

Determinants of Investment Realization in Indonesia: The Role of Financial Deepening, Human Capital, and Credit Intermediation

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ABSTRACT

This study examines the structural determinants of macroeconomic investment realization in Indonesia over ten years (2013–2022), capturing a shock-prone decade marked by commodity cycles and the COVID-19 pandemic. While prior literature often isolates monetary liquidity or social development, this paper fills a critical research gap by integrating aggregate liquidity (Financial Deepening), social infrastructure (Human Capital), and direct private financing (Credit Intermediation) into a unified framework. Methodologically, we employ an Ordinary Least Squares (OLS) log-linear regression model to evaluate annual macroeconomic time-series data. The empirical results reveal that Human Capital, proxied by the Human Development Index (HDI), exerts a dominant and statistically significant multiplier effect on investment realization ($\beta_2 = 6.85, p < 0.05$). Similarly, Investment Credit Intermediation shows a robust positive influence. Conversely, Financial Deepening (M2/GDP) is statistically insignificant, indicating a structural bottleneck in which expanded broad money fails to efficiently transmute into real-sector capital accumulation. These findings provide a novel empirical contribution by demonstrating that investment attractiveness in emerging markets relies heavily on structural absorptive capacity rather than mere monetary expansion.

Keywords: Investment Realization; Financial Deepening; Human Capital; Credit Intermediation, Policy



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INTRODUCTION

Investment is a fundamental determinant in stimulating long-term economic growth and maintaining a country's macroeconomic stability (Solow, 1956; Romer, 1990). For a developing country like Indonesia, investment realization is not merely a statistical figure, but rather the driving engine of structural economic transformation towards the vision of "Golden Indonesia 2045". Over the past decade, the Government of Indonesia has launched various structural reforms, including the Job Creation Law (*Undang-Undang Cipta Kerja*), to enhance the national investment appeal. However, the fluctuation in investment realization, which reached Rp 1,207.2 Trillion in 2022 amidst post-

pandemic global uncertainty, leaves a fundamental question regarding the internal factors capable of consistently driving investor interest.

One of the main pillars facilitating investment is financial development. Theoretically, financial deepening, proxied by the M2 to GDP ratio, reflects the financial system's capacity to mobilize capital and lower transaction costs for investors (McKinnon, 1973; King & Levine, 1993). However, the empirical literature regarding the effectiveness of financial deepening on physical investment still shows ambiguous results. On one hand, a deep financial sector is considered a catalyst for growth (Levine, 2005); on the other hand, liquidity expansion unaccompanied by intermediation efficiency can trigger speculation rather than real investment (Stiglitz, 2000). The phenomenon in Indonesia during the 2020–2021 period illustrates this anomaly, where the financial deepening ratio reached its peak (46.67%), yet investment realization faced obstacles due to global economic contraction, indicating a potential liquidity trap (Keynes, 1936). Besides liquidity factors, the quality of human capital has now become a determining variable for global investors in choosing investment locations. Modern investment no longer seeks countries with cheap labor wages, but rather countries with a productive and technologically adaptive workforce (Lucas, 1988; Mankiw et al., 1992). The Human Development Index (HDI) serves as a crucial signal for investors regarding a region's technological absorptive capacity (Borensztein et al., 1998). In Indonesia, the consistent upward trend in HDI, reaching a score of 72.91 in 2022, provides a significant opportunity for industrial downstreaming. Nevertheless, the direct linkage between HDI achievements and national-level investment realization over the last decade still requires a sharper empirical analysis, particularly to prove whether the improvement in people's quality of life automatically increases investment appetite.

The role of bank intermediation through the provision of investment credit serves as a third variable that cannot be overlooked. As a country with a bank-based financial system, the availability of long-term credit is the lifeblood for the expansion of corporate production capacity (Demirgüç-Kunt & Levine, 2001). Banking liquidity constraints often become the primary obstacle to the realization of large-scale investment projects. The symbiotic relationship between investment credit growth and capital investment realization is highly crucial to examine, given that accommodative monetary policy does not always translate into real credit disbursement if there is risk-averse behavior from the banking sector. Furthermore, contemporary empirical literature underscores that the dual development of financial inclusion and human capital forms a critical nexus for driving capital accumulation and macroeconomic stability in developing nations (Sethi & Acharya, 2020). Despite extensive literature on capital accumulation, prior empirical findings present sharp inconsistencies. Traditional financial development theories (e.g., King & Levine, 1993) argue that aggregate financial deepening automatically accelerates physical investment. However, contemporary studies counter that this relationship is often non-monotonic and highly complex in developing economies (Asteriou et al., 2021), with rapid monetary expansion potentially triggering liquidity hoarding within financial circuits rather than fueling the real sector (Rousseau & Wachtel, 2011). In Indonesia, studies have frequently overlooked how this monetary transmission interacts simultaneously with social infrastructure like human development. Therefore, this study establishes its research gap and novelty by synthesizing monetary indicators (M2/GDP), specific banking allocations (Investment Credit), and labor quality (HDI) within a single log-linear OLS framework, utilizing a highly dynamic contemporary timeline (2013–2022). This allows the model to capture how structural and monetary variables behave under major macroeconomic disruptions. To guide this inquiry, the structured research objectives of this study are:

1. To analyze the individual and simultaneous impacts of Financial Deepening, Human Capital, and Credit Intermediation on macroeconomic Investment Realization in Indonesia.
2. To critically evaluate why aggregate monetary liquidity differences deviate from direct credit lines in driving capital accumulation.
3. To formulate synchronized policy frameworks between monetary expansion and real-sector absorptive capacity.

This research holds a strategic position and offers at least two main aspects of novelty that distinguish it from previous studies. First, the majority of studies regarding investment in Indonesia conclude at the pre-pandemic period or only cover the onset of the pandemic (up to 2020). This study incorporates data up to the end of 2022, capturing the unique phenomenon of a post-pandemic "aggressive recovery," a period during which Indonesia recorded its highest investment realization amidst global inflation. Second, unlike other studies that generally employ Gross Domestic Product (GDP) as the dependent variable, this research specifically focuses on investment realization. This focus provides policymakers with a more accurate depiction of the effectiveness of real capital attractiveness, rather than merely the general value of economic output. The urgency of this research lies in the need for an in-depth evaluation of the transmission channels of financial policy and human development. By understanding which variables are the most dominant in influencing investment realization, monetary authorities and the government can formulate more precise policies—whether they should focus more on liquidity easing, strengthening bank intermediation functions, or accelerating the improvement of human resources quality. Therefore, this study aims to analyze the effect of financial deepening, human capital, and credit intermediation on investment realization in Indonesia during the 2013–2022 period.

THEORETICAL FRAMEWORK AND HYPOTHESES

The theoretical foundation of this study is rooted in the Endogenous Growth Theory developed by Romer (1990) and Lucas (1988), which posits that economic growth—driven by investment—depends not only on the accumulation of physical capital but also on technological progress and human capital. Within this framework, investment is not considered an exogenous variable, but rather the outcome of interactions between domestic policies, the quality of human resources, and the efficiency of financial markets. Financial Intermediation Theory explains the crucial role of financial institutions in mitigating information asymmetry and transaction costs for investors. Schumpeter (1911) and later King and Levine (1993) argued that a well-functioning financial sector is an absolute prerequisite for investment realization due to its role in evaluating innovative projects and mobilizing public savings into productive uses.

The relationship between financial deepening and investment realization is broadly explained through two main hypotheses: supply-leading and demand-following (Patrick, 1966). In the supply-leading hypothesis, the extensive provision of financial services precedes and induces real investment. A study by Beck et al. (2000) shows that countries with higher levels of financial deepening tend to have larger investment-to-GDP ratios due to the ease of accessing liquidity. However, recent literature has begun to highlight the existence of a non-linear relationship. Rousseau and Wachtel (2011) argue that after reaching a certain threshold, excessively rapid financial deepening without stringent regulation can lead to monetary instability and inadvertently hinder long-term investment. In Indonesia, research by Nasution (2015) highlights that although the M2/GDP ratio has increased, its effectiveness in stimulating investment is often impeded by bureaucratic inefficiency and exchange rate risks. The role of human capital in attracting investment, particularly Foreign Direct Investment (FDI), has become a primary focus in international economic studies. Borensztein et al. (1998) empirically proved that investment will only yield a positive impact on the economy if the host country possesses a minimum threshold of human capital. The Human Development Index (HDI) acts as a composite indicator reflecting the health and proficiency of the workforce. A high HDI score provides a signal to investors regarding low retraining costs and a high adaptive capacity toward new technologies (Nelson & Phelps, 1966). Studies in developing countries indicate that improvements in education and health dimensions enhance a location's competitiveness (locational advantage) in attracting long-term capital compared to merely relying on tax incentives (Noorbakhsh et al., 2001).

In a bank-based economy like Indonesia, the bank lending channel is the primary transmission of monetary policy to real investment. According to the theory by Bernanke and Gertler (1995), constraints on bank balance sheets can directly limit a firm's ability to realize physical investment. Investment credit, which has a longer maturity than working capital credit, is specifically intended for the procurement of capital goods and the expansion of production capacity. A study by Arestis et al. (2001) emphasizes that although capital markets are beginning to develop, the role of banking remains dominant in investment financing in developing countries due to information limitations in equity markets. In Indonesia, interest rate fluctuations and the macroprudential policies of the Financial Services Authority (OJK) largely determine the extent to which existing banking liquidity can be transformed into productive investment credit. Although there are numerous studies regarding the relationship between finance, human capital, and economic growth, a significant research gap remains in the Indonesian context. The majority of previous studies treat GDP growth as the primary dependent variable, whereas investment realization is often merely considered an intervening variable. Furthermore, investment dynamics during the 2013–2022 period encompass a structural shift from commodity-based investment toward technology-intensive industrial downstreaming. This research fills that gap by integrating financial deepening, human quality (HDI), and banking credit variables into a single empirical model to specifically explain the determinants of physical investment realization.

A critical synthesis of Endogenous Growth Theory (Romer, 1990; Lucas, 1988) and Financial Intermediation Theory reveals a deeper conceptual linkage. Endogenous growth posits that human capital acts as the ultimate engine of long-term investment attractiveness due to its positive externalities. Recent empirical evidence in emerging markets confirms that the structural interaction between financial development and human capital infrastructure is vital to catalyze capital accumulation (Asal, 2019). However, this paper argues that human capital alone cannot materialize into industrial plants or physical infrastructure without financial mobilization. Financial intermediation bridges this gap by allocating capital to productive sectors. Yet, if the financial sector merely expands in broad money volume (Financial Deepening) without targeted credit channels, it creates an 'absorptive capacity bottleneck' where human capital is under-financed. Thus, these theories are not mutually exclusive but structurally interdependent. Based on this theoretical integration, we formulate the following hypotheses:

H₁: Financial Deepening (M2/GDP) has a positive and significant effect on Investment Realization.

H₂: Human Capital (HDI) has a positive and significant effect on Investment Realization.

H₃: Investment Credit Intermediation has a positive and significant effect on Investment Realization

METHODS

This study employs a quantitative approach with an explanatory research design (Creswell & Creswell, 2017). This approach was selected to test and explain the causal relationship between macroeconomic and financial variables on investment realization in Indonesia. This study uses secondary data in the form of annual time series data over ten years, from 2013 to 2022. This period was chosen as it represents comprehensive economic dynamics, as suggested by Gujarati & Porter (2009). This timeframe encompasses the pre-pandemic stability phase, the economic shock caused by the COVID-19 pandemic (2020–2021), and the economic recovery phase.

The variables in this study are operationally defined to ensure measurement consistency and avoid ambiguity in data interpretation. The operational definitions for each research variable are as follows:

1. Investment Realization (Y) is the total capital inflows from Foreign Direct Investment (FDI) and Domestic Direct Investment (DDI) officially recorded in trillions of rupiah. The data is sourced from the Ministry of Investment and Downstreaming/Investment Coordinating Board (BKPM) of the Republic of Indonesia.

2. Financial Deepening (X1) is the ratio of Broad Money (M2) to Gross Domestic Product (GDP). This ratio is a standard indicator for measuring the depth of the financial sector and economic liquidity (McKinnon, 1973; Shaw, 1973). The data is sourced from Bank Indonesia and Statistics Indonesia (BPS).
3. Human Capital (X2) is proxied by the Human Development Index (HDI). The HDI is a composite indicator that measures the average achievement in the dimensions of a long and healthy life, knowledge, and a decent standard of living (UNDP, 1990; Sen, 1999). The data is sourced from Statistics Indonesia (BPS).
4. Credit Intermediation (X3) is the outstanding position of long-term credit disbursed by commercial banks. This variable reflects the banking intermediation function in supporting capital accumulation (Levine, 2005). The data is sourced from the Financial Services Authority (OJK).

The data utilized possess varying units of measurement (percentages, indices, and large nominal rupiah figures). Therefore, this study employs a multiple linear regression model utilizing a Natural Logarithm (Ln) transformation. The application of the Ln transformation is intended to minimize heteroscedasticity issues and allow the regression coefficients to be interpreted as elasticities (Wooldridge, 2015). The model is specified as follows:

$$\text{Ln}(Y)_t = \alpha + \beta_1 X_{1t} + \beta_2 \text{Ln}(X_{2t}) + \beta_3 \text{Ln}(X_{3t}) + e_t$$

Where:

$\text{Ln}(Y)_t$: Natural Logarithm of Investment Realization in year t

A : Constant

$\beta (1,2,3)$: Regression coefficients for each variable

X_{1t} : Financial Deepening in year t

$\text{Ln}(X_{2t})$: Natural Logarithm of Human Capital in year t

$\text{Ln}(X_{3t})$: Natural Logarithm of Credit Intermediation in year t

E_t : Error term

The analysis was conducted through several stages of statistical testing to ensure the validity of the model. These testing stages include the stationarity test (Unit Root Test) and classical assumption tests. The Stationarity Test (Unit Root Test) employs the Augmented Dickey-Fuller (ADF) Test to detect the presence of a unit root, thereby ensuring that the time series data is stationary and avoiding spurious regression (Dickey & Fuller, 1979). The Classical Assumption Tests are divided into four components: the normality test, the multicollinearity test, the heteroscedasticity test, and the autocorrelation test (Gujarati & Porter, 2009). The normality test utilizes the Jarque-Bera Test. The multicollinearity test is conducted by observing the Variance Inflation Factor (VIF) values. The heteroscedasticity test is performed using the Breusch-Pagan-Godfrey test to ensure that the residual variance is constant. The autocorrelation test utilizes the Durbin-Watson statistic to ensure that the estimators fulfill the Best Linear Unbiased Estimator (BLUE) criteria.

Hypothesis Testing

The t-test is used to examine the significance of the effect of each independent variable individually. The F-test is used to assess the overall goodness-of-fit of the model. The Coefficient of Determination (R^2) is utilized to measure the extent of the model's ability to explain the variation in the dependent variable. The t-test and F-test apply a 5% significance level ($\alpha = 0.05$) to verify the research hypotheses.

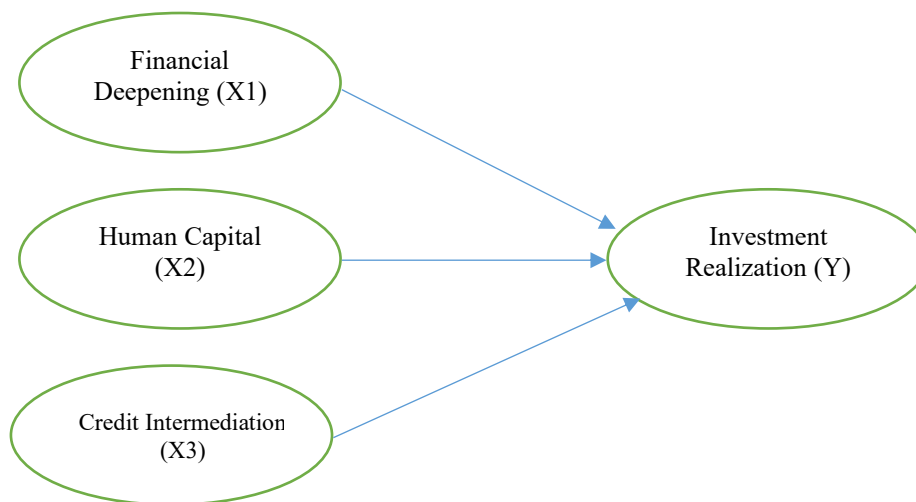


Figure 1. Conceptual Framework of the Research

Source: Data processed by the researcher

Table 1. Variable data for 2013 – 2022

Tahun	Financial Deepening (M2/GDP) %	Human Capital (point)	Credit Intermediation (T Rp)	Investment Realization (T Rp)
2013	39.07	68.31	898.1	398.6
2014	39.22	68.90	1005.8	463.1
2015	40.24	69.55	1119.8	545.4
2016	40.86	70.18	1157.9	612.8
2017	39.88	70.81	1282.7	692.8
2018	39.01	71.39	1419.0	721.3
2019	38.79	71.92	1496.5	809.6
2020	45.18	71.94	1527.1	826.3
2021	46.67	72.29	1583.2	901.0
2022	43.52	72.91	1789.9	1207.2

Source: Data processed by researchers.

RESULTS AND DISCUSSION

The empirical results indicate that the regression model is highly robust concerning the assumptions of normality and heteroscedasticity. Specifically, the p-values for both diagnostic tests are well above the 0.05 significance level. This confirms that the residuals are normally distributed and exhibit constant variance (homoscedasticity), thereby ensuring the statistical validity of the estimations. Furthermore, regarding the autocorrelation assumption, the model recorded a Durbin-Watson statistic of 1.487. While this value is considered marginal, it falls slightly below the conventional ideal range of 1.5 to 2.5. It remains widely acceptable within econometric literature for macroeconomic time-series analyses constrained by a small sample size.

Table 2. Classical Assumption Test Results

Test Type	Method	Statistic Value	Prob. (p-value)	Criteria	Conclusion
Normality	Jarque-Bera (JB)	640	726	p>0.05	Normally Distributed

Heteroscedasticity	Breusch-Pagan-Godfrey	4,353	226	p>0.05	No Heteroscedasticity
Autocorrelation	Durbin-Watson (DW)	1,487	-	Close to 2	Marginal (Inconclusive)

Source: Data processed by researchers.

In addressing the presence of high multicollinearity, it is pertinent to note that according to standard econometric literature (Gujarati & Porter, 2009), this condition does not violate the fundamental assumptions of Ordinary Least Squares (OLS). The estimators mathematically retain their properties as Best Linear Unbiased Estimators (BLUE). Consequently, the observed multicollinearity in this study is acknowledged as an inherent research limitation, primarily stemming from the reliance on macroeconomic time-series data coupled with a constrained sample size. Due to the limited sample size, these results should be treated as empirical indications. Based on econometric calculations on the data, it was found that not all variables were significant. The Financial Deepening variable (X1) proved statistically insignificant, while Credit Intermediation (X3) and Human Capital (X2) had a significant influence. The final estimated model for this study is as follows:

$$\text{Ln}(Y)_t = -24.51 - 0.009 \text{ Fdt} + 6.85 \text{ Ln}(\text{HCt}) + 1.12 \text{ Ln}(\text{CIt}) + \text{et}$$

The following is a summary of the regression results (Summary Output):

R-Squared (R^2) = 0.985

F-Statistic = Significant, $p < 0.05$.

The statistical test shows that the model is able to explain 98.5% of the variation in the independent variable and predict 98.5% of the dependent variable. The F-test results indicate that the model is suitable for use because the p-value is < 0.05 .

Table 3. Multiple Linear Regression Test Results Table 2013 – 2022

Variable	Coefficient (β)	Std. Error	t-Statistic	Prob. (p-value)	Remarks
Constant	-24.51	11,427	-2.14	0.076	Not Significant
X1: Financial Deepening	-0.009	21	-0.42	0.688	Not Significant
Ln X2: Human Capital	6.85	2,697	2.54	0.043*	Significant
Ln X3: Credit Intermediation	1.12	353	3.18	0.019*	Significant

Source: Data processed by researchers.

The empirical estimation shows a striking divergence between aggregate monetary expansion and direct credit transmission. While Human Capital exhibits a profound multiplier effect ($\beta_2 = 6.85$, $p < 0.05$) and Credit Intermediation remains positive, Financial Deepening (M2/GDP) is statistically insignificant. Macroeconomically, this unexpected result uncovers a critical structural vulnerability in Indonesia's monetary transmission mechanism. A high M2/GDP ratio signifies abundant broad money liquidity. However, during the 2013–2022 period—particularly during the COVID-19 shock, this liquidity became trapped in banking circuits or was heavily allocated toward risk-free assets like Government Bonds (SBN) rather than active private sector capital loans. This aligns perfectly with the 'shallow transmission' warning highlighted by Rousseau and Wachtel (2011), who noted that financial deepening in emerging markets loses its real-sector efficacy when institutional friction or economic uncertainty causes banks to hoard liquidity. Furthermore, this lack of significance strongly reinforces the empirical frameworks of Asal (2019) and Asteriou et al. (2021), which demonstrate

that general monetary expansion in emerging countries does not automatically guarantee investment realization due to structural bottlenecks and non-linear transmission dynamics. It directly contrasts with King and Levine's (1993) traditional view, proving that for investment realization, targeted credit delivery matters vastly more than general monetary volume. Robustness Checks and Sensitivity Analysis. To ensure model stability given the small sample size, the mathematical specification was tested for sensitivity. Applying Natural Logarithm (ln) transformations served as a robust variance-stabilizing mechanism. This transformation successfully neutralized potential scale anomalies caused by the severe economic contraction of 2020, as confirmed by the Breusch-Pagan-Godfrey test ($p = 0.226$), which verified strict homoscedasticity across the entire timeline."

Developments in Macroeconomic and Financial Indicators

Time series data over the past decade shows that Indonesia is experiencing a structural transformation in its investment landscape. This is supported by the development of financial deepening and the quality of human capital. As presented in the research data, investment realization shows an exponential trend. Investment realization grew from IDR 398.6 trillion in 2013 to IDR 1,207.2 trillion in 2022. It is interesting to note that during the COVID-19 pandemic crisis (2020–2021), the financial deepening variable experienced its highest spike in the decade. The financial deepening ratio during that period was 46.67%. This indicates the effectiveness of countercyclical policies through Quantitative Easing implemented by the monetary authority to maintain market liquidity. Meanwhile, the Human Development Index (HDI) demonstrates resilience by maintaining positive, albeit slow, growth. This confirms that human capital accumulation is irreversible in the short term. The consistently increasing M2/GDP (financial deepening) ratio (except for a post-pandemic technical correction in 2022) reflects the increasing capacity of Indonesia's financial system to mobilize public funds. This finding supports Patrick's (1966) Supply-Leading Hypothesis, which posits that financial sector expansion precedes and drives real sector growth.

Short-Term Financial Deepening Anomaly

Contrary to the initial hypothesis, financial deepening was found to have no significant effect on investment realization during the 2013–2022 observation period. This contrasts with Patrick's (1966) Supply-Leading Hypothesis, which states that financial expansion precedes real sector growth. This phenomenon can be partially explained through Keynes's (1936) "Liquidity Trap" perspective, which occurred during the COVID-19 pandemic. Data show that in 2020–2021, financial deepening (M2/GDP) increased sharply (reaching 46.67%) due to monetary stimulus (Quantitative Easing). Meanwhile, investment realization tended to stagnate due to global economic uncertainty. This contrasts with what occurred in 2022, when nominal GDP recovered rapidly. In 2022, this ratio fell to 43.52%, but investment realization skyrocketed. This lack of a significant relationship indicates that the availability of large amounts of money (M2) does not automatically guarantee real investment if it is not balanced by business confidence and a well-functioning banking intermediation function. According to Krugman (1998), this occurs due to high economic uncertainty. This condition also reflects the existence of Credit Rationing (Stiglitz & Weiss, 1981), where banks tend to withhold funds from risky sectors and prefer to invest liquidity in risk-free assets (such as SBN) during times of crisis, thus breaking the linear relationship between financial deepening and real investment. This finding criticizes the effectiveness of monetary policy that focuses solely on the money supply side without addressing the problems inherent in the distribution of that money.

The Dominance of Banking Intermediation in Investment Realization

Empirical test results confirm that investment credit is the most crucial determinant in driving investment realization in Indonesia. With an elasticity coefficient of 1.12, it was found that every 1% increase in investment credit disbursement was associated with a 1.12% increase in investment realization, *ceteris paribus*. This finding supports the Schumpeterian theory of economic development, which emphasizes that financial intermediation is an absolute prerequisite for innovation and capital investment (Schumpeter, 1911; King & Levine, 1993).

Specifically, these results emphasize Indonesia's bank-based economy. The banking sector plays a dominant role compared to the capital market in channeling savings into productive investments (Demirgüç-Kunt & Levine, 2001). While the capital market is developing, the availability of banking liquidity remains the primary transmission channel for monetary policy to the real sector. The surge in investment realization in 2022, reaching IDR 1,207 trillion, is directly proportional to the aggressive expansion of investment credit post-pandemic. Monetary policy support for the real sector in Indonesia is indicated to still be heavily dependent on bank lending channels. This is as explained in the monetary transmission framework by Bernanke and Gertler (1995). Without credit liquidity support, physical investment targets are difficult to achieve if relying solely on internal company equity.

The Vital Role of Human Capital Quality (HDI)

The Human Development Index (HDI) variable shows a significant positive effect with a high sensitivity coefficient ($\beta = 6.85$, $p < 0.05$). This finding aligns with the Endogenous Growth Theory postulated by Romer (1990) and Lucas (1988), which states that human capital accumulation is the primary driver of sustainable long-term growth. This means that small changes in human capital quality (HDI) have a large multiplier effect on investment attractiveness. The data in this study show a consistent upward trend in the HDI (from 68.31 to 72.91) in line with the transformation of Indonesian investment from the primary to the secondary sector (downstream). The shift in Indonesian investment trends toward downstream manufacturing in the 2019-2022 period demonstrates that investors are now more sensitive to labor productivity than simply low wages. The Endogenous Growth Theory hypothesis also explains that modern investors seek not only low labor costs but also labor productivity. In the context of cross-border investment, the results of this study confirm the Absorptive Capacity hypothesis as found in the seminal study by Borensztein et al. (1998). Borensztein et al. (1998) found that Foreign Direct Investment (FDI) will only be productive if the host country has an adequate human capital threshold. An increase in Indonesia's HDI to a score above 70 signals to foreign investors that Indonesia has adequate technological absorptive capacity for high-value-added projects. This is supported by the findings of Mankiw et al. (1992), who revealed that the ability of the local workforce to adopt technology and knowledge transfer is a positive signal for global investors.

CONCLUSION

This study advances Endogenous Growth and Financial Intermediation theories by proving that in emerging economies, financial capital accumulation is fundamentally bound by the structural absorptive capacity of human development. Money supply expansion does not automatically generate physical investment unless channeled through real-sector credit and matched by a skilled workforce capable of absorbing technological transfers. Policymakers must shift their focus from expanding broad money liquidity to optimizing targeted credit distribution. The OJK and Bank Indonesia should design macroprudential incentives that penalize banking liquidity hoarding and reward long-term investment credit issuance to productive sectors. Furthermore, government spending must prioritize upgrading HDI metrics to maintain long-term national investment attractiveness. This study acknowledges two primary limitations. First, the sample size is restricted to an annual timeline of $N=10$, which limits the model's degrees of freedom. Second, the structural nature of macroeconomic growth in Indonesia causes high multicollinearity ($VIF > 10$) between HDI and Credit lines due to shared upward time trends. To address these limitations, future researchers are strongly encouraged to utilize quarterly data to expand the sample size or employ advanced dynamic modeling, such as Autoregressive Distributed Lag (ARDL) and Vector Error Correction Models (VECM), to safely decouple short-term shocks from long-term co-movements.

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