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The Influence of Interest Rates and Infrastructure on Domestic Investment in Banten Province

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ABSTRACT

This research is aimed at proving whether there is an influencing relationship between the independent variables (Interest Rates) and (Infrastructure) on the dependent variable (Domestic Investment). This research method uses panel data regression analysis by combining two data from time series with cross section. From the test results for individual correlations, it was found that the Interest Rate Variable correlation did not have a partial/individual significant effect on Domestic Investment (PMDN). While the Infrastructure Variable on Domestic Investment (PMDN) has a significant influence partially/individually.Furthermore, joint testing between all independent variables on the dependent variable. (Interest Rates and Infrastructure) together have a significant effect on the dependent variable Domestic Investment (PMDN). Based on this research, it illustrates that low bank interest rates and good infrastructure will be able to encourage increased domestic investment which will ultimately be able to increase GRDP, people's income and people's welfare in Banten province. Therefore the role of the government in terms of improving the quality of infrastructure, especially roads and intervention on interest rates (credit) will greatly assist domestic investors to become entrepreneurs.

INTRODUCTION

Good economic growth is the hope of all people to be able to live more prosperous and affluent lives, but economic growth must be supported by several driving factors, including stable inflation and high investment, this agrees with Dellaviyanie's research. TM, et al (2022) that domestic investment can affect economic growth, so with this instrument economic growth in a country or region is what is expected for its people so that they can have a decent life, as well as economic growth in Indonesia, especially in the province of Banten . With economic growth in an area will be able to increase.

Distribution of income in the community, therefore to stimulate regional economic growth other elements are needed including domestic investment (PMDN) as well as economic growth in Banten province where through

supporting infrastructure and low bank interest rates can encourage the emergence of new investors from within the country which can increase economic growth (Hasan & Liana, 2022; Iskamto, 2015, 2015, 2020; Rudianto et al., 2022; Sukmadewi, 2021).

Therefore the government's role is very important in encouraging domestic investment with a strategy to improve the quality of infrastructure in the area so that it can reach places that have good economic growth potential. This is in line with research (Asnida et al. 2020) which states that infrastructure investment can have an impact on improving the surrounding economy and can reduce inequality in several regions. Infrastructure also has a role not only to connect the two regions, countries and places but to provide other infrastructure-scale impacts that connect a wider range of activities in a regional area by involving large financial institutions (Dadabaev, 2018).

Driven by the existence of good infrastructure and increased income will have an impact on increasing public consumption and economic growth will encourage increased demand for goods in the community. If there is an increase in income in society, it will directly cause an increase in consumption. Because the increase in public consumption spending can certainly encourage companies to increase their production capacity.

To increase production and expansion required additional capital goods and new investment. Because this increase in investment occurs as a result of an increase in the effective demand of society. The increase in investment is caused by an increase in consumption, but demand growth is not matched by supply, so that there is a disruption to price stability which has an impact on inflation because low inflation can support an increase in economic productivity, and high inflation growth can affect public consumption so that it will have an impact on slowing down economic growth. So in this case the government's intervention to encourage increased investment in the community through financing is very important. Where if high credit interest rates will have a low impact on investment, this is in accordance with the opinion of Messakh, S, R., et al. (2019) in their research that the government needs to make efforts to maintain interest rate stability in Indonesia so that the trend is positive and investment continues to grow well.

LITERATURE REVIEWS

In the UUD Number 25 of 2007 paragraph 2 states Domestic investment is an investment activity to conduct business in the territory of the Republic of Indonesia which is carried out by domestic investors using domestic capital. Benefits of domestic investment Being able to save foreign exchange, overcoming dependence on foreign products, Encouraging progress of domestic industry through forward linkages and backward linkages, and contribute to efforts to absorb labor (Ana R 2009) because one of the drivers of economic growth includes investment private sector invested in Indonesia. As for the Keynesian theory of investment is relates to whether an investment or investment project is feasible or not. this way to find out whether a project is profitable or not which is influenced by the cost of capital or interest rates.

Private investment can be influenced by age, education, marital status, personal savings, inflation rate, public investment, the existence of investment incentives, land and materials are things that greatly determine the growth rate of private investment in the city of Jimma Ethiopia. Because the investment performance or decision-making process of private investment is influenced by their age, level of education, and the presence of a number of youths or adults investing in their area. Waktole and Bogale (2018, p. 475) and Harrod-Domar view that investment has a positive relationship with state income. Therefore, the easier the investment process, the more investment activities are carried out, and the higher the income generated by the state.

GRDP growth of a region is influenced by the presence of capital sources, both from within and outside the country. if domestic investment increases it will encourage an increase in GRDP Mahris et al. (2019), Alice et.al,. (2021) in his research stated that there was a positive influence between domestic investment and significant GRDP growth. Therefore, investment invested by the government and the private sector has an important role in preventing inflation, creating jobs, expanding growth and reducing poverty. Because the mobilization of private investment is very important for the development of a country and this can contribute directly to economic growth. Vice versa, if private investment growth is low, then the productive capacity of the economy fails to increase and will result in lower growth rates and job creation. (Mustofa 2019 p. 44).

Kasmir argues (2014: 14) that a bank is a business entity that collects and distributes funds to and from the community in the form of savings or deposits and distributes them back to the community in the form of credit and or other forms in order to improve the standard of living of the people at large. Banking has three activities,

namely collecting funds, channeling funds, and providing other bank services. Activities to collect and distribute funds are the main activities of the bank, while providing other bank services are only supporting activities.

As for the returns from the process of collecting and distributing funds from and to the public, the government, in this case, Bank Indonesia determines bank interest where according to Hubbard (1997), interest is a fee that must be paid by borrowers for loans received and rewards for lenders for their investment. According to a group of classical economists in the 19th century cited by (Boediono, 1991). The interest rate is one of the references in deciding whether someone will save or invest. If the higher the interest rate, the more funds will be offered. Thus, there is a positive relationship between the interest rate and the amount of funds offered and vice versa.

The above has an impact on investment growth, so to maintain the investment climate the government must regulate banks so that they can maintain the stability of interest rates on savings and credit, this agrees with research by Putri, N, K, et., al (2021) where if Loan interest rates (Lending Interest Rate) that are too high will result in high costs of capital for investment as well (High Cost). The impact will make it difficult for Direct Investment flows to enter and grow in a country. Based on the introduction and literature review above, the research paradigm is as follows:

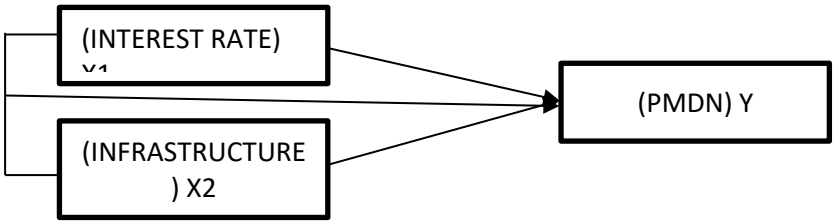


Figure 1. Thinking Framework

The hypothesis of the above framework of thinking is as follows:

1. The influence of interest rates and infrastructure on domestic investment (PMDN) simultaneously in Banten province
2. The effect of interest rates on domestic investment (PMDN) is partially in Banten province
3. The influence of infrastructure on domestic investment (PMDN) is partially in Banten province

METHODS

This study uses panel data regression analysis. That is combining two data from time series with cross section. That is, the existing panel data is obtained from cross-sectional data that has been tested repeatedly on the same unit object at different times. In order to get an overview of the behavior of some of these objects over several time periods (Tarigan, 2012). (Gujarati, 2012) argues that there are several advantages of using panel data, namely panel data provides clearer information, more variety and less collinearity between several variables so that the data is more efficient. The variables in this study consist of bank interest rates, which use credit interest rate data. Infrastructure, which uses road length data and finally the variable Domestic Investment (PMDN). The population used in this study is all panel data on Credit Interest Rates, Infrastructure and Domestic Investment in Banten Province during the 2000-2021 period using a saturated sample technique (census method) in which all members of the population are sampled. Thus the sample used in this study is Banten Province within a period of 22 years. As for data analysis in this study using SPSS, to look for correlations and multiple linear regression.

RESULTS AND DISCUSSION

Table 1. Research Data (in millions of rupiah)

Year	SBK	Infrastructure	PMDN
2000	16.35	359020	553,196
2001	19.09	359020	292.24
2002	19,28	368391	329,599
2003	17,17	396156	382,343
2004	15.50	399890	858585
2005	16.83	399890	705,775
2006	16.52	486412	3,803,980
2007	14.94	486412	1,753,724
2008	16,13	486412	1,999,753
2009	15.65	486412	412,271
2010	14.52	511849	5,852,519

Year	SBK	Infrastructure	PMDN
2011	13.72	511849	2,577,247
2012	13,13	563150	2,525,284
2013	12.83	563150	4,008,862
2014	13,41	563150	8,081,298
2015	13.63	563150	10,709,896
2016	12.05	554592	12,426,311
2017	11.30	562904	15,141,900
2018	10.82	675636	18,637,600
2019	10.52	675636	20,708,660
2020	9.67	675636	31,145,662
2021	9,16	675636	25,989,489

Source: Banten Province BPS data, processed

In order for the data to be more uniform and easy to process, the researcher Ln the data as follows:

Table 2. Data on Loan Research Variables (in millions of rupiah)

Ln X1	Ln X2	Ln Y
2.79	12.79	13,22
2.95	12.79	12.59
2.96	12.82	12.71
2.84	12.89	12.85
2.74	12.90	13.66
2.82	12.90	13.47
2.80	13.09	15,15
2.70	13.09	14.38
2.78	13.09	14.51
2.75	13.09	12.93
2.68	13,15	15.58

Ln X1	Ln X2	Ln Y
2.62	13,15	14.76
2.57	13,24	14.74
2.55	13,24	15,20
2.60	13,24	15,91
2.61	13,24	16,19
2.49	13,23	16,34
2,42	13,24	16.53
2.38	13,42	16,74
2.35	13,42	16.85
2,27	13,42	17,25
2,21	13,42	17.07

Source: Banten Province BPS data, processed

Requirements for regression analysis are carried out through the classical assumption test, which in this classic assumption observation includes the Normality Test, Multicollinearity Test, Heteroscedasticity Test and Autocorrelation Test. The normality test has the goal of testing the regression model whether it is normally distributed or not. The results of the data normality test obtained the Asymp value. Sig. (2-tailed) > from = 5% (0.05) to = 0.200, X2 = 0.200 and Y = 0.200 > from = 5% (0.05) then it is stated that the data comes from a population that has a normal distribution.$\alpha X_1 \alpha$

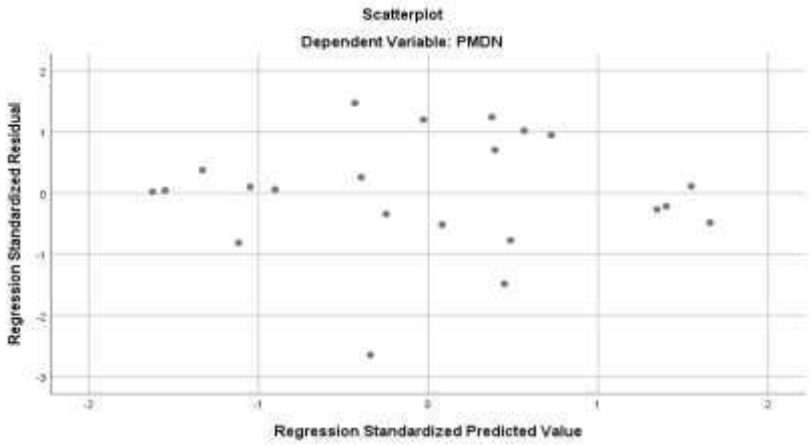
Table 3. One-Sample Kolmogorov-Smirnov Test

One-Sample Kolmogorov-Smirnov Test				
		Bank interest rates	Infrastructure	PMDN
N		22	22	22
Normal Parameters, b	Means	263.0909	1313.0000	1493.7727
	std. Deviation	20.98051	20.75710	155.08214
Most Extreme Differences	absolute	.108	.151	.113
	Positive	.070	.139	.113
	Negative	-.108	-.151	-.108
Test Statistics		.108	.151	.113
asymp. Sig. (2-tailed)		.200c,d	.200c,d	.200c,d
a. Test distribution is Normal.				
b. Calculated from data.				
c. Lilliefors Significance Correction.				
d. This is a lower bound of the true significance.				

Source: data processed by researchers

Based on table 3 regarding the multicollinearity test, the intention is to test whether there is a correlation between the independent (independent) variables through the Variance Inflation Factor (VIF) values for the three independent variables with a value of X1 = 0.200, X2 = 0.200 (smaller < than number 10) while tolerance X1 = 0.152, X2 = 0.152 (does not range from number 1). Based on the data above, it can be concluded that this regression model does not experience multicollinearity disorders.

The heteroscedasticity test occurs due to a change in situation that is not described in the specifications of the regression model, for example changes in economic structure, politics and government policies which have an impact on changing the level of accuracy of the data. Examination of the symptoms of heteroscedasticity is by looking at the diagram pattern. The graph below is a residual scatter diagram, the decision on the scatter diagram below turns out to form a random pattern that spreads. So it can be explained that the regression does not experience heteroscedasticity. The results of the heteroscedasticity test are obtained with the beam diagram as shown below:



Based on Figure 2, the autocorrelation test results are through the Durbin-Watson value (DW test), with the standard used being <d <4 - according to Imam Ghazali, (2011) if you get the Durbin-Watson value count = 2.063, DW table at 0, 05 dL = 1.147 while = 1.541. DW count > dL (2.063 > 1.147), then there is no autocorrelation disorder.$\boldsymbol{d_U d_U\ \alpha d_U}$

Table 4.Coefficientsa

Coefficientsa								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	std. Error	Betas			tolerance	VIF
1	(Constant)	-3625,902	2402.351		-1,509	.148		
	Bank interest rates	-2,668	1,527	-.361	-1,747	.097	.152	6,599
	Infrastructure	4,434	1,544	.593	2,872	010	.152	6,599
a. Dependent Variable: PMDN								

Source: data processed by researchers

Based on table 4 on the Significance Test of Individual Parameters (t-Statistics Test) the results are as follows: Interest Rate Variable () Therefore < (-1.747 < 2.086) means that it does not have a partial/individual significant effect on Bank Interest Rates on PMDN. This research is not in accordance with research conducted by AMM Mustafa (2019) where the relationship between interest rates and investment is significant because high interest rates affect investment interest in Sri Lanka which will slow down the process of economic growth and development in that country. Furthermore, from the value of Sig. 0.097 > 0.05 means that there is no significant effect. Infrastructure Variable () Because > means that there is a significant influence partially/individually Infrastructure on Domestic Investment (PMDN). Or it can be seen from the value of Sig. 0.010 <0.05 means that there is a significant effect. The results of the Simultaneous Significance Test (Fstatistics) are proven in the ANOVA table below:$\mathrm{X}_1 t_{hitung} t_{tabel} \mathrm{X}_2 t_{hitung} t_{tabel} (2{,}872 > 2{,}086)$

Table 5 ANOVAa

Model		Sum of Squares	df	MeanSquare	F	Sig.
1	Regression	442967.972	2	221483.986	67,774	.000b
	residual	62091892	19	3267,994		
	Total	505059864	21			

a. Dependent Variable: PMDN

b. Predictors: (Constant), Infrastructure, Bank Interest Rates

Source: data processed by researchers

It can be seen in table 5 that = 0.05 or 95% confidence level with degrees of freedom in the numerator = (k-1) = 3 – 1 = 2. The denominator degree = (n – k) = 22 – 2 = 20, = 3, 49. Because > (67.774 > 3.49). So in conclusion the independent variables (Bank Interest Rates, and Infrastructure) together have a significant influence on the dependent variable Domestic Investment (PMDN). If the probability is less than the significance level (0.05) then the model is accepted. It is proved that the probability is 0.000 < 0.05, by modeling the equation:$\alpha F_{tabel} = 0{,}05 F_{hitung} F_{tabel}$ $\boldsymbol{Y = -3625.902 - 2.668\, X_1 + 4.434 + \varepsilon}$

Table 6. Model Summaryb

Model	R	R Square	Adjusted R Square	std. Error of the Estimate	Durbin-Watson
1	.937a	.877	.864	57.16637	2063

a. Predictors: (Constant), Infrastructure, Loan Interest Rates

b. Dependent Variable: PMDN

Based on table 6 on Multiple Correlation Coefficient Testing Explaining the magnitude of the correlation (R) at Adjusted R Square of 0.864 shows a strong bond between the independent variables (Credit Interest Rates), (Infrastructure) to the dependent variable Y Domestic Investment (PMDN) of 86, 40% while 13.60% is caused by other variables that are not hypothesized in this study.$X_1 X_2$

Based on the results of data processing above explained*Research*this is intended to prove whether there is an influencing relationship between the independent variables (Credit Rates), (Infrastructure) to the dependent variable Y (Domestic Investment), then the conclusions obtained from the results of testing the hypothesis are as follows:$X_1 X_2$

From the test results for individual correlations, the Inflation Variable correlation () is obtained because < (-1.747 < 2.086) means that there is no significant effect partially/individually bank interest rates on Domestic Investment (PMDN). Or it can be seen from the value of Sig. 0.097 > 0.05 means that there is no significant effect. While the Infrastructure Variable () Because > () then there is a significant influence partially/individually Infrastructure on Domestic Investment (PMDN). Or it can be seen from the value of Sig. 0.010 <0.05 means that there is a significant effect.X$_1$ $t_{hitung} t_{tabel}$ X$_2$ $t_{hitung} t_{tabel}$ 2,872 > 2,086X$_1$ X$_2$

Tests on the coefficient of determination (R2) and Adjusted R square The coefficient of determination (R^2) is 0.864 = 86.40%. meaning that 86.40% of GRDP is determined/influenced by (credit interest rates), (infrastructure) and the remaining 13.60% is due to other influencing factors and is not hypothesized in this study.$X_1 X_2$

Testing the regression model obtained for the multiple linear regression equation of this study is . With a constant (a) = -3625.902 Coefficient of Inflation (β1) = -2.668 PMDN Coefficient (β2) = 4.434.$\boldsymbol{Y = -3625.902 - 2.668\, X_1 + 4.434 + \varepsilon}$

For Simultaneous Significance Test resultsF_{hitung}= 67.774 and, because > namely (67.774 > 3.49) it can be concluded that the model used is appropriate. It can be seen that the probability is 0.000 <0.05. So it can be concluded that the independent variables (Bank Interest Rates and Infrastructure) together have a significant effect on the dependent variable Domestic Investment (PMDN). $F_{tabel\ (\alpha=0,05)} = 3,49 F_{hitung}\ \ F_{tabel}$

CONCLUSION

Based on the results of the research above, the researcher concludes that not always high interest rates can affect the level of domestic investment, this agrees with Syaikhu's research. AM, et. al (2017) states that even though interest rates on credit are high, investors continue to increase their investment activities in Indonesia with the consideration that the expected profit rate is still higher than the interest rates that occur in Indonesia. Credit interest rates that occur in Indonesia so that such credit interest rates have very little effect on investment with consideration of a greater level of profit. This is because there are other factors that drive it. Good and equitable infrastructure will be able to sustain, encouraging and increasing investment growth in a region, this is also reinforced by Mahyoga's research. PD, Buddha. MKS, (2022) which states that infrastructure built for investment should not only increase the quantity (quantity) in the regions, but the quality of infrastructure must also be considered in order to facilitate access for investors to distribute their products and services. There must be government intervention in encouraging investment interest, especially intervention on bank interest rates and equitable infrastructure development so that it can encourage more investment to grow in the area, especially in the province of Banten in order to increase people's income and welfare. (2022) which

states that infrastructure built for investment should not only increase the quantity (quantity) in regions, but the quality of infrastructure must also be considered in order to facilitate access for investors to distribute their products and services. There must be government intervention in encouraging investment interest, especially intervention on bank interest rates and equitable infrastructure development so that it can encourage more investment to grow in the area, especially in the province of Banten in order to increase people's income and welfare. (2022) which states that infrastructure built for investment should not only increase the quantity (quantity) in regions, but the quality of infrastructure must also be considered in order to facilitate access for investors to distribute their products and services. There must be government intervention in encouraging investment interest, especially intervention on bank interest rates and equitable infrastructure development so that it can encourage more investment to grow in the area, especially in the province of Banten in order to increase people's income and welfare.

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