a positive effect on economic growth. In addition, research by Sarwono (2020) shows that an increase in the money supply in Indonesia has a positive impact on GDP by enhancing consumption and investment. However, excessive growth in the money supply can lead to inflation, which may harm the economy.

H1: It is suspected that the money supply has a positive effect on Gross Domestic Product (GDP) in Indonesia during the period of 1993-2023.

Inflation Theory

Inflation is the general and continuous rise in the prices of goods and services over a specific period. Excessive inflation can harm the economy by reducing purchasing power, disrupting price stability, and undermining economic planning (Keynes, 1936). According to the monetarist theory, inflation occurs when the money supply exceeds the quantity of goods and services available in the economy. Research by Rangkutty et al. (2022) reveals that moderate inflation can stimulate economic growth by increasing purchasing

power, but high inflation reduces the public's purchasing power and hinders economic growth, potentially leading to a decrease in GDP. In addition, studies by Silitonga (2021) and Pratama & Soebagiyo (2022) found that inflation exceeding the optimal threshold negatively impacts GDP.

H2: It is suspected that inflation has a negative effect on Gross Domestic Product (GDP) in Indonesia during the period of 1993-2023.

Investment Theory

Investment plays a crucial role in enhancing production capacity and driving economic growth. The Harrod-Domar theory explains that investment is a key factor in economic growth. High levels of investment can expand production capacity, create jobs, and increase output, which contributes to GDP growth. In this theory, increased investment leads to a higher capital stock, driving long-term economic growth, reflected in an increase in GDP (Domar, 1946). Research by Prawira et al. (2019) and Rizky et al. (2022) shows that increased investment, both public and private, can boost GDP through the creation of new infrastructure, technological innovations, and production efficiency. In addition, Mashita (2023) identified that foreign direct investment (FDI) significantly enhances national productivity and economic growth.

H3: It is suspected that investment has a positive effect on Gross Domestic Product (GDP) in Indonesia during the period of 1993-2023.

Exchange Rate Theory

The exchange rate is the relative price between one currency and another. Fluctuating exchange rates can affect international trade and, ultimately, a country's GDP. Depreciation of the exchange rate can enhance export competitiveness by making domestic products cheaper in international markets, while an appreciation of the exchange rate can reduce import costs, influence product prices, and potentially increase GDP (Mundell, 1961). Research by Cakra et al. (2023) indicates that exchange rate fluctuations significantly affect Indonesia's GDP, with exchange rate depreciation potentially boosting exports, although it can also raise import costs, affecting inflation. In addition, research by Lubis et al. (2017) showed that fluctuating exchange rates could suppress economic growth by reducing macroeconomic stability.

H4: It is suspected that the exchange rate has a negative effect on Gross Domestic Product (GDP) in Indonesia during the period of 1993-2023.

H5: It is suspected that the money supply, inflation, investment, and exchange rate have an effect on Gross Domestic Product (GDP) in Indonesia during the period of 1993-2023.

This study employs a quantitative approach to analyze the relationship between money supply, inflation, investment, and exchange rates on Indonesia's GDP. The relationships between these variables are illustrated in a conceptual framework, highlighting both the simultaneous and partial effects of independent variables on the dependent variable. Data from 2019 to 2023 are analyzed using multiple regression to identify causal relationships.

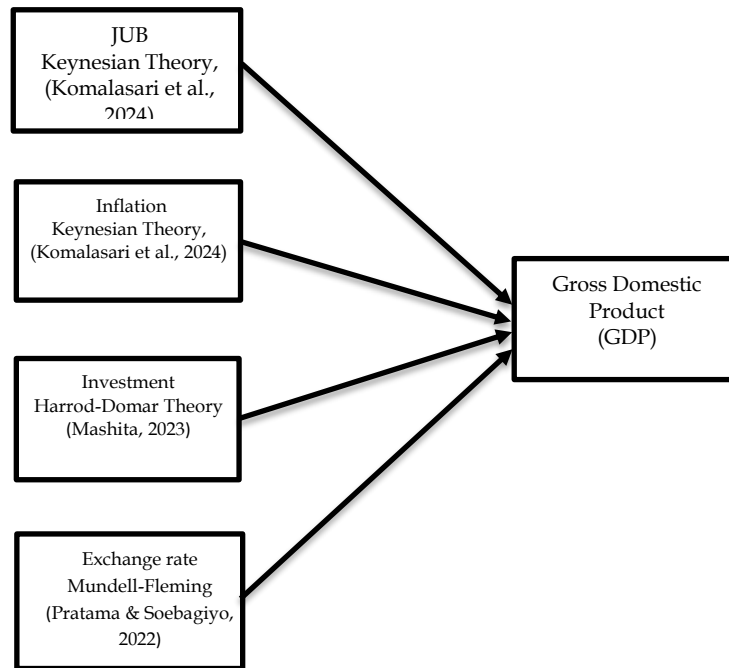


Figure 6. Conceptual Framework

METHODOLOGY

This study employs a quantitative research methodology, utilizing secondary data obtained from the World Bank. The research focuses on analyzing the impact of the money supply, inflation, investment, and exchange rates on Indonesia's Gross Domestic Product (GDP) from 1993 to 2023. The quantitative approach is used to confirm or refute hypotheses through statistical analysis. The population includes all data related to GDP, money supply, inflation, investment, and exchange rates, while the sample consists of annual data spanning 31 years, selected for its relevance and representativeness. Data collection involved documentation from reliable sources, including World Bank Open Data, along with additional literature from scientific journals, books, and previous studies.

Data were analyzed using multiple linear regression to determine the influence of independent variables (money supply, inflation, investment, and exchange rates) on the dependent variable (GDP). Prior to regression analysis, classical assumption tests were conducted, including normality, multicollinearity, heteroscedasticity, and autocorrelation tests, to ensure model validity. Statistical tests such as t-test, F-test, and determination coefficient (R^2) were applied to evaluate the significance of the relationships between variables. All data were processed using Microsoft Excel for organizing data and statistical software for analysis.

RESULTS

Requirements Analysis Test Results

Normality Test

Table 1. Normality Test Results

Jarque-Bera	0.298036
Probability	0.861554

Source: Data processed by researchers, 2024

Based on table 4.1, it can be seen that the Jarque-Bera Probability value is 0.861 where this value exceeds the alpha significance level ($\alpha = 0.05$ or 5%). So it can be interpreted that the data in this study are normally distributed.

Multicollinearity Test

Table 2. Multicollinearity Test Results

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
JUB	0.001135	4.789192	2.155599
INF	4.78E+11	2.212491	1.271147
INV	2.73E+13	2.624784	1.367911
NTR	3.98E+17	4.118473	1.734367
C	3.89E+10	10.53948	NA

Source: Data processed by researchers, 2024

Based on the test results above, it can be seen that the variable of the amount of money in circulation has a VIF value ($2.155 < 10$). The inflation variable has a VIF value ($1.271 < 10$). The investment variable has a VIF value ($1.367 < 10$). While the exchange rate variable has a VIF value ($1.734 < 10$). The values listed indicate that there is no correlation between the independent variables, so it can be said that the four variables are free from multicollinearity symptoms.

Heteroscedasticity Test

Table 3. Heteroscedasticity Test Results

Heteroskedasticity Test Breusch-Pagan-Godfrey Null Hypothesis:

Homoskedasticity			
F-statistic	2.762169	Prob.	0.0488
		F(4,26)	
Obs*R-squared	9.244835	Prob. Chi-Square(4)	0.0553
Scaled explained SS	8.018824	Prob. Chi-Square(4)	0.0909

Source: Data processed by researchers, 2024

Based on the heteroscedasticity test, if the sig value > 0.05 it can be interpreted that there are no symptoms of heteroscedasticity. Meanwhile, if the sig value is < 0.05 then there are symptoms of heteroscedasticity. Based on table 4.3, the probability value of .0553 is greater than alpha ($\alpha = 0.05$ or 5%). These results indicate that there are no symptoms of heteroscedasticity.

Autocorrelation Test

Table 4. Autocorrelation Test Results

Durbin-Watson stat	69099
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Source: Data processed by researchers, 2024

Based on Table 4.4, the results of the autocorrelation test show a Durbin Watson statistical value of 0.769099. This means that the Durbin Watson statistical value is in the range of -2 to 2 ($-2 < DW < 2$). These results indicate that there are no symptoms of autocorrelation in the model (Ghozali & Ratmono, 2017).

Hypothesis Test Results

Table 5. Multiple Linear Regression Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
JUB	0.897266	0.033693	26.63052	0.0000
INF	-1537081.	691484.2	-2.222872	0.0351
INV	25258692	5222995.	4.836055	0.0001
NTR	-2.41E+09	6.31E+08	-3.824593	0.0007
C	4420135.	197124.6	22.42306	0.0000
R-squared	0.987433	Mean dependent var	6883942.	
Adjusted R-squared	0.985500	S.D. dependent var	2807514.	
S.E. of regression	338074.2	Akaike info criterion	28.44661	
Sum squared resid	2.97E+12	Schwarz criterion	28.67790	
Log likelihood	-435.9224	Hannan-Quinn criter.	28.52200	
F-statistic	510.7270	Durbin-Watson stat	0.769099	
Prob(F-statistic)	0.000000			

Source: Data processed by researchers, 2024

t-test (Partial Test)

The t-table value, based on the degrees of freedom (dk) which is n-1, is 31-1 = 30. If the alpha confidence level ($\alpha = 0.05$ or 5%), then the t-table value is 2.04227.

1) JUB (Money Supply)

Based on the results of the t-test, it shows that the t-statistic or t-count is $26.63052 > t\text{-table } 2.04227$ with a probability value of 0.0000. This value is below the alpha significance ($\alpha = 0.05$ or 5%). So it can be interpreted that partially the amount of money in circulation has a significant effect on the Y variable.

2) INF (Inflation)

Based on the results of the t-test, it shows that the t-statistic or t-count_t is $2.222872 > t\text{-table } 2.04227$ with a probability value of 0.0351 is symbolized as negative. This value is below the alpha significance ($\alpha = 0.05$ or 5%). So it can be concluded that partially the inflation variable has a significant negative effect on the Y variable. These results reflect that every increase in inflation will be followed by a decrease in Y (GDP).

3) INV (Investment)

Based on the results of the t-test, it shows that the t-statistic or t-count is $4.836055 > t\text{-table } 2.04227$ with a probability value of 0.0001. This value is below the alpha significance ($\alpha = 0.05$ or 5%). So it can be concluded that partially investment has a significant effect on the Y variable.

4) NTR (Exchange Rate)

Based on the results of the t-test, it shows that the t-statistic or t-count is $3.824593 > t\text{-table } 2.04227$ with a probability value of 0.0007 symbolized as negative. This value is below the alpha significance ($\alpha = 0.05$ or 5%). So it can be concluded that partially the exchange rate variable has a significant negative effect on variable Y. These results reflect that every increase in the exchange rate will be followed by a decrease in Y (GDP).

F Test (Simultaneous Test)

With an alpha confidence level ($\alpha = 0.05$ or 5%), the F-table value calculated using the degrees of freedom (df) formula $df_1 = k-1 = 5-1 = 4$ and $df_2 = n-k = 31-5 = 26$ is 2.74.

According to table 5, it can be seen that F-count is $510.7270 > F\text{-table is } 2.74$ with a Prob (F-Statistic) value of $0.000000 < 0.05$ (α). Thus, all independent variables including the amount of money in circulation, inflation, investment, and exchange rate simultaneously affect the Y variable (GDP).

Coefficient of Determination (R-Square)

Judging from the R-squared value of 0.9874, it means that the independent variables are simultaneously able to provide an explanation of the dependent variable of 0.9874 or 98.74%. While the remaining 0.0126 or 1.26% can be explained by other variables outside the research model.

DISCUSSION

The Effect of the Money Supply on Gross Domestic Product (GDP)

Based on the analysis of this study, the money supply has a positive effect on GDP in Indonesia. The findings of this study align with Keynes' theory, which states that an increase in the money supply will lead to an increase in GDP. When the amount of money in the economy increases, people tend to spend it on goods and services. This consumption activity not only increases demand but also contributes to national income. In response to increased consumption, businesses will increase production, create jobs, and, in turn, raise individual income. This process creates a positive cycle that

contributes to accelerated economic growth. When the money supply in society increases, Bank Indonesia will adopt policies to lower interest rates. This condition often encourages investors to invest, which in turn can increase GDP. This study is also consistent with previous findings by Komalasari et al. (2024) and Devinda et al. (2023), which show that there is a positive influence of the money supply on GDP. When the money supply increases, people tend to use some of their funds for consumption. This encourages producers to increase the quantity of goods produced. As a result, the demand for labor and raw materials also increases, leading to higher consumption, productivity among business players, and per capita income, which ultimately increases GDP.

Similar findings are also explained in the study by Pratama & Soebagiyo (2022), which shows that, partially, the money supply has a positive effect on GDP. This is because an increase in the money supply means people will have more income to make purchases from producers. When people shop more, producers are motivated to increase production. As a result, this will increase GDP over time. According to Warkawani et al. (2020), the money supply variable, when analyzed separately (partially), shows a significant effect on GDP. In their research, the money supply influences GDP because of the function and role of money. As a main component of the economic system that controls the flow of goods and services, money serves as a crucial instrument in various economic activities. According to Bank Indonesia's analysis of the money supply, there are three main factors that influence it: the growth of third-party funds from savings, checking accounts, and deposits; credit developments based on the type of use and sector; and deposit and loan interest rates. As the economy advances, the need for money increases. An increase in the money supply encourages monetary authorities to set lower interest rates, prompting people to invest their money in various investment instruments. Increased investment leads to higher production of goods and services, which in turn contributes to GDP growth. Therefore, the growth of the money supply must be monitored carefully, and monetary policy needs to be implemented to adjust the movement of money, so that the money supply is balanced with the capacity of the economy.

The Effect of Inflation on Gross Domestic Product (GDP)

The test results indicate that inflation has a negative effect on GDP in Indonesia. This negative effect shows an inverse relationship, meaning that when inflation increases, GDP tends to decrease. This is also true in reverse. These results are in line with Keynes' theory, which explains the relationship between inflation and economic growth (Simanungkalit, 2020). According to Keynes, inflation arises because a society wants to live beyond its economic capacity, thus increasing effective demand for goods (aggregate demand) which will drive up production and GDP. However, if this demand exceeds the quantity of goods available (aggregate supply), inflationary pressure emerges (Rangkuty et al., 2022).

This finding is consistent with research by Komalasari et al. (2024), which shows that the inflation variable has a significant negative effect. As

such, a surge in inflation can impact GDP. Other studies by Devinda et al. (2023) also support this finding, showing that inflation significantly affects a decline in GDP. When inflation is high, it causes GDP to decline. However, when inflation is low or stable, GDP can grow or increase year over year. Mashita (2023) also conducted a similar analysis, indicating that inflation has a negative effect on GDP. The higher the inflation, the lower the purchasing power of the population, which adversely affects the economy. This is consistent with the statement that inflation surges have a negative effect on economic growth as they lower GDP and cause instability in the economy. This was also supported by Silitonga (2021), who found that inflation has a negative effect on Indonesia's GDP.

The Effect of Investment on Gross Domestic Product (GDP)

Based on the analysis, it can be seen that the investment variable has a positive impact on Indonesia's GDP. In line with the Harrod-Domar theory, investments made today can increase a country's capacity to supply goods and services, thus increasing GDP and accelerating economic growth in the future. The Harrod-Domar theory explains that capital investment is considered a form of expenditure that can influence the economic capacity to produce goods and services and serves to increase overall effective demand (Pratama & Soebagiyo, 2022). The results of this study align with several other studies, including Mashita (2023), which shows that FDI (Foreign Direct Investment) has a positive effect on GDP. The government must continue to encourage policies and incentives that support foreign investment. Furthermore, given the interaction between FDI and communication technology, which has a positive effect on growth, authorities must invest in the development of telecommunication infrastructure to facilitate the spread of technology. According to Govori & Fejzullahu (2020), they confirmed that technology transfer and knowledge related to FDI occur primarily in the manufacturing sector because FDI in manufacturing heavily uses intermediate inputs, creating positive externalities and enabling local producers to access a variety of inputs and thus improve their productivity.

Moreover, the study by Kambono & Marpaung (2020) shows that foreign investment increases GDP. This affects various aspects, such as employment, production of goods and services, prices, exports and imports, income, general welfare in the country, and the balance of payments, as well as economic growth. Increased investment activities can open opportunities for the creation of capital goods as a result of investment, which not only reaches the factors of production but also opens up job opportunities. The absorbed workforce can eventually reduce unemployment levels. Therefore, through the expansion of production and increased receipts on factors of production, this will lead to the growth of national output, which affects GDP. The economic growth of a country is closely linked to the role of investment in addressing various issues, crises, and economic challenges. This is because investment in various economic sectors can provide effective solutions to the economic problems experienced by the country. Both private and public investments provide many

benefits, including opening up job opportunities, increasing per capita income, reducing poverty levels, improving the welfare of society, boosting GDP growth, and providing other positive impacts (Kambono & Marpaung, 2020).

Increasing production output is a key factor in driving GDP growth. In order to accelerate a country's economic and social development, investment policies should prioritize sectors that contribute to the increase of non-oil and gas GDP and optimize investment resources to support the development of non-oil and gas sectors (Humbatova et al., 2020). Therefore, every region or area needs to invest to improve their respective production quality. Investments made in various economic sectors are expected to drive market expansion and increase the competitiveness of the products produced, thus maintaining prices that are in line with their quality. Therefore, it is expected that this investment will play a significant role in increasing national income.

The Effect of Exchange Rate on Gross Domestic Product (GDP)

The test results indicate that the exchange rate has a negative effect on GDP in Indonesia. This finding is consistent with previous research by Lubis et al. (2017), which shows that the exchange rate is negatively related to GDP. The higher the exchange rate, the lower net exports will be. This decline will affect output, which in turn will result in a decrease in GDP (Cakra et al., 2023). Similar conclusions were found in the study by Pratama & Soebagiyo (2022), which shows that Indonesia's GDP is affected by the exchange rate. According to Putra (2022), GDP is negatively affected by the exchange rate. This is because the depreciation of the rupiah and the increase in the exchange rate affect the cost of commodities, particularly imported goods and raw materials for domestic production. Ultimately, this results in higher prices, thus reducing Indonesia's GDP (Wiriani & Mukarramah, 2020).

The research by Devinda et al. (2023), which states that the exchange rate has a negative impact on GDP, also supports this study's findings. According to the Mundell-Fleming theory, exchange rates and economic growth are negatively correlated; the higher the exchange rate, the smaller the net exports (the difference between exports and imports). GDP will decrease due to this decline as it affects the level of output (Pridayanti, 2021). The value of one currency relative to another can change depending on various factors, such as changes in demand, supply, inflation, interest rate fluctuations, investment returns, and economic growth. Economic growth in Indonesia decreased by 2.07% in 2020 due to the impact of the COVID-19 pandemic (Rizvi et al., 2024). This condition caused an imbalance in the economic fundamentals, which affected Indonesia's macroeconomic condition. As a result, people tend to prefer buying products rather than saving, which weakens the rupiah (Cakra et al., 2023). The devaluation of the rupiah and high exchange rates affect the price of imported commodities and raw materials used in domestic production. As a result, GDP declines, and product prices rise, ultimately slowing economic growth (Putra, 2022).

The Effect of the Money Supply, Inflation, Investment, and Exchange Rate on Gross Domestic Product (GDP)

The F-test analysis shows that the variables of money supply, inflation, investment, and exchange rate simultaneously have an influence on GDP. The analysis indicates that the impact of these four variables is highly significant on GDP, demonstrating a strong relationship between these variables and economic growth. Additionally, the coefficient of determination shows that these four variables contribute significantly to GDP. A small portion of the effect comes from variables not included in this research model. Thus, it can be concluded that money supply, inflation, investment, and exchange rate are interrelated in influencing economic growth or GDP.

CONCLUSIONS AND RECOMMENDATIONS

Based on the data analysis and discussions, several conclusions can be drawn. First, the money supply has a positive influence on Indonesia's Gross Domestic Product (GDP) from 1993 to 2023, indicating that an increase in money supply can boost economic activity by enhancing consumption and investment. Second, inflation negatively affects GDP, suggesting that higher inflation leads to reduced purchasing power, which may harm economic growth. Third, investment positively influences GDP, as increased investment, particularly in productive sectors, can spur economic development. Lastly, the exchange rate has a negative effect on GDP, meaning that an appreciating currency may decrease net exports, adversely affecting GDP growth.

The findings also reveal that, in a simultaneous analysis, the combined effects of money supply, inflation, investment, and exchange rate significantly impact GDP. This indicates a complex interrelationship between these variables, which collectively shape the overall economic environment in Indonesia. Understanding these dynamics can guide policymakers in stabilizing the economy and promoting growth by managing the money supply, controlling inflation, encouraging investment, and addressing exchange rate volatility.

Given these conclusions, several recommendations are proposed. First, to maintain currency stability, it is crucial for the central bank and monetary authorities to coordinate with regional inflation control teams (TPID) to ensure price stability and economic balance across regions. Second, the government should focus on encouraging investment, especially among youth, by simplifying regulations and providing information to protect against illegal investments. Finally, future research should expand by incorporating additional relevant variables and extending the observation period, which would enhance both the academic and practical relevance of the study's findings.

FURTHER STUDY

Every research study has its limitations. This research is no exception. One limitation is the focus on only a few macroeconomic variables (money supply, inflation, investment, and exchange rate) while other important factors, such as government spending, external trade, and technological advancements, were not included in the analysis. Additionally, the study only covered the

period from 1993 to 2023, which may not fully capture long-term trends and shifts in the economy. Future research could expand the scope by including a wider range of variables and extending the observation period to provide a more comprehensive understanding of the dynamics influencing GDP.

Another limitation is the reliance on aggregate national data, which may overlook regional disparities or sector-specific variations in economic performance. Future studies could explore the impact of these variables at a more granular level, such as in specific provinces or industries. Furthermore, using alternative research methods, such as qualitative analysis or case studies, could provide deeper insights into the mechanisms through which these macroeconomic factors affect GDP. By addressing these limitations, future research can offer more detailed and nuanced findings that are both academically and practically valuable.

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