The Impact of Monetary Targets on The Performance of The Manufacturing Industry Sector in Indonesia 1991 – 2021

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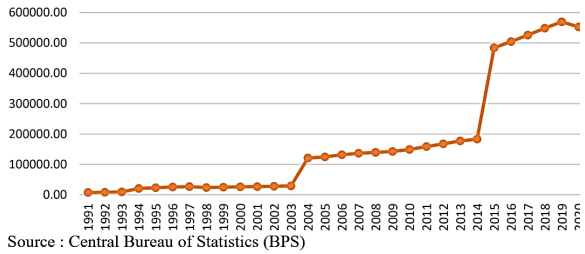
Abstract
Despite the acknowledged importance of monetary policy in shaping economic outcomes, there remains a gap in knowledge regarding the specific influence of monetary targets on manufacturing sector performance. This gap is particularly crucial in the context of Indonesia's industrial development and economic stability. By exploring the relationship between monetary targets and manufacturing output, this study aims to fill this gap and provide insights into the mechanisms through which monetary policy affects industrial production. The analysis considers key macroeconomic factors, including inflation, interest rates, exchange rates, and foreign direct investment, as potential determinants of the manufacturing industry. This study uses secondary data acquired from the World Bank and Central Bureau of Statistics (BPS) in the form of time series data. The analysis in this study uses the Ordinary Least Squares (OLS model) method and is conducted using the Eviews 10 software. The results show the exchange rate's vivacious and significant effect on manufacturing industry output. The relationship between the exchange rate and the production of the manufacturing industry is supported by considerable investment by foreign countries. As more products are purchased, demand increases, and firms are forced to increase their production. Furthermore, this study also finds that inflation shows a negative and significant value towards the output of the manufacturing industry as there are multiple factors, such as an increase in production cost uncertainty in cost and revenues, that could contribute to the decisions made by the manufacturer. Meanwhile, this study did not find any significance between the Interest rate and manufacturing industry output. Even though previous studies proved that inflation affects production factors, interest is a consideration for investors when deciding whether investing in a foreign country is worthwhile.
***Keywords**: Manufacturing Industry, Monetary Policy, GDP*
***JEL**: E52, L60*

A. INTRODUCTION

One factor that reflects economic growth is the performance of the manufacturing industry. Indonesia is ranked fourth in the world out of 15 countries whose manufacturing industries contribute more than 10 per cent to Gross Domestic Product (Sari et al., 2021). In the long term, the manufacturing industry can increase the effectiveness of human resources, which will lead to more excellent company performance, namely financial and non-financial, all of which will increase GDP as a reflection of the increase in Indonesia's per capita income.

The economic crisis that occurred in Indonesia over several years, such as in 1997/1998, showed that the growth of the manufacturing industry in Indonesia was slower than national economic growth. Hence, the proportion of manufacturing to GDP continued to decline, which also showed that the performance of the manufacturing industry sector was not always good. Eka Budiyanti (2014) stated that even though the average output growth rate is positive every year, it can be seen that in specific years, the growth of this sector has always been below Indonesia's economic growth, with an average of 4.5 per cent.



Source : Central Bureau of Statistics (BPS)

Figure 1. Manufacturing Sector GDP Growth

The performance of the Manufacturing Industry can be seen by understanding an indicator, namely the Manufacturing Sector GDP Growth Rate. Based on data for 1991 – 2021, the manufacturing industry Sector is experiencing multiple trends, including a downward trend, even experiencing its worst point in 2020 caused by a pandemic worldwide. The economy of various countries, including Indonesia, has reached their lowest points due to the pandemic.

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The growth of the manufacturing industry over the last few decades has always been supported by resource-based sectors, which are very vulnerable to external factors such as investment, exports, and global crises. Other than that, multiple possibilities could drive the growth of the manufacturing industry. According to Budiyanti (2014), At the macro level, there are three factors, namely (a) unconducive macroeconomic conditions, (b) poor quality of public institutions in carrying out their functions as facilitators and service centres, and (c) weak technology development policies in facilitating the need for increased productivity.

In addition to the mentioned issues, external variables like the macroeconomic environment also affect the performance and value of the company. Ahmad and Ramzan (2016) stated that these macroeconomic factors generate financial challenges for businesses, which can affect performance in the industry. The changes in the performance of an industry can be seen in the sector's output. Egbunike and Okerekeoti (2018) state that Inflation, GDP growth rate, exchange rate, and various other indicators are often used to assess the industry's performance. These variables can also function as essential determinants of economic growth.

Before the pandemic, Indonesia's manufacturing industry grew steadily due to

strong domestic demand and increased investment. Key sectors like automotive, electronics, textiles, and food processing drove this growth. Indonesia's manufacturing industry contributed significantly to economic growth and job creation. However, the COVID-19 pandemic in 2020 brought unprecedented challenges, disrupting production, supply chains, and consumer demand.

During the COVID-19 pandemic, Indonesia faced a complex and evolving situation characterized by disruptions to supply chains, fluctuations in demand, and the need for adaptation and resilience to navigate uncertain economic conditions. Restrictions on movement, supply chain interruptions, and reduced consumer demand due to lockdown measures led to a slowdown in production and economic activity across many sectors. Like other sectors, the manufacturing industry experienced declines in output and productivity as companies grappled with workforce shortages, logistical constraints, and decreased consumer spending. Sectors heavily reliant on international trade and export markets were particularly vulnerable to disruptions in global supply chains and fluctuations in demand. While some segments of the manufacturing industry, such as pharmaceuticals and essential goods production, saw increased demand during the pandemic, others, like automotive and electronics, faced declines as consumer purchasing power waned and production operations were scaled back.

Like other countries trying to recover from uncertain economic conditions, government interventions, such as stimulus packages and support measures for businesses, have helped mitigate some economic impacts on the manufacturing sector. Additionally, efforts to adapt production processes, implement health and safety protocols, and explore new markets or product lines helped some manufacturers weather the challenges posed by the pandemic.

B. LITERATURE REVIEW

Monetary policy is the action performed by a monetary authority to influence the amount or variables of the monetary economy as well as the course of the economy to achieve predetermined goals. As referred to by Juhász, Lane, and Rodrik (2023), Industrial policies are delineated as government strategies deliberately aimed at reshaping the economic activity structure to fulfil specified public objectives. In practice, the ideal development of economic activity is macroeconomic stability, expressed in price stability (low inflation rate), increased actual production developments (economic growth), and abundant accessible employment possibilities.

The monetary policy described above is a component of macroeconomic policy, which is usually implemented by considering the business cycle and other essential economic elements.

According to Ahmad and Ramzan (2016), these macroeconomic challenges create financial difficulties for industries, which can influence industry performance. Some policy tools in the monetary area appear to affect the economy's growth, such as the exchange rate, interest rate, and inflation. Barakat et al. (2016) state that the key factors of economic growth are the rate of inflation, the exchange rate, and various other variables.

The rupiah exchange rate has a substantial impact on the output of the manufacturing industry. Exchange rate fluctuations will affect the firm's competitiveness since they affect the pricing of a different currency, resulting in shifts in earnings and equity (Barakat et al., 2016). This is based on the effect of the exchange rate on trade through 1) fees and prices that ultimately result in relative price changes in trading and 2) exchange rate volatility itself will create risk in transactions due to the difference in the spot value of the transaction with the spot rate of payment.

The interest rate is an indicator of a country's economic activity that influences the flow of banking financial flows, inflation, investment, and exchange rate fluctuations. According to Reily and Brown (2003), The pure interest rate is the exchange rate between present and future consumption. The central bank's rise in interest rates will prompt market participants and investors to take advantage of the opportunity to raise production and invest. In a volatile circumstance, individuals prefer a higher interest rate than the pure time value to compensate for the uncertainty (Barakat et al., 2016).

The growth of the industrial sector, which has been capable of withstanding the current economic storm, cannot be isolated from the role of the money supply. Money supply is a sensitive variable; its quantity and velocity dictate economic activity rate (George et al., 2018). Inflation can occur when a central bank fails to regulate the amount of money in circulation. Inflation can be generated by variables such as excess money in circulation (Wulan and Nurfaiza, 2015).

Furthermore, the Inflation variable, which is also a monetary target, Inflation is described as a long-term increase in an economy's general price level of goods and services. It is typically brought on by some circumstances, including an increase in the money supply, rising manufacturing costs, and changes in customer demand or external factors such as fluctuations in energy prices or international exchange rates that are not in balance with the growth of the economy (Ahwal and Danur, 2021).

Wulan and Nurfaiza (2015) stated that Inflation is thought to be the root cause of the disruption of the stability of the market price of products because of expensive inputs. So, when Inflation as an external component is out of control, it influences the industry's internal factors, such as rising production costs, declining supply, and less purchasing power. With inflation, demand for specific goods experiences a more significant increase, which then encourages an increase in the production of these goods (Nurkholifah and Abdullah, 2010). This increase in the production of goods will, in turn, change the existing pattern of allocation of production factors, and inflation will result in the allocation of production factors becoming inefficient.

However, exciting facts regarding the relationship between inflation and production output exist. The study conducted by Nurkholifah and Abdullah (2010) states that inflation can cause an increase in production because, in inflationary conditions, usually, the rise in the price of goods precedes the increase in wages so that entrepreneurs' profits increase, which can encourage an increase production. However, if the inflation rate is high enough (hyperinflation), it can decrease output. In conditions of high inflation, the value of real money falls drastically, and people tend to dislike cash, which is usually followed by a decline in the production of goods (Nurkholifah and Abdullah, 2010).

Foreign Direct Investment is another factor that isn't part of monetary targets but significantly influences manufacturing performance. The government often implements policies to attract FDI, such as offering tax incentives, subsidies, and a streamlined regulatory process. These policies can create a conducive environment for investment and improve manufacturing performance over time.
According to Caves (2007), the positive effects of the economy will encourage foreign investors to invest money in the nation. With FDI, it will increase productivity, transfer technology, and knowledge, reduce unemployment, and external access markets. The graph below shows the redistribution of domestic income for Nation 1 and Nation 2 due to foreign investment from the source country to the host country. The assumption is that labour and capital are fully

utilised before and after the flow of foreign investment (Salvatore, 2013).

One of the primary ways foreign direct investment (FDI) positively impacts the manufacturing industry is through increased capital and technology transfer. Multinational corporations often bring advanced technologies, managerial expertise, and efficient production methods into the host country (Eze et al., 2019). This infusion of knowledge and resources can significantly enhance the productivity and output of the domestic manufacturing sector.

Eze et al. (2019) on their findings stated that FDI can lead to the establishment of new manufacturing facilities or the expansion of existing ones. This expansion creates jobs within the manufacturing industry and its associated supply chains. Higher employment levels contribute to economic growth and increase consumer spending, potentially boosting the demand for manufactured goods (Eze et al., 2019). Also, FDI can provide domestic manufacturers access to the investor's global distribution networks and marketing expertise. This access to international markets can increase demand for domestically manufactured goods, and establishing new factories or expanding existing ones can lead to increased hiring and reduced unemployment rates (Eze et al., 2019). More workers in the manufacturing industry can lead to higher production levels to meet market demands. The manufacturing industry is the main support for industrial development in Indonesia. Until 2018, the industrial sector continued to be the main driver of Indonesia's economic growth, followed by the agriculture sector (BPS, 2019). It is possible to determine a country's national industry's progress by examining how its manufacturing sector is developing. As stated in the economic loop, an increase in industrial production will increase GDP since it will enable the industry to produce more output (Hidayatno et al., 2018).

A waste of desperately scarce capital, skills, and time begins without a thorough appraisal, which could have revealed an industry's shortcomings. The government can avoid these issues by refraining from direct investment in industry or by establishing that no sector will be financed unless a thorough investigation by qualified and impartial people shows it to be economically sound. Chang and Andreoni (2023) stated in their literature that by developing a joint vision and credible expectations among private companies around future public investments, the government reduces the uncertainty faced by companies and enables the creation of new markets. Manufacturing companies must maintain standard procedures and be able to adapt to changing surroundings to remain viable and competitive (Soosay et al., 2020).

C. RESEARCH METHODS

This section contains at least a description of article writing methods such as data collection techniques, data processing techniques and variable measurement. The study's data collection processes used websites, theses, journals, and other sources. The data used in this study are annual statistics for 31 years (1991-2021). The data in this study were acquired from institutions and agencies, including Manufacturing Industry GDP data obtained from the Central Statistics Agency (BPS) website. The World Bank and Central Statistics Agency (BPS) website obtains exchange rate, inflation, foreign direct investment, and interest rate data. Table 1 provides information about how the variables utilized in this study were operationalized.

The equation should apply the Microsoft equation, not the cropping file or image. Based on the outcomes of linear regression estimation utilizing the traditional Ordinary Least Square (OLS) approach, data analysis from this study model was conducted with the help of Eviews 10 software.

Table 1. Variables

No	Variable	Unit	Notation
1	Inflation	%	INF
2	FDI	%	FDI
3	Interest Rate	%	IR
4	Exchange Rate	IDR against USD	EXRATE
5	GDP SI	Billion Rupiah	GDP SI

The model specification utilized in this study is a modified version of a model created from some earlier journals and works of literature. The models developed from several journals and literature are as follows:

$Y = \beta_0 + \beta_1X1 + \beta_2X2 + \beta_3X3 + \beta_4X4 + e$

Which is then converted into the model below so that it is easier to comprehend:

$GDPSI = \beta_0 + \beta_1INF + \beta_2FDI + \beta_3IR + \beta_4EXRATE + e$

The formulation is further converted into logarithmic form using the following equation:

$lnGDPSI = \beta_0 + \beta_1INF + \beta_2FDI + \beta_3IR + \beta_4EXRATE + e$

Where

lnGDPSI	:	Manufacturing Sector GDP
INF	:	Inflation
FDI	:	Foreign Direct Investment
IR	:	Interest Rate
EXRATE	:	Exchange Rate
β_0	:	Constant
β_1	:	INF Regression Coefficient
β_2	:	FDI Regression Coefficient
β_3	:	IR Regression Coefficient
β_4	:	EXRATE Regression Coefficient
e	:	Disturbance Error

The Ordinary Least Square (OLS) regression approach will be used in this study's data analysis to create a regression equation. The analytical approach is utilized to generate accurate model parameter values. According to several studies, the OLS approach consistently produces the most accurate and reliable linear estimator when used in regression analysis (Best linear unbiased estimator) or BLUE.

However, there are several prerequisites for the research to be considered BLUE, including an unbiased linear model with the minimum level of variance, which can be referred to as an efficient estimator. The traditional assumption test must be performed considering the use of multiple linear regression analysis in this study. The conventional assumption test must be performed when using linear regression analysis.

The findings of regression analysis and tests like the t and F tests will be invalid or skewed if these assumptions are broken, such as when the regression model is not standard, multicollinearity occurs, heteroscedasticity happens, or autocorrelation occurs. Multiple regression can be performed after the study's model fulfils the necessary criteria, namely passing the classical assumptions. These requirements include the need for normally distributed data and the absence of multicollinearity, autocorrelation, and heteroscedasticity. The method used to test the deviation of the classical assumptions is as follows.

A normality test was conducted to see the assumption of the simultaneous OLS model data being normally distributed. A normality test determines if the data distribution is normal. Normal data distribution, where the mean and median values are the data centres. If the variables are employed as independent or dependent variables, the normality test is performed to assess whether or not they have a normal distribution. A normal or nearly normal data distribution is a good indicator of a regression model. The steps used in the Eviews 10 program to test the variables' normality start by opening the regression model output sheet.

Table 2. Descriptive Statistics

	From	To	Obs	Mean	Std.Dev.	Min.	Max.	Unit
INF	1991	2021	31	8.8119	9.9927	1.5601	58.4510	%
FDI	1991	2021	31	1.2767	1.3769	-2.7574	2.9161	%
IR	1991	2021	31	5.3669	7.3151	-24.6001	15.6069	%
EXRATE	1991	2021	31	8842.851	4112.666	1950.318	14582.2	IDR/USD
GDP SI	1991	2021	31	11.3452	1.3931	8.9216	13.2555	Billion Rupiah

Source: Secondary data Processed by the Author (2023)

Multicollinearity testing determines whether the regression model found a link between independent variables. In essence, multicollinearity is a near-perfect linear relationship between X variables. Multicollinearity can be found by looking at the correlation matrix's observable correlation coefficient between independent variables. Multicollinearity is detected if the correlation coefficient is higher than (0.8).

Autocorrelation is a condition where the confounding variable error in a certain period is correlated with the confounding error of another period. By making this assumption, it is confirmed that the independent variable, solely and not the nuisance variable, adequately explains the dependent variable's value (Gujarati, 2006). The method often used to determine the existence of autocorrelation is the Breusch-Godfrey method. The Breusch Godfrey method is better known as the Lagrange Multiplier (LM) test. In this method, whether autocorrelation exists depends on the selected slack. Akaike and Schwarz criteria are criteria used to determine the length of the residual lag.

A regression that follows the homoscedasticity assumption (i.e., heteroscedasticity does not exist) or has the same error range is referred to as a good regression model. The White test can be used on Eviews 10 to determine whether a regression model has heteroscedasticity. Heteroscedasticity can be indicated by the chi-square probability, which is compared with the degree of confidence. If the probability value of Chi-square is greater than the confidence level, then there is no symptom of heteroscedasticity. When the Chi-square probability value is smaller than the degree of confidence, heteroscedasticity is identified in the model. Manually, this test is performed by regressing the squared residual (ut^2) with the independent variable. Get the value of R^2, to calculate χ^2, where $\chi^2 = n \times R^2$. The criteria used only if χ^2 table is smaller than the value of Obs*R-squared, then there is a symptom of heteroscedasticity in the research equation.

How well can the sample regression function estimate the value using its Goodness of Fit? It can be measured statistically using the t statistic, the F statistic, and the coefficient of determination (R2). The statistical computations are considered statistically significant if the test result falls within the critical range (where H0 is rejected). On the other hand, the statistical test value is deemed to be not significant if it falls within the range where H0 is accepted (Ghozali, 2006). The Hypothesis test includes the Coefficient of Determination, F-Statistic Test, and t-Statistic Test.

D. RESULTS AND DISCUSSION

The statistical description contains data based on observations of the mean, standard deviation, minimum, and maximum variables studied to see an overview of the data used in the model.

Several points need to be considered based on the results of descriptive statistics in Table 1.

The average inflation value in Indonesia is 8,81%, with a maximum value of 58,45% and a minimum of 1,56% from 1991 to 2021. According to the result, the average value of the development of FDI is 1,2% from 1991 to 2021. The highest value of growth is 2,9%, and the lowest growth value is –2,7%. The distribution of the data variance is away from the mean value as the Standard Deviation is higher than the mean value.

Interest Rates have an average value of 5,3% of 31 observations from 1991 to 2021. The maximum value is 15,6% while the minimum is –24,6%. Manufacturing GDP has an average growth value of 11,3%, with the lowest growth value of 8,9% and the highest growth value of 13,2%.

Table 3. Ordinary Least Square Regression Results

	Coefficient	Std.Error	t-Stat	Prob.
C	8.9049	0.2719	32.7391	0.000
INF	-0.0349	0.0098	-3.5659	0.0014
IR	-0.0209	0.0130	-1.5983	0.1221
EXRATE	0.0002	1.72E-05	15.9988	0.0000
FDI	0.3319	0.0499	6.6430	0.0000
R-sq	0.9430	F-stat		107.5907
Adj. R-sq	0.9342	Prob (F-stat)		0.0000

Source: Secondary data Processed by the Author (2023)

As explained in the previous chapter, the t-test results will provide the estimation outcomes of partial testing on each independent variable, and testing the Ordinary Least Squares analytic method will clarify the results of these tests. The results of the F-test show the simultaneous testing of all independent variables, and the adjusted R2 test results show the percentage of influence of all independent factors on the dependent variable.

Distributing the regression coefficients into the formulation based on the table above generated the following regression equation:

$$LGDPSI = 8.9049 - 0.0349\,INF - 0.0209\,IR + 0.0002\,EXRATE + 0.3319\,FDI$$

In the test results above, the Adjusted R result was 0.9342. The adjusted R indicates the influence of the independent variables on the dependent variable. According to Ghozali (2016), a small coefficient of determination value means that the ability of the independent variables to explain the dependent variable is minimal. On the other hand, if the value is close to 1 and away from 0, the independent variables can provide all the information needed to predict the dependent variable.

A correct regression model has a standard or nearly normal data distribution. By comparing the Jarque Bera (JB) value with a significant level, it can be determined whether the residuals are regularly distributed.

Table 4. Normality Test Results

Jarque Bera test for Normality		
Variable	Observation	Prob>z
Res	31	0,8366

Source: Secondary data processed by the Author (2023)

In the results obtained from Table 3, the data have a Prob > z value of more than 0.05, which means the data have a normal distribution. Based on Gujarati and Porter (2009), According to the central limit theorem, when the sample size is 100 or greater, the violation of normality is not an insignificant issue.

Shrestha (2020) states three multicollinearity test techniques: testing the coefficient relationship, the Variance Inflation Factor (VIF), and the eigenvalue method. The VIF is used in this study to find correlations between variables and assess how strong a link exists between variables.

Table 5. Multicollinearity Test Results (VIF)

Variable	VIF
FDI	1.1129
EXRATE	1.1801
IR	2.1559
INF	2.2588
VIF Mean	**1.6619**

Source: Secondary data processed by the Author (2023)

All variables have an average VIF value of 1,67. The Inflation variable obtains the highest VIF value of 2,25, and the lowest value is accepted by the foreign direct FDI variable with a value of 1,11. According to Shrestha (2020), the value of multicollinearity is used as one of the determinants of how well each factor can be used to understand the response variables in statistical models best. If the multicollinearity test results own a value above 10, these results require further observations. Overall, based on the study results, the problem of multicollinearity was not found.

To detect autocorrelation in this linear regression model, the method is commonly used to perform autocorrelation tests. Namely, the Durbin-Watson Test (DW-test) is used. This method can be applied using Eviews 10 software. The results of applying this method are summarized in the following table:

Table 6. Autocorrelation Test Results

H_0: No first-order Autocorrelation	
Prob. F(2,24)	0.5326
Prob. Chi-Square(2)	0.4641

Source: Secondary data processed by the Author (2023)

The P-value is determined at 0,4641 based on the autocorrelation test results, indicating the value is more than alpha (0,4641 > 0,05). The null hypothesis is then accepted, resulting in an autocorrelation not detected in the regression model.

To detect a heteroscedasticity problem in the linear regression equation, the researcher uses the White method, which includes no cross terms and cross terms. The detection was carried out using Eviews 10 software. The processed results with the White method are summarized in the table 7.

The test results above reveal that the model error is free of heteroscedasticity, as evidenced by a significant P-value at the 5% level. Baltagi et al. (2013) assume homoscedasticity disorder when heteroscedasticity results in a consistent but inefficient regression coefficient estimate. There are a few techniques to lessen heteroscedasticity's effect on inference, such as using the standard error test that is consistent with calculating the estimated linear regression parameters.

Table 7. Breusch-Pagan Heteroscedasticity Test Result

Breush-Pagan / Cook-Weisberg test for Heteroscedasticity	
H_0: Constant Variance	
Prob. F(4,26)	0.2693
Prob. Chi-Square(4)	0.2470

Source: Secondary data processed by the Author (2023)

The sample regression function's Goodness of Fit may be utilized to determine its accuracy in estimating the actual value. It may be evaluated statistically using the t statistic, the F statistic, and the coefficient of determination (R2). The statistical calculation is considered statistically significant if the statistical test value is in the critical region (the region where H_0 is rejected). If the statistical test value is in an area that does not reject H_0, on the other hand, it is referred to as being insignificant (Ghozali, 2006).

The coefficient of determination measures how much variation or change in the independent variable can be associated with variations or changes in the dependent variable.

Table 8. Coefficient of Determination Test Result

R-sq	
R-squared	0.9430
Adj R-squared	0.9342

Source: Secondary data processed by the Author (2023)

The R-squared and the adjusted R-squared are derived from the coefficient of determination results, in which the R-squared receives a value of 0.9430 or 94,30 per cent of the variance within the panel units does the model account for, and 5,70 per cent variance outside the regression equation influences the value. The

result derived from the adjusted R-squared 0.9342 means that the regression model accounts for 93,42 per cent of the variance between distinct panel units, with the remaining 6,58 per cent of variance influencing the value.

The model goodness test, often known as the F test, determines if the independent variable affects the dependent variable as a whole. This test compares the estimated F probability value to a significance level of 5% or 0.05.

Table 9. Summary of The F-Test

Simultaneous Statistical Test Result	
F-statistic	107.5907
Prob(F-statistic)	0.0000

Source: Secondary data processed by the Author (2023)

The results of the simultaneous statistical test or the F test indicate the variables in the test. This instance considers the simultaneous influence of exchange rate, inflation, interest rate, and foreign direct investment on manufacturing Sector GDP. The Prob (F-statistic) value shows a result of 0.0000, indicating a simultaneous effect marked by a result below alpha (0,05).

The t-test examines whether the independent variables in the regression equation are individually significant in estimating the dependent variable's value. The results of the partial statistical test can be seen through the Prob value to test the hypotheses formed in this study. In a one-tailed assumption, using division in one direction is possible. The results of partial statistical test obtained the following results:

Table 10. t-Test Summary

	Coefficient	**Std.Error**	**t-Stat**	**Prob.**
C	8.9049	0.2719	32.7391	0.000
INF	-0.0349	0.0098	-3.5659	0.0014
IR	-0.0209	0.0130	-1.5983	0.1221
EXRATE	0.0002	1.72E-05	15.9988	0.0000
FDI	0.3319	0.0499	6.6430	0.0000
R-sq	0.9430	F-stat		107.5907
Adj. R-sq	0.9342	Prob (F-stat)		0.0000

Source: Secondary data Processed by the Author (2023)

Based on the regression output data identified in the table above, it can be seen that the probability of success if t-counts for variables FDI, exchange rate, interest rate, and inflation is 6.6430, 15.9988, -1.5983, and -3.5659. The t-table value used has an alpha level of $\alpha = 0.05$ and a degree of freedom (df) $n – k = 31 – 5 = 26$, so the t-table value is 1.7056. Meanwhile, the FDI, exchange rate, interest rate and inflation variables show coefficient figures of 0.3319, 0.0002, -0.0209, and -0.0349.

Based on the t-test results, one may conclude that the variables of foreign direct investment (FDI) and exchange rate (EXRATE) have a significant influence on the manufacturing industry output (GDP SI) variable. Specifically for inflation, the t-statistic value h0 is rejected, which means that inflation has a non-significant effect on GDP SI. In contrast, the variable Interest Rate has no statistically significant impact on the GDP SI variable.

Findings

Monetary policy tools are often interconnected. Central banks adjust interest rates to achieve inflation and exchange rate targets. For instance, a central bank might raise interest rates to combat high inflation, which can also attract foreign capital, strengthening the currency. These interest rate adjustments can impact borrowing costs for manufacturers, affecting their production decisions.

In short, these variables are interconnected and can collectively influence the manufacturing industry's output. Their complex interactions can vary depending on the economic environment, policy decisions, and global conditions.

Based on this study test result, the analysis obtained from the impact of Inflation on manufacturing output can be seen in the coefficient value of –0.0349, which shows a negative and significant effect on manufacturing

output with a substantial impact of 5 percent supported by the Prob value of 0.0014 or less than alpha (α = 0.0014 < 0.05). If the inflation rate increases by 1%, the average GDPSI will decrease by –0.0349% per year, assuming IR, EXRATE, and FDI are considered constant.

However, the results show the opposite, compared to previous literature, which mostly agrees that inflation affects the production output of the manufacturing industry, as in the statement of Wulan and Nurfaiza (2015) that states that inflation is thought to be the root cause of the disruption of the stability of the market price of products because of its impact on rising production prices, decreasing supply, and weakening purchasing power.

The examination outcomes of this study reveal that the analysis concerning the influence of Interest Rate on manufacturing output is reflected in a coefficient value of -0.0209, which shows a negative and non-significant effect on manufacturing output on a significant impact of 5 percent supported by the Prob value of 0.1221 or more than alpha (α = 0.1221 > 0.05). This indicates that a 1% increase in the interest rate will lead to an annual average decrease of -0.020921% in GDPSI, assuming INF, EXRATE and FDI are considered constant.

The analysis of the Interest Rate appeared to be in line with the studies that have been explored by Nwokoro (2017), which also found that the interest rates have no significant effect on manufacturing output, indicated by the correct sign (negative) as stipulated by its expectation and statistically not significant. This study is not in line with the statement of Prihatin and Aisyah (2022), which stated that the increase in interest rates by the central bank would allow market players and investors to take advantage of this moment to increase production and investment.

Derived from the examination results of this study, the analysis regarding the influence of exchange rate on manufacturing output is evidenced by a coefficient value of 0.0002. This value signifies a positive and statistically significant impact on manufacturing output, with a notable significance level of 5 percent supported by the Prob value of 0.0000 or more than alpha (α = 0.0000 < 0.05). If the EXRATE variable increases by 1%, GDPSI will increase by 0.0002% per year, assuming INF, IR, and FDI are considered constant.

Drawing upon numerous studies investigating the correlation between exchange rate and manufacturing output, the findings consistently demonstrate a substantial impact on the performance of the manufacturing industry, which is in line with the statement of Kilicarslan (2018) which states that stated that to make an investment choice, investors will begin by examining whether it is worthwhile to purchase in quantities while the price is reasonable. This is understandable because as the exchange rate appreciates or depreciates, it definitely will be a consideration for investors when deciding if they want to invest.

Furthermore, the influence of the exchange rate on manufacturing output is also supported by Astuti and Ayuningtyas (2018), who stated that native currency depreciation can lower production costs and enable international businesses to operate more profitably and efficiently. Thus, it can be assumed that foreign companies' main goal is to re-export rather than to provide services for the host country.

The examination outcomes of this study reveal that the analysis regarding the influence of foreign direct investment on manufacturing output is evident through a coefficient value of 0.3319. This value indicates a positive and statistically significant impact on manufacturing output, with a notable significance level of 5 percent supported by the Prob value of 0.0000 or more than alpha (α = 0.0000 < 0.05). If the variable FDI increases by 1%, then GDP SI will

increase by 0.3319% per year, assuming INF, IR, and EXRATE are considered constant.

Based on several studies examining the relationship between foreign direct investment and manufacturing output, the outcome demonstrates a notable impact on the manufacturing industry's output, aligning with Blanchard (2017), who proved Foreign Direct Investment encompasses the acquisition of physical assets. This study demonstrated that FDI does affect the output of the manufacturing industry for a similar reason to how the exchange rate influences the output of the manufacturing industry. The FDI is necessary for the investor to decide whether it is worthwhile to invest in a firm. After conducting regression and various tests, it was determined that the most influential independent variable affecting manufacturing industry output was foreign direct investment (FDI).

Nevertheless, it's important to note that FDI was not one of the monetary targets discussed in Chapter II. On the other hand, FDI is an investment made by a company or individual from one country to another to take over or own shares in a company operating in the country of investment. FDI is a part of direct investment, which can impact economic growth and the development of specific sectors in a country. However, FDI is not a monetary policy target but rather an international investment and trade policy aspect.

Therefore, the author emphasises that the independent variable, the Exchange Rate, emerges as the most influential among the monetary targets affecting manufacturing industry output. It should be acknowledged, however, that the FDI and the exchange rate have similar reasons for deciding the output of the manufacturing industry. Exchange rates directly impact a country's export competitiveness. When the domestic currency depreciates, the country's goods and services are cheaper for foreign buyers, potentially boosting exports. A favourable exchange rate for the manufacturing industry, which often relies heavily on exports, can lead to increased demand for its products, thus positively affecting output.

Also, Exchange rate management is a tool central banks use to control inflation. A stable exchange rate can help keep imported inflation in check, which is crucial for maintaining price stability in the manufacturing sector. High and volatile inflation can disrupt production and erode consumer purchasing power.

E. CONCLUSION

This study aims to determine the role of monetary targets in influencing the performance of the manufacturing industry using Ordinary Least Square (OLS) regression methods with 1991 – 2021 annual data obtained from the World Bank database and the Department of Statistics.

The findings revealed the exchange rate's noteworthy and constructive impact on the manufacturing industry's output. Derived from the examination results of this study, the analysis regarding the influence of exchange rate on manufacturing output is evidenced by a coefficient value of 0.0002. This value signifies a positive and statistically significant impact on manufacturing output, with a notable significance level of 5 percent supported by the Prob value of 0.0000 or more than alpha ($\alpha = 0.0000 < 0.05$). This suggests that alterations in the exchange rate can potentially draw the manufacturing industry's output. The correlation between exchange rate and manufacturing industry output is reinforced by substantial foreign investment, resulting in heightened product acquisition, increased demand, and compelling firms to escalate their production levels.

Like previous literature in this study, this study contributes by providing empirical evidence of the role of monetary targets. The practical implications of the study’s findings are

noteworthy as the policymakers can use this empirical evidence to design more effective economic policies to support the manufacturing industry. Industry practitioners can also leverage these insights to inform strategic decisions regarding production levels, investment priorities, and market expansion strategies.

However, it is essential to acknowledge certain limitations of the study. This study only calculates the external factors and does not analyse the internal factors, such as production and employment, that might affect the manufacturing industry. This narrow focus may limit the findings' comprehensiveness and applicability to real-world scenarios. Additionally, the study's reliance on annual data may overlook short-term fluctuations and fail to capture the full complexity of the relationships under investigation. In light of the study's findings and limitations, several avenues for future research are worth exploring. Future studies could incorporate analyses of Foreign Direct Investment (FDI) and Domestic Direct Investment (DDI) specifically tailored to the manufacturing sector. This nuanced approach would provide a more comprehensive understanding of the impacts of investment flows on manufacturing industry dynamics. Additionally, researchers could delve deeper into the role of internal factors such as production processes, technology adoption, and workforce dynamics in shaping manufacturing performance. By addressing these areas in future research, we can further enrich our understanding of the factors driving industrial growth and resilience.

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