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The Effect of Capital Market and Public Savings on Indonesia's Economic Growth

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Abstract

This study analyzes the impact of the capital market and public savings on economic growth in Indonesia using panel data from 34 provinces over the period 2016 to 2022. It aims to address the gaps in previous research, which showed inconsistent results regarding the effect of real sector investment on economic growth. Through multiple linear regression, this study finds that the capital market and public savings have a positive and significant influence on economic growth. These findings suggest that increasing capital accumulation in the capital market and public savings in banks can be an effective strategy to stimulate economic growth. The best model used in this study is the Fixed Effect Model, selected based on the Chow and Hausman tests. The coefficient of determination indicates that the capital market and public savings variables can explain the variation in economic growth significantly. This study contributes new insights by using data on domestic investor assets at the provincial level and offers policy recommendations to enhance public participation in the capital market and banking sector. The limitations of this study lie in the data coverage, which is restricted to Indonesia and spans a seven-year period, thus caution is needed when generalizing the findings to other countries or longer timeframes. Future research is encouraged to include additional variables and expand the geographical and temporal scope of the analysis.

Keywords: *Capital market, economic growth, public saving*

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1. Introduction

Every country, especially developing nations, continuously strives to boost economic growth with the aim of improving the well-being of their population. However, in practice, accelerating economic growth is not an easy task. Developing countries often face obstacles in the form of limited capital resources during their economic development efforts. Indonesia, as a developing nation within the Association of Southeast Asian Nations (ASEAN), encounters similar challenges. Therefore, policies and mechanisms are needed to increase the availability and accumulation of capital more effectively and swiftly. This capital growth is expected to enhance the industrial sector's capacity to produce goods and services, contributing to an increase in gross domestic product (GDP).

Despite substantial empirical evidence suggesting that investment in the real sector has a positive and significant impact on economic growth (Saini & Singhania, 2018; Syamni et al., 2018; Onafowora & Owoye, 2019); , some previous studies have emphasized that economic growth is not significantly influenced by either foreign direct investment or domestic investment (Aziz and Muslinawati, 2024; Bakari & Weriemmi, 2024; Nwabuisi et al., 2019). These inconsistent findings suggest that evaluating the impact of investment solely from the real sector perspective may be incomplete. Portfolio investment through the capital market plays a crucial role in economic growth. Further integration of capital markets provides access to capital funding, improves capital allocation, helps mitigate market and systemic risks, and ultimately promotes sustainable real economic growth (Orlowski, 2020).

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The study by Omir et al., (2024) demonstrates that the capital market significantly influences economic growth in Kazakhstan and the Commonwealth of Independent States, as evidenced by the relationship between financial instruments and gross domestic product (GDP) over the past 20 years. Umar (2022) concluded that the performance of the capital market had a positive and significant impact on Nigeria's economic growth, shown by the strong correlation between market capitalization and real GDP from 2010 to 2020. Oluwaleye et al. (2023) conducted an Auto-Regressive Distributed Lag analysis on time-series data from 1986 to 2021 in Nigeria. Their study found that the capital market positively influences economic growth by enhancing the quality and accessibility of investments, facilitating corporate financing, and encouraging personal savings. Both Itiveh and Okolie (2023), who analyzed Nigeria's capital market operations from 1999 to 2021, and Yakubu (2023), who used data on market capitalization from 1990 to 2021, concluded that the capital market's operations and capitalization positively impact economic growth.

Besides capital markets, the banking sector also plays a crucial role in a country's economic growth. Its role in collecting capital from public savings and channeling it into the economy is too significant to be excluded from analysis. A Comparative Analysis by Athukorala and Suanin (2024) showed that savings behavior in developing countries in Asia, including Southeast Asia, has a positive relationship with economic growth. Awoyemi et al. (2022), using an Auto-Regressive Distributed Lag model, found that the development of the private sector, including public savings, had a positive impact on economic growth in Nigeria. Liu and Ma (2022) gathered panel data from 46 Asian countries spanning from 1969 to 2021. Their study concluded that public savings, as indicated by gross savings rates, have a significant positive effect on economic growth in Asian countries, particularly during the 1960 to 1990 period.

Nwonye et al. (2022) conducted a Multiple Regression Analysis using a Two-Stage Least Squares method on savings and economic data from Nigeria from 2011 to 2020. Their findings showed that total savings had a positive and significant impact on Nigeria's gross domestic product (GDP). Ahmed et al. (2022) analyzed secondary data from Sudan's Central Bureau of Statistics covering the period from 1980 to 2018 using a Vector Autoregressive Model. The study revealed that public savings positively influence economic growth, with increased savings leading to capital accumulation and stimulating long-term economic growth through investment and consumption. Alnaa and Matey (2022) analyzed public savings behavior in Ghana from 1980 to 2019 using a Vector Autoregressive Model. Their results indicated that public savings positively impact economic growth by driving investment through financial development, lower interest rates, and controlled inflation.

As previously mentioned, the inconsistency in earlier studies focusing on real sector investments, along with two key factors driving economic growth that still require analysis, form the primary basis for this research. Additionally, this study offers a new approach from the perspective of the capital market. Most prior research on capital markets has focused on market capitalization, stock values, or price indices. However, in this study, the value of assets owned by domestic investors at the provincial level in Indonesia will be used, providing a fresh contribution and novelty to the field.

This study aims to address the issues mentioned above and seeks to explain how the capital market and public savings influence economic growth in Indonesia through comprehensive analysis and empirical evidence. The findings are expected to contribute to the growing body of research on the relationship between capital markets, public savings, and economic growth in Indonesia and serve as a scientific reference for the development of economic knowledge, particularly in the fields of investment and finance. Furthermore, the results of this study are hoped to provide valuable input for policymakers and offer insights for shaping Indonesia's economic development strategies.

2. Method

This section explains the type and source of data, research framework, model and research hypothesis. In general, this study uses Multiple Linear Regression with the help of EViews software.

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Data Type and Source

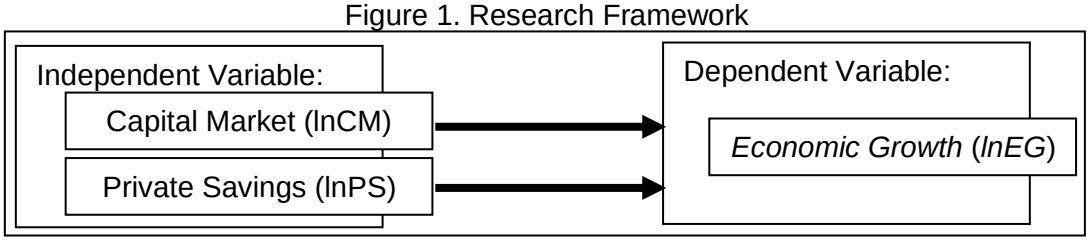
This research employs a quantitative approach by utilizing panel data, which combines both cross-sectional and time-series data. The cross-sectional aspect is represented by 34 provinces across Indonesia, while the time-series component covers the years from 2016 to 2022. The data used in this study are sourced from secondary data providers, specifically obtained from official and reputable sources such as the websites of of Statistics Indonesia (*Badan Pusat Statistik*, BPS), Bank Indonesia (BI), and the Indonesian Central Securities Depository (*Kustodian Sent*

al Efek Indonesia, KSEI). This combination of data types allows for a more robust analysis of the variations across provinces over time, enhancing the study's ability to draw comprehensive and reliable conclusions.

Research Framework

This study investigates two factors, the effect of capital markets on economic growth and the effect of public savings on economic growth.

Figure 1. Research Framework



Source: Processed by Author, 2024

Capital market is the value of domestic investor assets per population in rupiah per capita. *Private* savings is the rupiah savings of the public in commercial banks and rural banks per population in rupiah per capita. Economic growth referred to in this study is the gross regional domestic product at current prices per total population in rupiah per capita. All variables were transformed into natural logarithms, so that data interpretation was carried out in percent units.

Hyphothesis

Panel data regression is a statistical regression using a combination of cross section and time series data (Napitupulu *et al.*, 2021). The model used in analysing the effect of the capital market and public savings on economic growth follows the following equation:

$$lnEG_{it} = \alpha_0 + \alpha_1 lnCM_{it} + \alpha_2 lnPS_{it} + \varepsilon_{it} \quad \text{.....(1)}$$

Where lnEG as economic growth, lnCM as capital market, lnPS as public savings, α_0 as intercept coefficient, α_1 as capital market regression coefficient, α_2 as public savings regression coefficient, and ε as error term. The coefficient results of the multiple linear regression equation will be used as the basis for drawing conclusions, namely (a) Ha1 is accepted if $\alpha_1 > 0$, Prob. < 0.05 means capital market has a positive influence on economic growth; and (b) Ha2 is accepted if $\alpha_2 > 0$, Prob. < 0.05 means private savings have a positive influence on economic growth.

3. Results and Discussion

This section describes the results of selecting the best model, ensuring the model fulfils the classical assumptions and presents the results of descriptive and inferential statistical testing.

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Best Model Selection

Model selection in this study was determined by considering the results of the chow test and hausman test. The chow test was conducted to compare the best choice between the Common Effect Model or the Fixed Effect Model, while the hausman test was conducted to compare the best choice between the Random Effect Model or the Fixed Effect Model. Table 1 shows the results of the Chow Test and Hausman Test.

Table 1. Chow and Hausman Test Result

Test Summary	Statistic	d.f.	Prob.
Chow Test			
Cross-section F	153.279457	(33,202)	0.0000
Cross-section Chi-Sq.	775.799278	33	0.0000
Hausman Test			
Cross-section random Chi-Sq.	7.069041	2	0.0292

Source: eViews Output, 2024

The chow test shows that the equation in this study has a probability cross-section F and chi-square is 0.0000 or <0.05 and the hausman test shows the probability cross-section random chi-square is 0.0292 or <0.05, so the best model according to these two tests is the Fixed Effect Model. Therefore, all analyses conducted in this study used the Fixed Effect Model.

Multicollinearity Test

The results of the multicollinearity test, as presented in Table 2, indicate that none of the independent variables exhibit a high degree of correlation with one another. This is evidenced by the multicollinearity test values, which all fall below the critical threshold of 0.80. In other words, none of the variables display a correlation level that would suggest multicollinearity concerns. Consequently, it can be concluded that the independent variables in the model are free from interdependence, meaning they are fully independent from one another. This ensures that the model's estimates remain robust and reliable, as multicollinearity does not distort the relationships between the variables.

Table 2. Multicollinearity Test Result

Variable	lnEG	lnCM	lnPS
lnEG	1.000000	0.553501	0.793765
lnCM	0.553501	1.000000	0.799751
lnPS	0.793765	0.799751	1.000000

Source: eViews Output, 2024

Heteroscedasticity Test

The heteroscedasticity test is performed to ensure that the residuals in the regression model have equal variance, a key assumption for the reliability of regression results. This is confirmed by the probability t-Statistic values for the variables lnCM and lnPS when tested against ABS(RESID), which are 0.3959 and 0.4195, respectively. Since these values are greater than the threshold of 0.05, it indicates that the residuals for both lnCM and lnPS exhibit constant variance. In other words, the test results show no evidence of heteroscedasticity, meaning that the regression model does not suffer from unequal variance in the residuals, ensuring the stability and accuracy of the model's predictions.

Table 3. Heteroscedasticity Test Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.332003	0.331935	-1.000203	0.3184
lnCM	0.005531	0.006501	0.850749	0.3959
lnPS	0.019014	0.023504	0.808996	0.4195

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Source: eViews Output, 2024

Descriptive Statistics

Table 4 shows that lnCM has greater data variability indicated by higher standard deviations, compared to the variables lnPS and lnEG which show less variability and are more homogeneous among the 238 observations. The skewness of 0.976112 on lnEG and 0.899156 on lnCM indicates that the distribution of these variables is slightly skewed to the right (positive), but not too far from symmetrical. The skewness of 2.01 on lnPS indicates a higher degree of asymmetry, with a distribution that is much more skewed to the right, meaning that most of the data is on the left side of the distribution with some much higher values.

Table 4. Descriptive Statistics of 238 Observations

Variable	Mean	Maximum	Minimum	Std. Dev.	Skewness
lnEG	17.76062	19.51381	16.59370	0.562243	0.976112
lnCM	13.05318	19.44696	8.350889	1.791913	0.899156
lnPS	16.22294	19.48844	14.90338	0.710584	2.016158

Source: eViews Output, 2024

Multiple Linear Regression Analysis

Multiple linear regression can be used in predicting the state of the dependent variable if two or more independent variables are predictor factors. Multiple linear regression was used because this study has two independent variables and one dependent variable. Table 5 show the results of the multiple linear regression analysis test.

Table 5. Fixed Effect Model - Panel Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.511148	0.595105	10.94118	0.0000
lnCM	0.043601	0.011655	3.741019	0.0002
lnPS	0.658348	0.042138	15.62367	0.0000
R-squared	0.986498			
Adjusted R-squared	0.984159			
F-statistic	421.6919			
Prob (F-statistic)	0.000000			

$$lnEG_{it} = 6.511148 + 0.043601 lnCM_{it} + 0.658348 lnPS_{it}$$

Source: eViews Output, 2024

T-Test

Table 5 shows that lnCM variable has a coefficient value of 0.043601, which means that an increase in assets in the capital market by 1 percent causes an increase in economic growth by 0.043601 percent. The lnCM variable shows a t-statistic value of 3.741019 and a probability of 0.0002 or <0.05 so that these results provide sufficient evidence that the capital market has a positive and significant effect on economic growth.

Table 5 shows that lnPS variable has a coefficient value of 0.658348, which means that an increase in public savings by 1 percent causes an increase in economic growth by 0.658348 percent. The lnPS variable shows a t-statistic value of 15.62367 and a probability of 0.0000 or <0.05 so that these results provide sufficient evidence that public savings have a positive and significant effect on economic growth.

F-Test

The F-test is used to determine the significance of the influence of the independent variables on the dependent variable simultaneously using the F-statistical test. Table 5 shows that F-statistic value of 421.6919 with a probability of 0.000000 or <0.05 means that the capital market and public savings together have a significant effect on economic growth.

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Coefficient of Determination

The coefficient of determination (R-squared) is used to assess how well the independent variables explain the variation in the dependent variable. Table 5 shows that R-squared value of 0.986498 means that together, the capital market and public savings are able to explain economic growth by 98.6498 percent.

The Capital Market has a Positive and Significant Effect on Economic Growth

This result is in line with previous studies by Omir et al., (2024); Umar (2022); Oluwaleye et al. (2023); Itiveh and Okolie (2023); and Yakubu (2023) previously showed a positive effect of the capital market on economic growth.

Public Savings Have a Positive and Significant Effect on Economic Growth

These results are in line with the research of Yakubu (2023); Awoyemi et al. (2022); Liu and Ma (2022); Nwonye et al. (2022); Ahmed et al. (2022); and Alnaa and Matey (2022) which showed a positive effect of public savings on economic growth.

4. Conclusions

This study provides empirical evidence of the effect of capital markets and public savings on economic growth in Indonesia. The results show that the capital market has a positive and significant effect on economic growth. Public savings also have a positive and significant effect on economic growth. These findings have important implications for economic policy. Increasing capital accumulation in the capital market and banks can be an effective strategy in an effort to boost economic growth. The government may consider developing plans and policies that can increase public participation in the capital market and banking.This study is limited to data from 34 provinces in Indonesia over a period of seven years, so generalisation of the results to other countries or longer time spans should be done with more caution. Future research can expand the analysis by including other variables such as capital stock, foreign exchange, and cost of capital to understand more comprehensively the factors that influence economic growth. In addition, longitudinal research with a longer timeframe and wider coverage of countries can provide deeper insights into economic growth.

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