

## Contribution of Stocks, Bonds, and Mutual Funds to Indonesia's Economic Growth: An Input-Output Approach

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**Abstract:** This study analyzes the impact of conventional investment on Indonesia's economic growth through the Input-Output approach. By analyzing secondary data from the Central Bureau of Statistics and the Financial Services Authority, this study aims to identify the contribution of capital market instruments such as stocks, bonds, and mutual funds to economic growth. The analysis results show that stocks, bonds, and mutual funds significantly drive economic growth, serving as the main driver in increasing the productivity of related sectors. This research provides important insights for policymakers and investors in promoting sustainable economic development.

**Keywords:** *Stocks, Bonds, Mutual Funds, Economic Growth, Input-Output Approach.*

### Introduction

The capital market is one of the main pillars in the financial system that serves as a means of raising funds for companies and governments, as well as providing investment alternatives for the public. In Indonesia, capital market instruments such as stocks, bonds, and mutual funds have experienced significant development, reflecting the increasing participation of domestic and foreign investors. The importance of economic growth in Indonesia cannot be separated from its role in the national economy, especially through the capital market. Capital market performance as an indicator of economic health often reflects the macroeconomic conditions of a country (Sholikah et al., 2022).

Transactions in the capital market, such as public offerings, purchases, and sales of financial instruments affect the price and value of assets, which in turn affect investment and consumption decisions. According to data from the Central Bureau of Statistic, Indonesia as a developing country ranked 16th among the G20 countries showed good economic resilience with a growth of 5.03% (yoy) in the first quarter of 2023. This resilience is supported by various capital market instruments that contribute to the flow of funds to the productive sector.

Indonesia's capital market showed significant development with the number of investors reaching 10.32 million by the end of 2022, up from 7.49 million in 2021. Stocks, as the main instrument, recorded a capitalization value of IDR 9,499.85 trillion by the end of 2022. Bonds play an important role in infrastructure financing and business expansion with an outstanding value of IDR5,485.23 trillion. Meanwhile, mutual funds increase financial inclusion with a Net Asset Value of IDR573.25 trillion (Financial Services Authority, 2023).

Although various studies have examined the relationship between capital markets and economic growth (Sholikah et al., 2022), there are still limited studies that specifically measure the contribution of each capital market instrument. Most previous studies focus more on the general analysis of the capital market without dissecting the individual roles of stocks, bonds, and mutual funds. Pratiwi et al. (2015) examined the influence of macroeconomic variables such as inflation, Bank Indonesia Certificate (SBI) interest rates, and exchange rates on foreign investment and economic growth in

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Indonesia. The results indicate that the dynamics of financial markets, including capital markets, have an important role in supporting overall national economic activity.

On the other hand, Suhel (2008) through the *Vector Auto Regression* (VAR) approach, found a significant reciprocal relationship between economic growth and foreign investment, which is one form of investment activity in the capital market. This result strengthens the understanding that the capital market can contribute to the increase of Gross Domestic Product (GDP) through a more efficient capital accumulation and distribution mechanism. Therefore, this study aims to fill the gap by comprehensively analyzing the contribution of each instrument to Indonesia's Gross Domestic Product (GDP). Based on research by Lisnawati & Budiyan (2011) shows that the development of the capital market has a positive impact on Indonesia's economic growth through increased resource allocation efficiency, but there has been no research comparing the effectiveness of each instrument with the Input-Output approach.

In this context, the Input-Output approach was chosen in this study because it has the advantage of comprehensively mapping the linkages between economic sectors, both from the demand and supply sides. This approach is also widely used in development policy, industrial planning, and economic scenario simulation, making it highly relevant for assessing the sectoral contribution of capital market instruments to national output (Miller & Blair, 2009). In addition, the model allows quantitative analysis of the impact of investment fund flows from stocks, bonds, and mutual funds on strategic economic sectors in Indonesia. Based on the above explanation, this study aims to analyze the contribution of stocks, bonds, and mutual funds to Indonesia's economic growth, as well as to identify the economic sectors that are most affected by investment flows from these three instruments. The results are expected to provide new insights for policymakers in optimizing the role of capital markets to support sustainable economic growth.

## Literature Review and Hypothesis

### Economic Growth Theory

Economic growth is a fundamental concept in economic development that describes the increase in a country's production capacity within a certain period (Todaro & Smith, 2020). According to the endogenous growth theory developed by Romer (1986), economic growth is not only determined by physical capital accumulation, but also by factors such as innovation, knowledge, and human resource investment. Romer argues that knowledge is non-rival and can increase productivity to a large extent so that investment in research and development (R&D) and education becomes the main driver of long-term economic growth.

This indicates that capital market instruments have a strategic role in promoting economic growth through efficient capital allocation to productive sectors. Stiglitz (2000) emphasizes that capital markets play a crucial role in economic growth by facilitating the allocation of resources from those who have excess capital to those who need capital for productive investment. This process allows for an increase in production capacity and efficiency of the national economy.

### Capital Market

The capital market has a strategic role in a country's economy. Through the capital market mechanism, funds from those who have surplus can be allocated to those who need funding for productive investment. This not only increases the efficiency of resource allocation, but also encourages economic growth through increased investment.

According to Permata & Ghoni (2019), the main instruments in the capital market include:

#### a. Stocks

Stocks are a form of securities that indicate a person has part ownership of a company. By owning stocks, a person has the right to participate in decision-making and also has the opportunity to benefit from the company's performance. The greater the number of stocks owned,

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the greater the rights and influence in the company. The profits that are usually received by shareholders are called dividends, the distribution of which is decided through the General Meeting of Shareholders (RUPS).

b. Bonds

Bonds are debt securities issued by governments and companies to raise funds in the medium to long term. In simple terms, bonds are debt agreements in the form of financial instruments with a certain nominal value. Parties that issue bonds are called debtors (borrowers), while bondholders act as creditors (lenders). The returns received by bondholders are called coupons, which function like loan interest. Compared to stocks, bonds are classified as a more stable investment instrument because they provide fixed income with relatively low risk.

c. Mutual Funds

Mutual funds are investment vehicles that collect funds from the public to be managed in a portfolio of financial assets such as stocks, bonds, or money market instruments. This instrument provides convenience for the general public, especially those who do not have the expertise or time to invest directly in the capital market. Mutual funds themselves are divided into two types, namely open-end mutual funds and closed-end mutual funds. In Indonesia, the most commonly used type of mutual fund is the Collective Investment Contract (KIK), and is generally open-ended.

### **Input-Output Approach**

The Input-Output (I-O) approach is one of the quantitative economic analysis frameworks developed by Wassily Leontief in 1936, which is then widely used to analyze the interrelationships between sectors in an economy. The model illustrates how output from one sector is used as input for another, creating a linear and structural relationship between economic activities (Leontief, 1986). The I-O model uses the inter-sector transaction matrix and technical input coefficients to calculate the direct and indirect effects of changes in final demand on the total output of the economy. According to Zhang et al. (2020), the I-O approach is relevant in analyzing the structural impact of investment and final demand changes, particularly in the context of infrastructure financing and the financial sector. In addition, it is also widely used in development policy, industrial planning, and economic scenario simulation.

### **Hypotheses**

H1: Stocks contribute positively and significantly to Indonesia's economic growth.

H2: Bonds contribute positively and significantly to Indonesia's economic growth.

H3: Mutual funds contribute positively and significantly to Indonesia's economic growth.

### **Methodology**

#### **Research Approach**

This study uses a quantitative approach with Input-Output (I-O) analysis techniques to evaluate the contribution of capital market instruments, namely stocks, bonds, and mutual funds to Indonesia's economic growth. The Input-Output method was chosen because it can show the interrelationships between sectors in the economy and calculate the direct and indirect effects of an economic activity on Gross Domestic Product (GDP). The Input-Output model was originally developed by Wassily Leontief and used to systematically describe the structure of the economy, where each economic sector is seen as a consumer and supplier in the national production system (Miller & Blair, 2009).

#### **Types and Sources of Data**

This research utilizes secondary data sourced from official publications, namely:

1. Indonesia Input-Output Table 2020
2. Indonesia GDP data 2010-2020
3. Indonesia capital market statistics 2020

Indonesia Input-Output Table is used to estimate the relationship between economic sectors, including the financial sector which includes stocks, bonds, and mutual funds. The unit of analysis in

this study includes all relevant economic sectors in the I-O table, especially sectors receiving investment allocations from the capital market. The main focus is on the financial sector as the origin of investment, which then simulates its impact on other sectors of the economy. The data has been processed and adjusted in a format compatible with Input-Output analysis, including the conversion of basic prices to constant prices as well as sector classification according to KBLI (Indonesian Standard Industrial Classification) codes.

### Operationalization of Variables

Independent variable:

1. Total value of stock market capitalization in Indonesia
2. Total outstanding value of bonds (corporate and government)
3. Total Net Asset Value (NAV) of mutual funds

Dependent variable: Economic growth (real GDP)

Intervening variable: Allocation of capital market investment funds to economic sectors

### Methods of Analysis:

1. Financial Sector Input Coefficient Extraction

The Indonesia Input-Output (I-O) Table for the 2020 Base Year compiled by the Central Bureau of Statistics (BPS) presents a matrix of transactions between sectors that can be processed into a matrix of direct input coefficients (A). The extraction process is done by dividing the input value between sectors by the total output of the destination sector.

$$a_{ij} = \frac{z_{ij}}{x_j}$$

where :

$a_{ij}$ : input coefficient from sector i to sector j

$z_{ij}$ : input value from sector i to sector j

$x_{ij}$ : total output of sector j

2. Calculation of Capital Market Sector Output Multiplier

The I-O model allows us to calculate the output multiplier (*Leontief Inverse*) to determine the total effect on the entire economy if there is an increase in final demand in the capital market sector. The basic formula of output multiplier:

$$X = (I - A)^{-1}Y$$

where :

X: Total output

A: Inter-industry input coefficient matrix

Y: Final demand

$(I - A)^{-1}$ : Inverse Leontief Matrix (output multiplier)

By constructing the Identity Matrix (I) and Input Coefficient Matrix (A) of the relevant sectors, we obtain the Inverse Leontief Matrix (L). After the inversion calculation is performed, we obtain:

$$L_{financial\ sector} = 1.872$$

This means that every additional Rp 1 in the capital market sector will increase the national economic output by Rp 1.872.

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### 3. Simulation of the Contribution of Stocks, Bonds, and Mutual Funds to National Output

The simulation is conducted by assuming an increase in investment in each capital market instrument (stocks, bonds, and mutual funds). The increase in investment value is used as a variable in final demand ( $F$ ), and then its impact on total output ( $X$ ) is calculated using the output multiplier matrix.

$$\text{Output Contribution} = \text{Capitalization} \times \text{Output Multiplier}$$

## Results and Discussion

### Capital Market Development and National Growth (2010-2020)



Figure 1. GDP Growth Trend and Capitalization of Indonesian Capital Market 2010-2020

Source : Central Bureau of Statistics and CEIC Data.

Figure 1 shows the growth trend of Indonesia's Gross Domestic Product (GDP) and capital market capitalization over the period 2010 to 2020. During this decade, it can be seen that although GDP growth has tended to decline since 2011, market capitalization has shown stability and even increased in nominal terms. This capitalization stability reflects the resilience of the capital market sector in the face of macroeconomic fluctuations. The Input-Output approach emphasizes the importance of inter-sectoral linkages, including financial intermediation as a distributor of funds to the productive sector.

In this context, the capital market plays a vital role as a growth catalyst, in line with Todaro & Smith (2020) statement that a deep and liquid financial system has a positive effect on long-term growth because it can mobilize savings into productive investment. The positive trend in capital market capitalization signifies the important role of the financial sector in providing liquidity and long-term investment. Sharp GDP fluctuations in 2020 emphasize that the real sector is more vulnerable to shocks, while the capital market remains an adaptive financing channel.

### Financial Sector Direct Input Coefficient

Table 1. Financial Sector Direct Input Coefficient

| Economic Sector        | Finance Input Coefficient |
|------------------------|---------------------------|
| Manufacturing Industry | 0.072                     |
| Construction           | 0.073                     |
| Trade                  | 0.058                     |
| Education Services     | 0.054                     |
| Health Services        | 0.049                     |
| Government Services    | 0.062                     |

Source: Indonesia Input-Output Table 2020, Central Bureau of Statistics

As illustrated in Table 1, the direct input coefficient of the financial sector to other sectors is demonstrated to be significant, based on the 2020 Indonesia Input-Output Table. The construction

sector (0.073) and the manufacturing industry (0.072) exhibit the highest coefficient values, suggesting a high degree of reliance on financial services for economic activity in these sectors. The presence of a high direct input coefficient signifies the substantial forward linkage of the financial sector.

This finding aligns with the analysis presented by Chenery & Watanabe (1958) which posits that sectors characterized by extensive forward linkages frequently serve as pivotal catalysts in the acceleration of economic growth. The construction and manufacturing sectors, being capital-intensive, are particularly reliant on financing from financial institutions and capital markets for their expansion and operational needs. This observation underscores the multifaceted role of the capital market, demonstrating its function not only as a conduit for investment but also as a catalyst for forward linkages to pivotal economic development sectors.

### Financial Sector Output Multipliers

Table 2. Comparison of Output Multipliers between Sectors

| Sector        | Output Multiplier |
|---------------|-------------------|
| Agriculture   | 1.34              |
| Food Industry | 1.58              |
| Construction  | 1.67              |
| Finance       | <b>1.872</b>      |
| Trade         | 1.59              |

Source: Indonesia's Input-Output Table 2020, Central Bureau of Statistics

As demonstrated in Table 2, the financial sector exhibits the highest output multiplier value of 1.872, in comparison to the construction (1.67), trade (1.59), and agriculture (1.34) sectors. This value signifies that a Rp1 increase in final demand in the financial sector will increase the total output of Rp1.872 across the economy. The Input-Output Approach with Leontief Matrix demonstrates that the financial sector exerts a direct impact on the economy and disseminates its economic influence extensively to other sectors. In other words, the financial sector functions as a pivotal nexus of economic interconnection (Miller & Blair, 2009).

### Simulation of the Contribution of Stocks, Bonds, and Mutual Funds to National Output

Table 3. Simulated Capital Market Sector Contribution

| Instrument   | Value (T)     | Multiplier | Output Contribution (T) |
|--------------|---------------|------------|-------------------------|
| Stocks       | 7.000         | 1.872      | 13.104                  |
| Bonds        | 4.200         | 1.872      | 7.862                   |
| Mutual Funds | 0.500         | 1.872      | 936                     |
| <b>Total</b> | <b>11.700</b> |            | <b>21.902</b>           |

Source: Financial Services Authority

As illustrated in Table 3, the impact of capital market instruments (e.g., stocks, bonds, mutual funds) on Indonesia's GDP is modeled. The model is based on the Input-Output approach, with financial sector multipliers. According to the Financial Services Authority (2021), if the total capitalization value of stocks (IDR 7,000 trillion), bonds (IDR 4,200 trillion), and mutual funds (IDR 500 trillion) is regarded as final demand, the resulting output value can be calculated by multiplying the value of the instruments by the financial sector multiplier (1.872).

In the event that the total value is converted into final demand, the resulting impact on GDP through the output multiplier will result in a national output of Rp21,902.4 trillion. This calculation is derived from the following equation:

$$\text{Total Output Contribution} = (11.700 T) \times 1.872 = \text{Rp}21.902,4 \text{ trillion}$$

As illustrated in Table 3, the capital market sector provides a substantial indirect contribution to national output. This finding serves to confirm the considerable potential of capital market instruments

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in driving national economic output. Indeed, the magnitude of this contribution surpasses the annual GDP of several pivotal sectors, including agriculture and manufacturing. Within the paradigm of economic development, the strategic allocation of capital to the financial sector is regarded as a pivotal policy to enhance productivity and efficiency in the allocation of funds to the real sector (Levine, 2005).

### **Sectors Affected Most by Capital Market Investment**

In addition, this study employed the Input-Output Approach to ascertain the sectors of the economy most impacted by investment flows from the three capital market instruments. The construction and manufacturing sectors serve as prime examples, illustrating robust interconnections with the financial sector. This evidence corroborates the notion that capital market investments exert a direct influence on the financial sector and generate substantial secondary effects on pivotal sectors within the national economy. This finding lends further credence to the notion that the development of capital markets constitutes a pivotal strategy for enhancing productivity and efficiency in the allocation of funds to the real sector, thereby underpinning sustainable economic growth.

In summation, the findings of this study consistently underscore the pivotal role of the capital market in propelling national economic growth through instruments such as stocks, bonds, and mutual funds. Nevertheless, this study has not directly addressed the compatibility of these findings with the initial hypothesis proposed. Therefore, it is imperative to incorporate an analysis that establishes a link between the empirical findings and the hypothesis to enhance the validity of the research.

### **Conclusion**

This study utilizes the input-output approach to examine the contribution of capital market instruments, namely stocks, bonds, and mutual funds, to Indonesia's economic growth. Through secondary data analysis from the Central Bureau of Statistics (BPS) and the Financial Services Authority (OJK), it was found that the financial sector, which serves as the primary conduit for these instruments, exhibits an output multiplier value of 1.872. This indicates that for every additional Rp 1 investment in the capital market sector, there is a corresponding increase in economic output of Rp 1.872. This finding is supported by simulations based on the capitalization value of capital market instruments in 2020. These simulations reveal that stocks contribute the most to national output, reaching Rp 13,104 trillion. This is followed by bonds, which contribute Rp 7,862 trillion, and mutual funds, which contribute Rp 936 trillion. The capital market's total contribution to national output, as determined by the utilization of the entire investment value as final demand, amounts to IDR 21,902 trillion.

The findings of this study substantiate the notion that the capital market performs a pivotal function as a catalyst for economic growth, transcending its conventional role as a mere conduit for financial transactions. Instead, it emerges as an effective mechanism for the efficient allocation of financial resources to productive sectors. Consequently, capital market instruments, in addition to their role as investment tools, serve as critical pillars in the broader context of national economic development. This study offers two primary contributions. Firstly, it strengthens the relevance of the input-output approach in analyzing the economic impact of the financial sector. Secondly, it provides policy directions to strengthen the integration of the capital market with the real sector in order to achieve sustainable economic growth.

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