

**THE EFFECT OF INFLATION, EXPORT-IMPORT AND
INTEREST RATES ON SALES THROUGH GDP/GDP
MODERATION VARIABLES
(Case Study of a Pharmaceutical SOE Holding Company in 2018-
2022)**

Taufik Akbar

BIOFARMA

Email: taufik.akbar@biofarma.co.id

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Abstract

This study aims to determine the effect of inflation, export-import, interest rates on sales in state-owned pharmaceutical holding companies with moderating variables of Gross Domestic Product (GDP). The type of research used is quantitative with primary and secondary data sources related to inflation, export-import, interest rates, GDP and sales. The data used is a combination of time series data for 2018-2022 and cross-section which is then referred to as panel data. The study was also conducted in more depth using a research instrument in the form of a questionnaire with respondents as many as six people who had positions as department heads in the parent company of Pharmaceutical SOEs. Data analysis techniques use multiple linear regression analysis and Moderating Regression Analysis. The results showed that simultaneously the variables of inflation, export-import and interest rates had a positive and significant effect on sales. Meanwhile, the moderation variable, namely GDP, partially affects sales, but cannot moderate the influence of inflation and export-import both in terms of strengthening and weakening the influence of the independent variable on the dependent variable. Other research results show GDP can be a pure moderator of the influence of interest rates on sales. This research has limitations, namely the variables used are macro, therefore for future research it is expected to be able to conduct research using micro variables in the economy.

Keywords: Inflation, Export-Import, Interest Rate, GDP, Sales and Holding Company of SOEs

Introduction

The establishment of a pharmaceutical holding in Indonesia is the influence of global health sector trends and diseases in developing countries that are changing with high intensity needs, so

a comprehensive solution is needed for both companies and consumers in the pharmaceutical industry. The purpose of establishing a pharmaceutical holding is an effort by the government and companies to strengthen the independence and performance of the national pharmaceutical industry, increase product availability, create joint innovations, increase raw material efficiency and increase business scale. This state-owned pharmaceutical holding company consists of PT. Bio Farma as the parent company and PT. Kimia Farma – PT. Indofarma as a member of the holding. In terms of financial economy, the potential of SOEs in the pharmaceutical sector has great potential to earn income for the state. Through the activities of the holding company, business development is considered to be stronger.

An important aspect to assess the development of the company is through its sales performance, through this aspect the company and the government can make assessments and make decisions in the future. Based on data from the annual report of PT. Bio Farma In 2018 the company's sales performance in 2018 reached Rp2.04 trillion, while in 2019 PT. Bio Farma recorded net sales of IDR 2.54 trillion. Then in 2020, sales performance reached IDR 14.32 trillion. This has increased because in 2020 the pharmaceutical holding company has been legalized so that the sales performance record has increased significantly. In 2021, the pharmaceutical holding managed to record net sales of IDR 43.44 trillion. However, it experienced a decline in sales in 2022 which only reached sales figures of IDR 22.1 trillion, down 29.5% from 2021.

This decline in sales is inseparable from macroeconomic conditions that affect sales of pharmaceutical companies in Indonesia. Macroeconomic factors affecting sales performance may be indicated by inflation, interest rates, foreign economic policies and economic cycles. Meanwhile, according to Mankiw (2016) macroeconomic indicators can be reviewed in terms of interest rates, gross domestic product, condumen price index and balance of payments. According to Bank Indonesia, inflation instability can create uncertainty for economic actors at the time of making decisions, resulting in a decrease in national economic growth. High inflation is a highlight for business people and the government, the impact has multiple effects before the crisis, including a decrease in national income, an increase in unemployment, a decrease in exports and an increase in imports, and a poor balance of payments position (Mankiw, 2016).

Another factor that affects the level of sales is export-import. Export-import describes foreign market competition. Domestically, it is important to carry out market efficiency activities and business productivity, so that it can be ensured that companies are able to produce goods demanded by the market efficiently. Then another factor is interest rates. The operational objectives of monetary policy can be reflected by interest rate developments. Interest rate movements are expected to be followed by an increase in investment value so as to boost the company's business.

High and low productivity of domestic businesses will have an impact on national income which describes the level of economic growth. Economic growth is related to total output (Gross Domestic Product). The link with the pharmaceutical industry is that a large level of GDP can influence government policies in providing care and paying attention to better health needs. Based on this description, this study intends to conduct a more in-depth study and analysis with the title *The Effects of Inflation, Import-Expo and Interest Rates on Sales through GDP / GDP Moderation Variables (Case Study on Pharmaceutical SOE Holding Companies in 2018-2022)*.

Literature Review

Kotler (2017) in his book entitled "Marketing Management" states the meaning of sales is a part of the managerial process that cannot be missed by companies that produce products, this is done as an effort to achieve profits and maintain the company's existence. Indicators of sales according to Kotler and Keller (2017), are price, promotion, product quality, distribution channels.

Meanwhile, inflation is one of the indicators in macroeconomics, having an influence on sellers. Inflation is very influential because it will determine market prices. In pharmaceutical holding companies, inflation is one of the factors that affect sales, especially in 2020-2022, this is due to an increase in demand, while the supply of goods that are not yet available to meet needs is still limited in quantity. Theoretically, when inflation is high, sales tend to decline, this is due to people's low purchasing power due to an increase in prices in a certain period of time. But under certain conditions, when people are faced with an urgent phenomenon and the goods traded in the market are urgent and limited goods, with a certain price level the community will try to make purchases so that under certain conditions sales will increase even though inflation is happening. Research that discusses the effect of inflation on sales was conducted by Çoban (2022), the results of his research show that inflation affects sales volume in textile industry companies in the ASEAN region. This is also in line with research conducted by Elrod & Fortenberry (2020) in the *International Journal Of Current Economics & Business Ventures: The Effect Of Exchange Rate Inflation, Manufacturing Production And Interest Rate On Sales Export Value In Emerging Market Countries Regional Countries During Covid-19 Pandemic 2020-2021*, stating that sales are affected by the effects of inflation that occurs amid the pandemic.

Export-import is a form of international trade activity that is influenced by the rupiah exchange rate against the dollar in export and import destination countries. Export-import can affect sales, this is because when the rupiah exchange rate against the dollar strengthens, the exporting country will carry out more export activities because it can be profitable for companies and increase the country's economic growth, but when the value of the rupiah weakens in the international market, the government and companies will take policies to restrict export-import. Research by Manju & Sharma (2020) found that when India experienced a weakening in the domestic currency in the international market, they took policies to increase overseas sales capacity to achieve large profits. The results of this study are supported by research by Guinea & Espés, (2021) by applying the SCA model in Italy and examining accuracy to explain the country's growth path. Italy is an interesting case in point because in the last decade it faced internal imbalances caused by deficits and high public debt. The results of this study show that Italy is growing more slowly than its potential capacity due to supply constraints. Policies to increase international sales and lower economic costs have proven effective in achieving higher growth.

Interest rates are one of the factors that affect economic conditions. When interest rates are high, people will prefer to save rather than consume so that when interest rates are high it will affect the decline in sales. But when interest rates are low, people prefer to hold money rather than save, so when people hold more money will be influenced by buying motives, it will eventually increase sales. So the lower the interest rate will be many people who spend their money including making purchases in our business, the sales will increase. Research on the effect of interest rates

on sales was conducted by Maesen et al. (2022) in their research explaining that when interest rates increase, it will bring many benefits to people who save and invest compared to spending it on goods or services, so the impact on producers is a decrease in sales but there will be an increase in investment. This is supported by the results of research by Salehi et al. (2022) that interest rates significantly affect the level of stock sales.

Gross Domestic Product (GDP) includes factors that influence price changes, estimated GDP will determine economic development. The rupiah exchange rate against foreign currencies is one of the factors that can determine the profitability of the company because one of the operational activities of pharmaceutical holding companies is export-import. The depreciation of the rupiah will cause an increase in production costs, thus having an impact on decreasing the company's profitability so that the impact directly affects sales volume in a certain period of time. Research conducted by Shaikh & Gandjour (2019) with the results of research found that the state of macroeconomic indicators of a country can affect sales. So GDP as one of the macroeconomic indicators affects sales. This is supported by Aspects research (2020) which explains that US sales are influenced by the country's real GDP / GDP with the conditions of each sector.

Gross Domestic Product (GDP) growth can have a positive influence on company profitability, because if GDP rises it reflects economic conditions in good condition, which is marked by an increase in the total income of everyone in a country Shaikh & Gandjour (2019). So in this case GDP should be able to moderate the effect between inflation on sales in pharmaceutical holding companies. Increasing a country's GDP will increase consumer purchasing power so that it indirectly increases the exchange rate (USD / Rupiah) or in other words the rupiah depreciates so that it will encourage export-import (Singh, 2018). Therefore, an increase in GDP if it can encourage import-expo, it will further strengthen the influence of export-import on sales in pharmaceutical holding companies.

GDP is one of the macroeconomic factors that is seen as affecting stock prices. Rapidly growing GDP shows that the economy is experiencing growth, Raeskyesa & Lukas (2019). This has a positive influence on people's consumption and purchasing power so that company profits increase, this condition attracts investors to invest in the company's shares when interest rates are high, thus sales experience an increase or increase and vice versa. Based on this explanation, GDP can moderate the effect of interest rates on sales.

The hypotheses in this study are as follows.

- a. H1: Inflation has a significant effect on sales in pharmaceutical holding companies in 2018-2022.
- b. H2: Export-import has a significant effect on sales in pharmaceutical holding companies in 2018-2022.
- c. H3: Interest rates have a significant effect on sales in pharmaceutical holding companies in 2018-2022.
- d. H4: GDP has a significant effect on sales in pharmaceutical holding companies in 2018-2022.
- e. H5: GDP can moderate the effect of inflation on sales in pharmaceutical holding companies in 2018-2022.

- f. H6: GDP can moderate the effect of export-import on sales in pharmaceutical holding companies in 2018-2022.
- g. H7: GDP can moderate the effect of interest rates on sales in pharmaceutical holding companies in 2018-2022.

Research Methodology

The type of research used is explanatory research that uses a quantitative approach and uses panel data analysis. The data used is a combination of time series and crosssection data or called panel data. Panel data is a combination of cross-time data (time series data) and cross-individual data (cross-section data). Panel data is also called pooled data. The same individual units in the panel data (e.g. company or country) are surveyed over time, or it is briefly explained that the panel data has both space and time dimensions.

This research was carried out at PT Biofarma Indonesia, this is because the Ministry of SOEs of the Republic of Indonesia has officially authorized the operation of the Pharmaceutical Holding in early 2020. This pharmaceutical holding consists of three pharmaceutical state-owned companies, namely; Bio Farma as the holding company, whose shares are still 100% owned by the government, consists of PT Kimia Farma, Tbk and PT Indofarma, Tbk.

The data analysis technique uses multiple linear regression analysis and Moderating Regression Analysis with the help of SPSS program V. 17. Regression analysis is used to determine the effect between independent variables (Inflation, Export-Import and Interest Rates) on the dependent variable (sales). However, in this study, one variable moderator (GDP) was used. Basically, this moderator variable is used to find out whether it can strengthen or weaken the influence between the independent variable and the dependent variable.

Results And Discussion

Descriptive Analysis

Statistical analysis in this study used the help of SPSS 17 software for windows. The following are the descriptive statistical results of the data used in this study.

Table 4.1
Descriptive Statistics of Inflation, Export-Import, Interest Rates, GDP and Sales
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Inflation	60	11.90	125.81	32.4480	26.16419
Export-Import	60	-8.76	-.09	-.9572	1.23694
Interest Rates	60	-2.61E7	6.64E8	2.5103E7	1.10371E8
GDP	60	20.43	608.62	1.9530E2	162.39743
Sales	60	.76	108.83	44.3552	23.53321
Valid N (listwise)	60				

Source: Research Results (Data Processed by Researchers), 2023

Based on the calculation results in table 4.1 above, it can be seen that the amount of data used in this study for each variable amounted to 60 obtained from the parent company multiplied by the period of observation years (5 years). Table 4.12 above also shows that the average of each variable is at a positive number. The average value of the inflation variable value is 32.4480. The highest inflation value was 125.81 while the lowest value was 11.90. This shows that the inflation variable has a distribution that is not so large because the standard deviation is smaller than the mean value.

The average value of the export-import variable value is -0.9572. The highest growth potential value is -0.09 while the lowest value is -8.76. This shows that the export-import variable has a very large distribution because the standard deviation is greater than the mean value. The average value of the variable value of the interest rate is 2.5103E7. The highest interest rate is 6.64E8 while the lowest value is -2.61E7. This shows that the interest rate variable has a spread that is not so large because the standard deviation is smaller than the mean value.

The average value of the variable value of GDP is 1.9530E2. The highest GDP value was 608.62 while the lowest value was 20.43. This shows that the GDP variable has a very large distribution because the standard deviation is greater than the mean value. The average value of the sales variable value is 44.3552. The highest sales value was 108.83 while the lowest value was 0.76. This shows that the sales variable has a distribution that is not so large because the standard deviation is smaller than the mean value.

Classical Assumption Test

The results of the normality test with Kolmogorov-Smirnov are as follows:

Table 4.2
 Results of the Normality Test with Kolmogorov-Smirnov Test

	Tests of Normality			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Sales (Y)	.067	7	.200*	.989	7	.585

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Source: Research Results (Data Processed by Researchers), 2023

Based on the test results in the table above, a significance value of $0.200 > 0.050$ was obtained. Thus, the assumption of the distribution of equations in this test is normal.

The test results using SPSS Version 17 are as follows:

Table 4.3
 Multicollinearity Test Results
 Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	7.670	2.739		2.800	.006		
Inflation (X1)	.450	.070	.483	6.401	.000	.780	1.283
Export-Import (X2)	.411	.066	.417	6.201	.000	.780	1.283
Interest Rates (X3)	.354	.071	.378	5.016	.000	.780	1.283

a. Dependent Variable: Sales (Y)

Source: Research Results (Data Processed by Researchers), 2023

Based on the results of the multicollinearity test in the table above, the tolerance value of the Inflation, export-import and interest rate variables of 0.780 is less than 1, and the Variance Inflation Factor (VIF) value of the work discipline variable is 1.283 and the workload variable is 1.283 the value is less than 10. Thus this regression model expressed no multicollinearity disorder.

The results of autocorrelation testing are as follows:

Table 4.4
 Autocorrelation Test Results with Durbin-Watson
 Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.740 ^a	.548	.539	2.674	1.801

a. Predictors: (Constant), Interest Rates (X3), Export-Import (X2), Inflation (X1)

b. Dependent Variable: Sales (Y)

Source: Research Results (Data Processed by Researchers), 2023

Based on the test results in the table above, this regression model has no autocorrelation, this is evidenced by the Durbin-Watson value of 1.801 which is between the interval 1,550 – 2,460.

The results of the heteroscedasticity test are as follows:

Table 4.5
 Heteroskedasticity Test Results with Glacier Test
 Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.934	1.597		.585	.560
	Inflation (X1)	.008	.041	.021	.184	.854
	Export-Import (X2)	.018	.052	.071	.177	.611
	Interesr Rates (X3)	.025	.041	.067	.596	.552

a. Dependent Variable: RES2

Source: Research Results (Data Processed by Researchers), 2023

Based on the test results in the table above, the glejser test model on the inflation variable (X1) obtained a significance value of 0.854, the export-import variable (X2) obtained a significance value of 0.611 and the interest rate (X3) obtained a significance value of 0.552 where both significance values (Sig.) > 0.05. Thus the regression model on this data has no heteroskedasticity disorder, so this regression model is feasible to be used as research data.

Multiple Linear Regression Test Results

This regression test is intended to determine how much influence the variables X1, X2 and X3 have on variable Y. In this study are inflation (X1), export-import (X2) and interest rates (X3) on sales (Y).

Table 4.6
 Multiple Regression Test Results of Inflation Variable (X1), Export-Import Variable (X2)
 and Interest Rate Variable (X3) Against Sales (Y)
 Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.670	2.739		2.800	.006
	Inflation (X1)	.450	.070	.483	6.401	.000
	Export-Import (X2)	.411	.066	.417	6.201	.000
	Interest Rates (X3)	.354	.071	.378	5.016	.000

a. Dependent Variable: Sales (Y)

Source: Research Results (Data Processed by Researchers), 2023

Based on the test results in the table above, the regression equation $Y = 7.670 + 0.450X_1 + 0.411X_2 + 0.354X_3$ can be obtained. From the above equation, it can be concluded as follows:

- a. The constant value of 7.670 means that if the inflation variable (X1), export-import variable (X2) and interest rate (X3) are not considered then sales (Y) will only be worth 7.670 points.
- b. The value of inflation (X1) 0.450 means that if the constant is fixed and there is no change in the export-import variable (X2) and the interest rate variable (X3), then every change of 1 unit in the inflation variable (X1) will result in a change in sales (Y) of 0.450 points.
- c. The export-import value (X2) of 0.411 means that if the constant is fixed and there is no change in the inflation variable (X1) and interest rate variable (X3), then every change of 1 unit in the export-import variable (X2) will result in a change in sales (Y) of 0.411 points.
- d. The interest rate value (X2) of 0.354 means that if the constant is fixed and there is no change in the inflation variable (X1) and the export-import variable (X2), then every change of 1 unit in the interest rate variable (X3) will result in a change in sales (Y) of 0.354 points.

Coefficient of Determination Test Results

The analysis of the coefficient of determination is intended to determine the percentage of influence strength between the independent variable and the dependent variable either partially or simultaneously), in this study the variables inflation (X1), export-import (X2) and interest rate (X3) to sales (Y). The following are the results of the calculation of the coefficient of determination processed with the SPSS Version 17 program, as follows:

Table 4.7

Test Results of Coefficient of Simultaneous Determination of Inflation (X1), Export-Import (X2) and Interest Rate (X3) to Sales (Y)

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.844 ^a	.712	.739	3.674

a. Predictors: (Constant), Interest Rates (X3), Export-Import (X2), Inflation (X1)

Source: Research Results (Data Processed by Researchers), 2023

Based on the test results in the table above, the value of the coefficient of determination of 0.712 can be concluded that inflation, export-import and interest rate variables can affect sales performance variables by 71.2% while the remaining $(100-71.2\%) = 29.8\%$ are influenced by other factors that were not carried out by research.

Table 4.8
 Results of Hypothesis Test (Test F) Simultaneously Inflation (X1), Export-Import (X2) and
 Interest Rate (X3) Against Sales (Y)
 ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	883.137	2	441.569	61.742	.000 ^b
	Residual	729.491	7	7.152		
	Total	1612.629	5			

a. Dependent Variable: Sales (Y)

b. Predictors: (Constant), Interest Rates (X3), Exporr-Import (X2), Inflation (X1)

Source: Research Results (Data Processed by Researchers), 2023

Based on the test results in the table above, the F value is calculated $> F$ table or $(61.742 > 3.09)$, this is also reinforced by a significance of < 0.050 or $(0.000 < 0.050)$. Thus, H_0 is rejected and H_4 is accepted, indicating that there is a significant simultaneous influence of inflation, import-export and interest rates on sales.

Moderated Regression Analysis Test

Further hypothesis testing is carried out using the moderated regression analysis method or interaction test to find out whether the variable used as a moderation variable can strengthen or vice versa (weaken) the influence between the independent variable on the dependent variable in this study.

The following are the results of the moderation test of each variable:

In this study using the value of beta unstandardized coefficient in determining multiple linear regression equations.

Table 4.9
 Phase I Moderation Test Results

Model	Coefficients ^a				t	Sig.
	Unstandardized Coefficients		Standardized Coefficients			
	B	Std. Error	Beta			
1 (Constant)	26.531	5.660			4.688	.000
Inflasi	.621	.101	.691		6.153	.000
PDB (Z)	-.012	.016	-.083		-.736	.466

a. Dependent Variable: Penjualan

Table 4.10
Results of the Inflation Moderation Test on Sales
Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	26.304	7.270		3.618	.001
Inflasi	.628	.163	.698	3.855	.000
PDB	-.008	.071	-.058	-.120	.905
moderat1	.000	.002	-.024	-.051	.960

a. Dependent Variable: Penjualan

From the SPSS output results above show that the influence of Z (GDP) on Y in the first output and the effect of moderate1 ($Z*X1$) on the second output, none of them are significant (<0.05), which means that GDP proxied by inflation is not worthy to be a moderation variable (not a moderation variable). GDP neither amplifies nor weakens the effect of inflation on sales.

Table 4.11
Phase II Moderation Test Results
Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	45.559	5.707		7.983	.000
Ekspor-Impor	-6.460	2.709	-.340	-2.385	.022
PDB (Z)	-.038	.021	-.261	-1.834	.074

a. Dependent Variable: Penjualan

Table 4.12
Export-Import Moderation Test Results on Sales
Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	38.326	15.076		2.542	.015
Ekspor-Impor	-16.073	18.718	-.845	-.859	.396
PDB	-.007	.063	-.049	-.114	.910
moderat2	.040	.077	.565	.519	.607

a. Dependent Variable: Penjualan

From the SPSS output results above show that the effect of Z (GDP) on Y in the first output and the effect of moderate1 ($Z*X1$) on the second output, none of which is significant (<0.05),

which means that GDP proxied by export-import is not worthy to be a moderation variable (not a moderation variable). GDP neither strengthens nor weakens the effect of export-import on sales.

Table 4.13
 Phase III Moderation Test Results
 Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1(Constant)	54.483	5.351		10.182	.000
Suku Bunga	-7.566E-8	.000	-.355	-2.484	.017
PDB (Z)	-.042	.021	-.291	-2.035	.048

a. Dependent Variable: Penjualan

Table 4.14
 Results of the Interest Rate Moderation Test on Sales
 Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1(Constant)	55.570	5.431		10.232	.000
Suku Bunga	-6.725E-7	.000	-3.154	-1.227	.227
PDB	-.050	.022	-.347	-2.289	.027
moderat3	6.501E-9	.000	2.796	1.090	.282

a. Dependent Variable: Penjualan

From the SPSS output results above, it shows that the influence of Z (QR) on Y in the first output and the moderate influence³ (Z*X²) on the second output, one of which is significant (<0.05), which means that the GDP proxied by the Interest Rate is pure moderate. The beta value that appears in the FCF*QR (moderate³) interaction test shows a value of 6.501E-9 which indicates that GDP strengthens the influence of interest rates on sales.

Conclusion And Recommendation

Based on the results of the analysis of Inflation, Export-Import, and Interest Rates have a significant simultaneous influence on Sales. The results of this study show that inflation, export-import, and interest rates act as factors that can explain changes in sales in pharmaceutical SOE holdings. While the first, the t-test on inflation has a significant partial positive impact on sales. The results of this study show that inflation acts as a factor that can explain the change in Sales at the Pharmaceutical SOE Holding partially. Second, Export-Import has a significant partial positive impact on Sales The results of this study show that export-import acts as a factor that can partially explain changes in Sales in Pharmaceutical SOE Holdings. Third, interest rates have a partially significant impact on sales. The results of this study show that the three independent variables act

as factors that can explain the change in sales at the Pharmaceutical SOE Holding partially. Then based on moderation testing in three consecutive stages, GDP cannot be used as a moderation variable in the effect of inflation and import exports on sales but can moderate the effect of interest rates on sales. So that GDP cannot strengthen the influence or weaken the influence of inflation and export-import on sales in SOE Holding Companies in 2018-2022.

References

- Al Mutanafisa, T., & Retnaningsih. (2021). The Effect of Sales Promotion and Knowledge on Impulsive Buying of Online Platform Consumers. *Journal of Consumer Sciences*, 6(1), 77–91. <https://doi.org/10.29244/jcs.6.1.77-91>
- Ali, T., Alam, A., & Ali, J. (2021). Factors Affecting Consumers' Purchase Behaviour for Health and Wellness Food Products in an Emerging Market. *Global Business Review*, 22(1), 151–168. <https://doi.org/10.1177/0972150918795368>
- Çoban, M. N. (2022). The Effect of the Internet on Inflation: A Research on ASEAN-5 Countries. *Journal of ASEAN Studies*, 10(1), 61–79. <https://doi.org/10.21512/jas.v10i1.7310>
- Devia, V., & Fadli, F. (2022). The effect of inflation and exchange rate on macroeconomics in indonesia. *Integrated Journal Of Business and Economics*, 10(8), 102–114.
- Eldomiati, T., Saeed, Y., Hammam, R., & AboulSoud, S. (2020). The associations between stock prices, inflation rates, interest rates are still persistent: Empirical evidence from stock duration model. *Journal of Economics, Finance and Administrative Science*, 25(49), 149–161. <https://doi.org/10.1108/JEFAS-10-2018-0105>
- Elrod, J. K., & Fortenberry, J. L. (2020). Personal selling in health and medicine: using sales agents to engage audiences. *BMC Health Services Research*, 20(Suppl 1), 1–6. <https://doi.org/10.1186/s12913-020-05600-z>
- Farizqiyah, S., & Yuliana, I. (2022). *Analyzing Indonesia ' S Inflation in 1998 -2020 : Error*. 1823–1833.
- Gillitzer, C., & Simon, J. (2015). Inflation targeting: A victim of its own success. *International Journal of Central Banking*, 11, 259–287.
- Guinea, O., & Espés, A. (2021). *International EU27 pharmaceutical production, trade, dependencies and vulnerabilities: a factual analysis*.
- Hetami, A. A., Aransyah, M. F., Putri, A. P., & Nurhidayah, A. (2019). Analysis of Covid-19 Export-Import and Business Obstacles between Indonesia and Japan. *Budapest International Research and Critics Institute ...*, 1713–1722.
- Import, R. R., & Aspects, D.-P. (2020). How to Cite. *American Ethnologist*, 47(2), 209. <https://doi.org/10.1111/amet.12914>
- Kartikasari, D. (2017). International Journal of Economics and Financial Issues The Effect of Export, Import and Investment to Economic Growth of Riau Islands Indonesia. *International Journal of Economics and Financial Issues*, 7(4), 663–667. <http://www.econjournals.com>

- Kryeziu, N., & Durguti, E. (2019). The impact of inflation on economic growth: The case of Eurozone. *Journal of Finance & Banking Studies*, 8(1), 1–09. www.ssbfn.net.com/ojshttps://doi.org/10.20525/ijfbs.v7i3.297
- Kurniawan, T., & Prajanti, S. D. W. (2017). Determinants Factors of Interest Rates on Three-Month Deposits of Bank Persero. *Jejak*, 10(1), 90–102. <https://doi.org/10.15294/jejak.v10i1.9129>
- Maesen, S., Lamey, L., ter Braak, A., & Jansen, L. (2022). Going healthy: how product characteristics influence the sales impact of front-of-pack health symbols. *Journal of the Academy of Marketing Science*, 50(1), 108–130. <https://doi.org/10.1007/s11747-021-00796-w>
- Manju, & Sharma, V. (2020). An Analysis Of Exports Performance Of Indian Pharmaceutical Industry During Pre And Post-Trips Period-Palarch's. *Palarch's Journal Of Archaeology Df Egypt/Egyptology*, 17(6), 1–14. <https://www.pharmafocusasia.com/strategy/trends-pharma-export-industry>
- Mayesti, I., Halimm, A., & Afrizal, A. (2021). Analysis of Indonesian Export-Import Trade Contaction to Destination Countries. *J-MAS (Jurnal Manajemen Dan Sains)*, 6(2), 491. <https://doi.org/10.33087/jmas.v6i2.315>
- Mayroza Wiska, & Resty, F. (2020). Impact of Inflation, Interest Rates and Return Exchange Rates on Pharmaceutical Companies on the IDX. *International Journal of Management and Business (IJMB)*, 1(2), 111–117. <https://doi.org/10.46643/ijmb.v1i2.48>
- Meade, N., & Driver, C. (2023). Differing behaviours of forecasters of UK GDP growth. *International Journal of Forecasting*, 39(2), 772–790. <https://doi.org/10.1016/j.ijforecast.2022.02.005>
- Mohammed, O., Amhimmid, H., Yanto, H., & Setyadharma, A. (2021). The Effect of Interest Rates, Money Supply and Exchange Rate on Inflation in Indonesia and Libya. *Beaj*, 1(2), 104–121. <https://journal.unnes.ac.id/nju/index.php/beaj>
- Murti, W., & Saleh, S. (2021). *The Effect of Export Import , Inflation , Interest Rates , and Exchange Rates against Indonesia ' s Economic Growth*. 4(August), 449–460.
- Raeskyesa, D. G. S., & Lukas, E. N. (2019). Does Digitalization Increase Economic Growth? Evidence from ASEAN8 Countries. *Jurnal Ekonomi Indonesia*, 8(2), 267–278. <https://doi.org/10.52813/jei.v8i2.33>
- Rangkuti, R. A., Nandita, P., Pratiwi, D. C., Saputri, Y., & Suhairi, S. (2022). Export and Import. *Indonesian Journal of Multidisciplinary Science*, 1(4), 409–419. <https://doi.org/10.55324/ijoms.v1i4.76>
- Salehi, F., Mirzapour Al-E-Hashem, S. M. J., Moattar Hussein, S. M., & Ghodsypour, S. H. (2022). A bi-level multi-follower optimization model for R&D project portfolio: an application to a pharmaceutical holding company. *Annals of Operations Research*, 323(1), 331–360. <https://doi.org/10.1007/s10479-022-05052-0>
- Sari, C. T., Suharti, M., Semarang, S., & Surakarta, I. (2021). The Effect Of Taxes, Earnings Per Share, And Sales Growth On Stock Prices In The COVID-19 Pandemic (Empirical Study Of Health And Pharmaceutical Sector Listed In The Jakarta Stock Exchange 2016-2020).

- Business and Accounting Research (IJEBAR) Peer Reviewed-International Journal*, 5(2), 530–540. <https://jurnal.stie-aas.ac.id/index.php/IJEBAR>
- Setiartiti, L., & Hapsari, Y. (2019). Determinants of Inflation Rate in Indonesia. *Jurnal Ekonomi & Studi Pembangunan*, 20(1). <https://doi.org/10.18196/jesp.20.1.5016>
- Shaikh, M., & Gandjour, A. (2019). Pharmaceutical expenditure and gross domestic product: Evidence of simultaneous effects using a two-step instrumental variables strategy. *Health Economics (United Kingdom)*, 28(1), 101–122. <https://doi.org/10.1002/hec.3832>
- Singh, J. (2018). *Growth Performance of Indian Pharmaceutical Exports in Changing Policy Paradigm : An Empirical Analysis*. 3(1).
- Siregar, A. P., Wibowo, T. S., & ... (2022). Marketing Mixture Analysis On Product Sales Increase. *Enrichment ...*, 12(3), 2469–2476. <https://www.enrichment.iocspublisher.org/index.php/enrichment/article/view/685%0Ahttps://www.enrichment.iocspublisher.org/index.php/enrichment/article/download/685/531>
- Sriyana, J. (2018). Determinants of Inflation in the Local Economy. *Etikonomi*, 17(1), 1–10. <https://doi.org/10.15408/etk.v17i1.7146>
- Wahyuningsih, D. W. (2019). the Influence of Sales Force Automation and Sales Training on Medical Representative Performance To Improve Sales Effectiveness. *International Journal of Economics, Business and Accounting Research (IJEBAR)*, 2(04), 61–66. <https://doi.org/10.29040/ijebar.v2i04.617>
- Wulandari, D., & Harjito, A. (2021). The effect of interest rates, exchange rates and capital structure on banking profitability of BUMN and Private Go Public in Indonesia. *International Journal of Research in Business and Social Science (2147- 4478)*, 10(3), 338–351. <https://doi.org/10.20525/ijrbs.v10i3.1086>

Other References:

- Hayes, A.F.(2018).Introduction to Mediation, Moderation, and Conditional Process Analysis.Guilford Press
- Jose, P.E. (2013). Doing Statistical Mediation & Moderation.New York London: Guildford Press
- Mankiw, N. Gregory. (2016). Macroeconomics. Fourth Edition. Worth Publisher, Inc, New York
- <https://www.bi.go.id/>
- <https://www.bps.go.id/>
- <https://www.biofarma.co.id/id/holding-bumn-farmasi>