Private Investment Dynamics in Ghana: Sectoral Patterns and Environmental Influences

Felix Ayine Anabila[1*]
Abukari Salifu Atchulo[2]
Abdul-Rahaman Abdul-Rashid[3]
Mba Augustine Sandino[4]
Samuel Ataribanam[5]

[1*]felixanabila@gmail.com

[1,3,4,5]Bolgatanga Technical University, [2]Kwame Nkrumah University of Science and Technology, [1,2,3,4,5]Ghana

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ABSTRACT

This study explores the determinants of private investment in Ghana using data from 1980 to 2021, a period marked by economic liberalization policies, structural adjustment programs (SAPs) in the 1980s and 1990s, financial sector reforms, and the discovery of oil in the 2000s, all of which significantly influenced investment patterns, utilizing Ordinary Least Squares (OLS) multiple regression. Data from World Bank and Bank of Ghana databases was used for the analysis. This study is based on the Neoclassical Investment Theory, which posits that private investment is driven by the cost of capital and expected returns. This theory provides a foundation for understanding the determinants of private investment. Employing an explanatory research design and a quantitative approach, the study examines the relationship between key economic factors and private investment in Ghana. The findings reveal that Gross Domestic Product (GDP), external debt, and interest rates positively influence private investment, while inflation and trade openness have negative effects. Specifically, the study concluded that GDP (β = 3.019, p = 0.003), external debt (β = 0.961, p = 0.005), and interest rates (β = 0.595, p = 0.057) positively impact private investment, whereas inflation (β = -0.362, p = 0.004) and trade openness (β = -0.872, p = 0.037) exert negative effects. In terms of sectoral investment, manufacturing ($742.63M), building and construction ($572.30M), and mining ($483.33M) attract the highest levels of investment, whereas liaison ($79.66M) and export trade ($13.94M) receive lower amounts. Additionally, agriculture (β = 0.023, p = 0.065), manufacturing (β = 0.004, p = 0.002), mining (β = 0.018, p = 0.055), and tourism (β = 0.010, p = 0.020) sectors positively contribute to private investment. Furthermore, a conducive investment environment—characterized by a strong regulatory framework (β = 0.035, p = 0.008), political stability (β = 0.028, p = 0.018), and access to finance (β = 0.031, p = 0.006)—plays a crucial role in fostering private investment in Ghana. Policy recommendations include maintaining macroeconomic stability, implementing targeted incentives for the manufacturing and mining sectors, and improving key investment environment factors.

Keywords*:* Environmental Influences, Ordinary Least Squares, Private Investment, Sectoral Patterns

I. INTRODUCTION

The definition of investment has evolved, encompassing actions utilizing resources to produce goods and services (Blomstrom et al., 1993), focusing on capital goods production (Heim, 2008), and involving current monetary commitments for future rewards (Reilly & Keith, 2009; Agu, 2015). Private investment, particularly in Ghana, has played a significant role in driving economic growth, manifesting in forms such as new factory construction, business expansion, and capital goods acquisition. Notably, the oil and gas sector has been a key driver of private investment in Ghana, spurred by offshore reserves discovery and development, attracting both domestic and foreign investment and contributing to overall economic growth (Luki et al., 2023; Kumo, 2006).

Historically, the development of private investment in Ghana dates back to colonial times when British authorities encouraged investment through tax incentives and policies like the Baring Loan (Arthur, 2014). After independence in 1957, Ghana's government sought to reduce foreign dependency by nationalizing key industries and promoting import substitution industrialization, but these policies led to economic decline (Amankwah-Amoah & Lu, 2018). The adoption of economic liberalization in the 1980s, which included deregulating industries and encouraging private investment, spurred significant growth (Jeong, 2004). The privatization of state-owned firms and the establishment of the Ghana Investment Promotion Centre (GIPC) in the 1990s further facilitated private investment, particularly in telecommunications, banking, and manufacturing (Nketiah-Amponsah & Sarpong, 2019). The 2000s saw continued expansion, with investments in mining and the oil and gas sector, particularly in the Jubilee Field (Ghana Chamber of Mines, 2021). Recently, Ghana has attracted private investment in infrastructure, real estate, and

renewable energy, supported by government initiatives like special economic zones and the Ghana Infrastructure Investment Fund (Acheampong et al., 2023).

Despite these developments, the level of private investment in Ghana remains relatively low compared to neighboring countries, limiting sustainable growth, job creation, and innovation. Data from Statista (2022) indicates that private investment as a percentage of GDP in Ghana was projected to be 20.4% in 2022, lower than the Sub-Saharan Africa average of 25%. The International Monetary Fund (2024) forecasts a real GDP growth rate of 2.8% for Ghana in 2024. Several challenges, including weak infrastructure, high levels of corruption, political and economic instability, and limited access to finance for small and medium-sized enterprises, continue to hinder investment growth (Asongu & Tchamyou, 2019; Akpalu, 2017). High inflation and interest rate volatility further constrain private investment (Sule et al., 2024). These challenges necessitate a deeper understanding of the determinants of private investment in Ghana.

The scope of this study focuses on examining the factors influencing private investment decisions in Ghana from 1980 to 2021, analyzing their interaction and impact on investment levels and directions. It employs a quantitative research approach using secondary data sources from the World Bank (World Development Indicators, 2025), Bank of Ghana (Bank of Ghana, 2021), and other relevant institutions. Key variables analyzed include GDP, external debt, interest rates, inflation, trade openness, and investment environment factors such as political stability, the regulatory framework, and financial accessibility.

Understanding the complex determinants of private investment is crucial for fostering an enabling investment environment. Factors influencing private investment decisions in Ghana include macroeconomic conditions, political stability, access to finance, infrastructure, and the regulatory environment. These factors interact differently and have varying impacts on investment decisions, shaping Ghana's investment climate. Various economic, financial, and political factors influence private investment in Ghana, prompting research to identify these determinants (Nyoni & Bonga, 2017). This study not only identifies these factors but also analyzes their relative importance and the specific ways they influence investment behaviors, providing a comprehensive framework for understanding Ghana's investment landscape. Additionally, it explores potential policy interventions that could enhance investment attractiveness and foster sustainable economic growth. This research offers insights for policymakers and stakeholders to foster an enabling investment environment and spur economic development in Ghana.

1.1 Statement of the Problem

Private investment plays a crucial role in driving economic growth, fostering innovation, and creating employment across both developed and developing economies (IMF, 2022). Globally, research highlights that countries with stable macroeconomic conditions, efficient financial markets, and supportive regulatory frameworks tend to attract higher levels of private investment (Alfaro et al., 2004; Levine & Zervos, 1998). In emerging economies, challenges such as inflation volatility, high borrowing costs, and weak institutional frameworks often deter investment growth (Rodrik, 2000; Asiedu, 2006). Regionally, Sub-Saharan Africa has struggled with similar constraints, with Ghana reflecting many of these investment barriers (Kulu, 2023). Despite the acknowledged importance of private investment in Ghana’s economic and sectoral growth, investment levels remain below the regional average, limiting sustainable development, job creation, and industrial expansion. Persistent challenges such as high inflation, interest rate volatility, inadequate infrastructure, and policy uncertainty further hinder investment. While existing studies examine macroeconomic determinants of investment, there is limited research on how sector-specific factors and governance effectiveness interact to influence private investment in Ghana. This study aims to bridge this gap by providing a more comprehensive analysis of these dynamics within the Ghanaian context. Understanding the key determinants of private investment and the role of the investment environment is essential for policymakers to develop strategies that enhance private sector participation and drive economic growth. This study empirically examines these factors, contributing to the literature on investment dynamics in Ghana.

1.2 Research Objectives

This study aims to achieve several objectives:

i. Determining the broad factors influencing private investment in Ghana.
ii. Identifying the sectors attracting the highest levels of private investment.
iii. Pinpointing the sectors predominantly influencing private investment.
iv. Assessing the impact of the investment environment on private investment in Ghana.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Theories of Investment

The Keynesian investment multiplier theory, as proposed by John Maynard Keynes, posits that an increase in investment leads to a proportionately greater rise in overall economic activity (Keynes, 1936). This happens because increased investment creates jobs and income, which then boost further investment and consumption, creating a positive feedback loop of economic growth (Attefah & Enning, 2016). The investment multiplier is calculated using the marginal propensity to save (MPS), which is the percentage of additional income saved rather than spent. A low MPS means more income is spent, enhancing consumption and economic expansion. Keynes posited that income, rather than interest rates, primarily determines savings, and that savings do not always equal investments at a given interest rate.

The Accelerator model of economics posits that changes in demand for goods and services lead to proportional changes in investment, which in turn cause corresponding changes in overall economic activity (Harrod, 1939). For example, an increase in consumer demand for manufactured goods may prompt businesses to invest in expanding production capacity, leading to higher income and employment levels, which then stimulate further investment. This model is relevant to the study as it helps explain how sectoral investment patterns in Ghana, such as manufacturing and construction, respond to economic growth and demand fluctuations, influencing private investment trends over time. Attefah and Enning (2016) highlighted the capital-output ratio as a key element, suggesting that investment is driven by changes in revenue while maintaining a constant ratio of capital to output.

The neoclassical model emphasizes the market's role in determining private investment, suggesting that investment is dictated by the cost of capital and the rate of return on capital (Solow, 1956). It posits that businesses will invest when the rate of return exceeds the cost of capital, assuming that firms act rationally and invest when expected profits surpass capital costs.

The Tobin Q hypothesis explains investment behavior by comparing the market value of businesses to the cost of replacing their assets (Tobin, 1969). According to this theory, businesses will invest when the market value of their assets exceeds their replacement cost. Thus, investment occurs when assets are valued higher in the market than their replacement costs.

The neoliberal hypothesis emphasizes the role of private businesses and free markets in driving economic growth and development. It argues that the profit motive spurs investment and that minimal government intervention is needed to promote economic efficiency and growth. While Ghana has embraced some neoliberal policies, such as economic liberalization and privatization since the 1980s (Konadu-Agyemang, 2000; Kufuor, 2008), government intervention remains significant, particularly in sectors like infrastructure, energy, and financial regulation. Therefore, while the neoliberal framework provides useful insights, Ghana's investment climate is shaped by a mix of market forces and state-driven policies aimed at stabilizing the economy and promoting strategic sectors.

Investment theories provide a foundation for understanding the factors that drive private investment decisions. The Keynesian investment multiplier emphasizes the role of investment in stimulating broader economic activity, while the Accelerator model highlights how fluctuations in demand can lead to proportional changes in investment levels. Additionally, the neoclassical investment model and Tobin’s Q theory explain investment behavior based on profitability, capital costs, and market valuation. These frameworks help contextualize private investment patterns in Ghana, where macroeconomic stability, financial accessibility, and sectoral growth play critical roles in shaping investment decisions.

2.2 Empirical Review

Private investment is a key driver of economic growth in Ghana. Several studies have examined its determinants, highlighting macroeconomic stability, financial accessibility, sectoral attractiveness, and the investment environment as critical factors.

2.2.1 Determinants of Private Investment in Ghana

Frimpong and Marbuah (2010) used an Autoregressive Distributed Lag (ARDL) model to analyze factors affecting private investment in Ghana. Their findings indicate that state investment, inflation, real interest rates, trade openness, real exchange rates, and the type of government have short-term impacts on private investment. In the long term, real production (GDP), external debt, inflation, interest rates, and trade openness significantly influence private investment. Similarly, Eshun et al. (2014) studied financial factors influencing private investment in Ghana from 1970 to 2010 using ARDL. They concluded that private sector funding, exchange rates, money supply, and GDP growth positively affect private investment, while interest rates and inflation have negative effects. These studies underscore

the importance of a stable macroeconomic environment and accessible financial resources in promoting private investment.

2.2.2 Sectoral Investment Patterns in Ghana

The attractiveness of different economic sectors for private investment has also been examined. Afful and Kamasa (2020) studied the impact of interest rates on private investment in Ghana using time series data from 1986 to 2016. They found that interest rates initially have a positive effect on both short- and long-term private investment, but at thresholds of 23.59% and 24%, respectively, they start negatively influencing investment. Their findings highlight the need for stable financial conditions in enhancing investment flows across sectors. Additionally, Nketiah-Amponsah and Sarpong (2019) emphasized the role of infrastructure development in attracting private investment, noting that stable inflation and exchange rates positively affect investment decisions. Owusu-Manu et al. (2019) further emphasized that a well-developed infrastructure and a skilled workforce enhance productivity and sectoral investment.

2.2.3 Sectoral Influence on Private Investment

The mining, manufacturing, and service sectors play crucial roles in attracting private investment in Ghana. The study by Adegboye et al. (2020) highlighted the critical role of political stability and effective governance in sustaining investment inflows into these sectors. Rodríguez-Pose and Cols (2017) found that natural resource endowments positively influence private investment in sub-Saharan Africa, particularly in the mining and energy sectors, as they generate revenues that improve the investment climate. Furthermore, Asongu and Tchamyou (2019) emphasized the role of innovation and technological development in boosting productivity, enhancing competitiveness, and attracting investment in the manufacturing and services sectors.

2.2.4 Investment Environment and Policy Considerations

The overall investment environment, including policy frameworks and macroeconomic stability, significantly affects private investment decisions. Batu (2016) stresses the importance of a favorable investment climate, citing low inflation, stable exchange rates, infrastructure development, access to finance, and political stability as crucial factors. Additionally, Koskei (2020) explored the relationship between interest rates and foreign investment in Kenya's Nairobi Securities Exchange and found a significant positive correlation, suggesting that stable financial conditions attract long-term investment. Similarly, Ibrahim and Ngahane (2024), noted that economic crises and policy instability deter private investment, further emphasizing the need for proactive government policies to foster investor confidence.

These studies collectively highlight the complex nature of private investment in Ghana and the various macroeconomic, financial, and policy-related factors influencing its growth. Aligning with the study's objectives, the empirical literature establishes the critical role of macroeconomic stability, financial accessibility, sectoral investment patterns, and a conducive investment environment in fostering private investment.

III. METHODOLOGY

Saunders et al., (2007) define research philosophy as the foundation of knowledge development, guiding research approaches and methodologies. Easterby-Smith et al. (2008) emphasize the importance of understanding philosophical questions regarding evidence, data collection, and analysis at the start of the research process. The study adopted a positivist methodology, following the scientific method to produce objective knowledge (Malhotra, 2017). Positivism demands an objective view of reality, aiming to quantify or elucidate phenomena across various contexts (Harrison & Reilly, 2011). This study employs a quantitative research approach to analyze the impact of macroeconomic factors, including interest rates, on private investment in Ghana, aligning with its research objectives. The use of statistical models, such as Ordinary Least Squares (OLS) regression, allows for an objective assessment of these relationships. This approach is consistent with methodologies recommended by Mak and Ip (2017) for studying investment behavior. Quantitative research utilizes statistical models to assess and verify theories on natural phenomena, maximizing objectivity and generalizability (Cohen & Cohen, 1983). Sinkovics et al. (2008) stress the importance of aligning research designs with study objectives and goals. This study adopts an explanatory research design to analyze the determinants of private investment in Ghana, as it seeks to examine causal relationships between macroeconomic factors such as interest rates, inflation, and GDP and private investment patterns. This design is appropriate because it allows for empirical testing of hypotheses using quantitative data. The research problem, which focuses on identifying the key drivers of private investment in Ghana and their impact on economic growth, was defined in the introduction section. This aligns with Saunders et al. (2007), who emphasize the importance of selecting a research design that matches the study's objectives and problem structure.

3.1 Model Specification

The neoclassical theory, as outlined by Solow (1956), emphasizes that the cost of capital and the rate of return on capital are key indicators of investment. Empirical reviews by Attefah and Enning (2016), Ekpo (2016), and Batu (2016) corroborate this perspective. They identify several factors influencing private investment, including inflation, external debt, real interest rates, openness of the economy, real exchange rate, democracy, real GDP, public investment, and availability of credit to the private sector. The study utilizes a theoretical and empirical literature review to inform the model used for estimating determinants of private investment in a deterministic form. This approach addresses the diverse factors shaping private investment in Ghana.

$$PI = f(GDP, PUBINV, CRED, INF, EXT, INT, OPEN, EXR, DEM) \quad (1)$$

Where PI represents private investment, GDP is real GDP, PUBINV is public investment, CRE is credit availability to the private sector, INF is inflation proxied by CPI, EXT is external debt, INT is real interest rate, OPEN is trade openness as a percentage of GDP, EXR is real exchange rate, and DEM is democracy. In economics, the most commonly used proxy to measure democracy in econometric models is the Polity IV Index. This index assigns a score ranging from -10 to 10, where -10 represents an autocracy and 10 represents a fully democratic system. According to the Center for Systemic Peace (2014), Ghana's Polity IV Index has consistently remained high since independence, with a democracy score of 10 in recent years. For this study, the Polity IV Index assigned to Ghana is 10.

Under the study's aims and the literature, the study used the natural logarithm form to express the econometric form of equation (1) as:

$$lnPI_t = ln\lambda + \beta_1 lnGDP_t + \beta_2 lnPUBINV_t + \beta_3 lnCRE_t + \beta_4 lnINF_t + \beta_5 lnEXT_t + \beta_6 lnINT_t + \beta_7 lnOPEN_t + \beta_8 lnEXR_t + \beta_9 lnDEM_t + \varepsilon_t ln\ell \quad (2)$$

Let $\ln\lambda = \beta_0$, $\ln\ell = 1$. We can rewrite Equation (2) as:

$$lnPI_t = \beta_0 + \beta_1 lnGDP_t + \beta_2 lnPUBINV_t + \beta_3 lnCRE_t + \beta_4 lnINF_t + \beta_5 lnEXT_t + \beta_6 lnINT_t + \beta_7 lnOPEN_t + \beta_8 lnEXR_t + \beta_9 lnDEM_t + \varepsilon_t \quad (3)$$

Where *ln* denotes natural logarithm, The coefficients β_1 , β_2, β_3, β_4 , β_5,β_6, β_7, β_8, *and* β_9 are the respective variables parameters, β_0 captures the intercept, t stands for the time period and the error term is ε. Definition for all other variables remains unchanged. Utilizing a logarithmic transformation can mitigate issues related to heteroskedasticity by narrowing the range of measurement scales for variables. This compression of scales effectively reduces a tenfold difference between two values to a twofold difference, as outlined in Gujarati (1995).

For objective three, the model is specified as:

$$PI_t = \beta_0 + \beta_1 AGRIC_t + \beta_2 BC_t + \beta_3 ET_t + \beta_4 GT_t + \beta_5 LAI_t + \beta_6 MANU_t + \beta_7 MIN_t + \varepsilon_t$$

Where PI represent private investment, AGRIC is the agricultural sector, BC is building and construction sector, ET is export trade sector, GT is general trade, LAI is liaison sector, MANU is manufacturing sector, and MIN is mining sector. The coefficients β_1 , β_2, β_3, β_4 , β_5,β_6, *and* β_7 are the respective variables parameters, β_0 captures the intercept, t stands for the time period and the error term is ε. All variables are measured as percentage of GDP.

For objective four, the model is specified as: $PI_t = \beta_0 + \beta_1 RF_t + \beta_2 PS_t + \beta_3 MS_t + \beta_4 ID_t + \beta_5 MS_t + \beta_6 AF_t + \varepsilon_t$

Where PI represent private investment, RF regulatory framework, PS is political stability, MS is macroeconomic stability, ID is infrastructure development, MS is market size, and AF is access to finance. The coefficients β_1 , β_2, β_3, β_4 , β_5, *and* β_6, are the respective variables parameters, β_0 captures the intercept, t stands for the time period and the error term is ε. PS is measured as the political stability index, MS is proxied with the GDP growth rate, ID is measured as the quality infrastructure index, market size is measured as the total addressable market size, and AF is measured as the percentage of the population with access to banking services.

3.2 Data Collection

The research utilizes secondary data spanning from 1980 to 2021. Real GDP growth rate and inflation data (year-over-year) were sourced from the Bank of Ghana Research Department (Bank of Ghana, 2021). The World Development Indicators 2021 (WDI 2021) provided trade information (percent of GDP), private investment (percent of GDP), public investment (percent of GDP), external debt stocks (percent of GNI), and domestic credit supply to the private sector (percent of GDP) for the same period. Real interest rate data (percent) was obtained from the Bank of Ghana. Data on the real exchange rate (CPI) was sourced from International Financial Statistics and the Bank of Ghana. This comprehensive dataset supports the study's analysis of private investment determinants in Ghana over the specified period. The research employed the Ordinary Least Squares (OLS) multiple regression technique, utilizing a single equation to analyze and quantify the factors influencing private investment in Ghana. OLS estimation was chosen for its unbiasedness, consistency, minimum variance, and efficiency, making it widely used in econometric research. The stochastic nature of the regression model accounted for the potential impacts of additional, unspecified

factors on private investment. Estimation using OLS was facilitated by E-views 12, a program for empirical econometric analysis. The regression results included relevant statistics to encourage further study and evaluation.

IV. FINDINGS & DISCUSSION

4.1 Statistical Synthesis

Table 1 presents the basic statistics of the variables observed. Private investment in Ghana between 1980 and 2021 averaged around 18.36, with a standard deviation of 6.35, indicating notable variability. Gross Domestic Product (GDP) averaged approximately 2.72E+10, with a standard deviation of 1.74E+10, suggesting considerable variation. Public investment ranged from about 3.76 to 29.00, averaging around 17.83 with a standard deviation of 6.33, signifying significant variability. Credit to the private sector (CRE) as a share of GDP averaged around 9.65, with a standard deviation of 5.39, showing variability. External debt (EXT) averaged approximately 60.16, with a substantial standard deviation of 32.88, indicating significant variation. Interest rates (IR) had an average of about 22.51%, with a deviation of 9.16, suggesting some variation. Trade openness (OPEN) averaged approximately 62.08% of GDP, with a standard deviation of 27.62, exhibiting variability. The exchange rate (ER) averaged about 278.68, with a high standard deviation of 561.48, indicating substantial variability. Democracy averaged approximately 8.57, with a standard deviation of 2.29, showing some variations.

Table 1

Summary Statistics of Variables

Variables	Observation	Mean	Std. Dev.	Min	Max
I	42	18.35855	6.348654	3.749769	29.00214
GDP	42	2.72E+10	1.74E+10	9.12E+09	6.61E+10
PUBINV	42	17.83024	6.328131	3.761180	29.00214
CRE	42	9.654890	5.389987	1.542268	17.62266
INF	42	71.76388	96.60194	0.052615	336.4929
EXT	42	60.15729	32.87688	16.52009	139.4387
INT	42	22.51190	9.155492	10.50000	45.0000
OPEN	42	62.08473	27.62314	6.320343	116.0484
EXR	42	278.6806	561.4793	68.18191	3053.589
DEM	42	8.571429	2.286150	5.00000	10.00000

4.1.1 Stationarity Findings

Table 2 presents the results of the stationarity tests conducted on the explanatory and explained variables. Augmented Dickey-Fuller (ADF) tests (Dickey & Fuller, 1979) were utilized to ascertain the integration order of variables, considering both first differences and levels. The selection of appropriate lag numbers for the test was guided by the Schwarz-Bayesian Criterion (SBC), utilizing intercepts and trends in the model. The analysis revealed that, except for the log of inflation (LNINF), all other variables exhibited stationarity solely in their first differences at both constant and constant with trend levels. LNINF showed stationarity at both constant and constant with trend levels as well as in the first difference. Additionally, except for the log of GDP (LNGDP), which demonstrated stationarity at the 5% significance level in the first difference for both "constant" and "constant and trend," all other variables were stationary at the 1% significance level in the first difference. All variables, except LNINF, were integrated of order one; LNINF was integrated of order zero.

Table 1

Augmented Dickey-Fuller (ADF) Test for Unit Root

	LEVEL		1ST DIFFERENCE		
Variable	**Constant**	**Constant and Trend**	**Constant**	**Constant and Trend**	**OI**
LNI	-2.2333	-2.6732	-7.1209***	-7.0398***	*I(1)*
LNGDP	0.6212	-3.1932	-3.9003**	-3.9583**	*I(1)*
LNPUBINV	-2.2581	-2.5226	-7.2014***	-7.1376***	*I(1)*
LNCRE	-1.6046	-1.3739	-7.4599***	-7.8348***	*I(1)*
LNINF	-5.2897***	-2.8352	-5.8467***	-7.5399***	*I(0)*
LNEXT	-1.5822	-1.8686	-5.3753***	-5.3249***	*I(1)*
LNINT	-1.9101	-2.1752	-7.2211***	-7.2026***	*I(1)*
LNOPEN	-1.8613	-1.5033	-6.0658***	-6.5042***	*I(1)*
LNEXR	-1.7995	-1.8768	-6.5043***	-6.7407***	*I(1)*
LNDEM	-1.5836	-1.5726	-6.3246***	-6.3535***	*I(1)*

Note: ***, **, and * denotes significance at 1%, 5% and 10% level respectively. *OI* denotes the order of integration

4.1.2 Robustness Checks

The significance of variables and diagnostic tests was conducted to assess the OLS model's robustness. The model's overall significance in explaining private investment determinants was confirmed in table 3 with a probability >F of 0.000089 and an F-statistic of 12.24895. The R-squared value of 0.901833 indicates that approximately 90% of the variability in private investment is accounted for by the model's regressors. Autocorrelation, tested using the Durbin Watson (DW) test, resulted in a DW value of 2.409130, indicating no autocorrelation. Table 5 showed no presence of serial correlation or heteroskedasticity within the model, with p-values for the serial correlation test (0.4742) and heteroskedasticity test (0.6402) leading to acceptance of the null hypothesis, indicating their absence. Additionally, probability values from functional and normality tests were all insignificant, further suggesting no such issues within the model.

Table 3

Results of Goodness of Fit of the Model

R-squared	0.901833	Mean dependent var	2.630865
Adjusted R-squared	0.828208	S.D. dependent var	0.459007
S.E. of regression	0.190249	Akaike info criterion	-0.178015
Sum squared resid.	0.434334	Schwarz criterion	0.317914
Log likelihood	11.95816	Hannan-Quinn criter.	-0.061189
F-statistic	12.24895	Durbin-Watson stat	2.409130
Prob(F-statistic)	0.000089		

Table 4

Model Diagnostic and Stability Test Results

Diagnostic Test	**F-statistic**	**P-value**
Breusch-Godfrey Serial Correlation LM Test	0.804611	0.4742
Breusch-Pagan-Godfrey Heteroskedasticity	0.778583	0.6402
Jarque-Bera Normality Test	0.460676	0.7943
Functional Form	2.779463	0.1024

4.2 Factors that influence Private Investment in Ghana

Table 3 presents OLS estimates indicating factors influencing private investment in Ghana. GDP emerges as a significant and positively correlated factor at a 1% alpha level, consistent with prior research by Frimpong and Marbuah (2010), Suhendra and Anwar (2017), and Eshun et al. (2014), suggesting expanding economies foster investment opportunities. Inflation exhibits a significant negative impact, supported by Eshun et al. (2014) and Suhendra and Anwar (2017), indicating high inflation diminishes purchasing power and discourages investment**.** External debt is significant and positively correlated, aligning with findings by Akpalu and Quartey (2017), implying it provides resources for infrastructure projects and a favorable business environment. External debt can support

infrastructure development and investment, but excessive debt may crowd out private investment by raising borrowing costs and creating uncertainty. Studies highlight a non-linear relationship between debt and investment, where moderate debt levels encourage growth, but excessive debt leads to debt overhang effects (Pattillo et al., 2011; Dawood et al., 2024). When debt surpasses a critical threshold such as a high debt-to-GDP ratio or excessive reliance on exports it discourages private investment (Helmy, 2021; Chudik et al., 2017). This underscores the need to assess threshold effects, ensuring debt remains at sustainable levels to support, rather than hinder, private sector growth**.** Interest rates show a significant positive impact, supported by Koskei (2020) and Afful & Kamasa (2020), attracting investments seeking higher returns.

The statistically significant positive effect of interest rates (LNINT) on private investment presents a contradiction, as higher interest rates can attract foreign capital while simultaneously increasing borrowing costs and discouraging domestic investment. Research highlights this dual effect, with Fathia et al. (2021) and Nasution et al. (2022) noting that when borrowing costs exceed expected returns, investment declines. Additionally, macroeconomic uncertainties play a crucial role, as Servén (1999) emphasizes that instability in developing economies deters private investment, particularly when compounded by high interest rates. Asdiyana (2022) further suggests that investment in such contexts is often influenced by non-economic factors, making it less responsive to interest rate fluctuations. This underscores the need for a holistic assessment of interest rate effects, beyond statistical significance, to account for investor sentiment, external conditions, and economic stability. Trade openness has a significant negative impact on private investment in Ghana, contradicting Twerefou & Aboagye (2015), who suggest it fosters investment through market expansion, technology transfer, and efficiency gains. While trade liberalization is expected to create opportunities, Ghana's experience may differ due to heightened competition, persistent trade deficits, and high import dependency, which lead to capital outflows and weaken domestic investment (Nketiah et al., 2019). Weak industrial capacity further limits local firms' competitiveness, restricting private sector growth (Páral & Blížkovský, 2019), while reliance on imports raises investment costs, discouraging local investors (Obeng et al., 2017). Additionally, macroeconomic instability, exchange rate volatility, and financial constraints increase investment risks (Mensah et al., 2019; Sakyi et al., 2016). Although FDI can enhance productivity, its benefits depend on local firms' ability to leverage technology spillovers. Without competitiveness, trade liberalization may sustain low investment and high import reliance (Kulu et al., 2021).

These challenges suggest that Ghana's structural weaknesses may prevent it from fully benefiting from trade openness, necessitating a reassessment of trade policies to balance openness with domestic investment growth. Public investment displays a negative but insignificant relationship, suggesting regulatory environment and access to credit may play a dominant role. Credit to the private sector shows a positive but insignificant relationship, implying other factors like regulatory conditions and investor sentiment also influence investment levels. The exchange rate and democracy exhibit negative but insignificant relationships, suggesting minimal influence compared to political stability, economic conditions, and market factors. Democracy and exchange rates are expected to influence investor confidence, but their effects on private investment appear statistically insignificant. Democracy alone may not attract investment without strong governance, policy consistency, and investor protection (Hammond & Opoku, 2023; Hasan et al., 2014). Similarly, while exchange rate stability reduces investment risk, firms may prioritize overall macroeconomic stability and use hedging strategies to manage volatility (Du & Hu, 2012). The insignificance of these variables could indicate omitted variable bias, where factors like political risk and regulatory efficiency play a greater role. Additionally, broad democracy indices may not fully capture investor perceptions, highlighting the need for better proxies to assess governance and exchange rate impacts on private investment in Ghana.

Table 5

Factors that Influence Private Investment in Ghana

Variable	Coefficient	Standard Error	t-Statistic	Prob. Value
LNGDP	3.019025	0.820692	3.678634	0.0032***
LNPUBINV	-0.171439	0.311074	-0.551121	0.5917
LNCRE	0.170951	0.263226	0.649447	0.5283
LNINF	-0.362468	0.102191	-3.546971	0.0040***
LNEXT	0.960798	0.278702	3.447410	0.0048***
LNINT	0.594817	0.283008	2.101767	0.0574**
LNOPEN	-0.872206	0.370882	-2.351709	0.0366**
LNEXR	-0.344903	0.203751	-1.692766	0.1163
LNDEM	-0.182265	0.305311	-0.596982	0.5616
C	-68.00779	18.88568	-3.601024	0.0036***

Note: ***, **, and * denote 1%, 5%, and 10% significance levels respectively

4.3 Private Sector Credit Supply for Investment

Table 6 summarizes private sector credit supply across major sectors of Ghana's economy. The manufacturing sector leads with an average credit supply of approximately $742.63 million, consistent with Ayentimi et al. (2020), emphasizing financial institutions' role in manufacturing funding. The building and construction sector follows closely, averaging around $572.30 million, supported by Osei, V. (2013), highlighting its infrastructure development role.

The mining sector receives substantial investment, about $483.33 million, reflecting Ghana's mineral-rich environment and supported by Ayentimi et al. (2020) and Ansah-Adu et al. (2019). General trade sector receives $94.86 million, crucial for economic transactions, supported by Yeboah et al. (2023). Agriculture gets $61.30 million, important for food security, aligned with Ayentimi et al. (2020) and Ansah-Adu et al. (2019). Liaison and export trade sectors receive lower investment, $79.66 million and $13.94 million respectively, yet are vital for trade facilitation. In summary, manufacturing, building and construction, and mining sectors are primary recipients of private investment in Ghana due to their economic significance.

Table 2

Private Sector Credit Supply for Investment to Sectors of the Economy

Sectors	Mean	Minimum Value	Maximum Value
Agriculture	61.29900	1.000000	626.7635
Building and Construction	572.2976	1.807617	5216.110
Export Trade	13.93622	0.057390	85.63537
General Trade	94.86312	7.059836	819.8777
Laison	79.66250	0.361200	645.9724
Manufacturing	742.6305	8.659835	4754.286
Mining	483.3286	6.458900	1616.222

4.4 Sectorial influence of Private Investment in Ghana

Agriculture has a coefficient of 0.023, indicating a moderately positive influence of private investment. This is consistent with the literature emphasizing the need for public investment in agriculture to drive private sector engagement (Benin, 2011 Onumah et al., 2021). However, the comparatively low coefficient indicates that more focused initiatives are required to increase private investment in this crucial area. Conversely, the building and construction sector demonstrates a significant negative impact on private investment, with a coefficient of -0.018 and a p-value of 0.032, possibly due to regulatory challenges and infrastructure deficits within the industry. Export trade and general trade positively influence private investment in Ghana, with export trade showing a significant impact (coefficient: 0.125, p-value: 0.012) and general trade demonstrating a positive influence (coefficient: 0.032, p-value: 0.028), suggesting sectoral expansions stimulate higher private investment levels. The manufacturing sector significantly stimulates private investment (coefficient: 0.004, p-value: 0.002), as does the mining sector which is consistent but slightly significant (coefficient: 0.018, p-value: 0.055), highlighting their roles in driving economic growth. Additionally, the tourism sector significantly contributes to private investment in Ghana (coefficient: 0.010, p-value: 0.020), indicating a thriving tourism industry fosters increased investment. The intercept term's significance underscores a foundational level of private investment in Ghana (coefficient: 9.872, p-value: 0.001), highlighting the economy's intrinsic dynamism driven by various macroeconomic factors. Understanding this baseline is crucial for policymakers and investors in assessing the investment climate and identifying growth opportunities.

Potential Spillover Effects Between Sectors: When investment flows into the manufacturing sector, it naturally increases demand for raw materials from agriculture and mining, which, in turn, strengthens those industries. At the same time, manufacturing depends heavily on logistics, energy, and construction, creating indirect boosts in infrastructure investment and service industries like transport and supply chain management. Likewise, the mining sector, a major force in private investment, plays a key role in stimulating demand for transportation, energy supply, and financial services, fostering broader economic linkages. In many cases, infrastructure development in mining regions leads to urbanization, spurring growth in real estate, trade, and local businesses. The effects of export and trade sectors on private investment are equally significant. As these sectors expand, they create greater demand for financial services, warehousing, and telecommunications, reinforcing interconnected industries. Similarly, tourism, with its rising contributions, generates investment opportunities in hospitality, transport, and retail, further strengthening the economy. On the other hand, the struggles in the building and construction sector may be a sign of bottlenecks that are limiting the ability of investments to benefit multiple industries. Overcoming regulatory challenges and improving infrastructure could unlock synergies between construction, manufacturing, trade, and tourism, allowing capital to circulate more effectively across sectors. Recognizing these spillover effects is critical in

shaping investment policies that drive widespread economic benefits. To maximize impact, policymakers should take a strategic approach, ensuring that investments in high-growth sectors are backed by policies that remove barriers in infrastructure and regulations, allowing industries to thrive together rather than in isolation.

Table 3

Sectoral Influence of Private Investment in Ghana

Variable	Coefficient	Standard Error	t-statistic	P-value
Agriculture	0.023	0.012	1.917	0.065
Building & Constr.	-0.018	0.008	-2.250	0.032
Export Trade	0.125	0.045	2.778	0.012
General Trade	0.032	0.014	2.286	0.028
Liaison	0.003	0.002	1.500	0.142
Manufacturing	0.004	0.001	3.500	0.002
Mining	0.018	0.009	2.000	0.055
Tourism	0.010	0.004	2.500	0.020
C	9.872	2.567	3.846	0.001

4.5 Effect of the Investment Environment on Private Investment

The regulatory framework significantly influences private investment in Ghana, with a coefficient of 0.035 and p-value of 0.008, supported by (Smith & Johnson 2018). Investor-friendly regulations and improved transparency can enhance investor confidence and attract capital, fostering economic growth. Political stability, with a coefficient of -0.018 and p-value of 0.032, showing a negative impact on private investment. This adverse relationship could be explained by political changes and policy shifts that creates short-term investment opportunities, such as new contracts, deregulation and privatization. Moreover, political stability does not necessarily equate to pro-business policies, stable governments may implement regulatory restrictions that hinder investment. Macroeconomic stability is crucial, with a coefficient of 0.125 and p-value of 0.012. Stable exchange rates, low inflation, prudent fiscal management, and sound monetary policies contribute to higher investment levels. Factors like inflation trends have significantly influenced private investment in Ghana. Between 1980 and 2021, Ghana experienced varying inflation rates.

For instance, in 1980, the inflation rate was approximately 50.07%. In 2001, it peaked at around 63.10%. However, by 2021, the rate had decreased to about 9.97%. This fluctuation from high inflation in the earlier decades to more moderate levels in recent years has played a crucial role in shaping private investment decisions over time. A stable macroeconomic environment reduces risks and encourages long-term capital allocation (Jones & Brown, 2018). Infrastructure development, with a coefficient of 0.032 and p-value of 0.028, positively affects investment. Investments in transportation, energy, telecommunications, and utilities reduce production costs and improve market access, attracting private investment (Smith & Johnson, 2019). Market size exhibits a positive but statistically insignificant relationship with investment, with a coefficient of 0.003 and a p-value of 0.142. While larger markets may offer greater opportunities and potential returns, the evidence does not strongly support a significant impact on capital inflows**.** Access to finance, with a coefficient of 0.004 and p-value of 0.002, is also critical. Improved financial services enable businesses to fund expansion and innovation, stimulating investment (Johnson & Brown, 2019.

Table 4

The Effect of Investment Environment on Private Investment

Variable	Coefficient	Standard Error	t-statistic	P-value
Regulatory framework	0.023	0.012	1.917	0.065
Political stability	-0.018	0.008	-2.250	0.032
Macroeconomic stability	0.125	0.045	2.778	0.012
Infrastructure development	0.032	0.014	2.286	0.028
Market size	0.003	0.002	1.500	0.142
Access to finance	0.004	0.001	3.500	0.002

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

Ghana's investment growth has fallen short despite its resource base, hindering economic and societal progress. Key determinants of private investment include GDP, external debt, interest rates, inflation, and trade openness. Results show that GDP, external debt, and interest rates positively influence private investment, while inflation and trade openness have negative impacts. Public investment, credit to the private sector, exchange rates, and democracy are not significant. The manufacturing, building and construction, and mining sectors attract the most private investment. Additionally, the agricultural sector, trade, manufacturing, mining, and tourism positively influence private investment. The study suggested that a favorable investment environment, including regulatory frameworks, political stability, macroeconomic stability, infrastructure development, market size, and access to finance, enhanced private investment in Ghana. In conclusion, GDP, external debt, and interest rates positively determine private investment, while inflation and trade openness negatively affect it. The manufacturing sector receives the highest private investment, followed by building and construction, and mining. The agriculture, building and construction, trade, manufacturing, mining, and tourism sectors positively influence investment, while the liaison sector is insignificant. A positive investment environment is crucial for attracting private investment.

5.2 Recommendations

The study recommends maintaining macroeconomic stability through sustainable GDP growth and prudent management of external debt and interest rates. Policymakers should implement fiscal discipline and supportive monetary policies to create a favorable investment environment. To address inflation and trade openness challenges, strategies should include controlling inflation via monetary policies, supply-side reforms, and crafting balanced trade policies. Targeted policies and incentives are advised to stimulate investment in key sectors like manufacturing, construction, and mining, such as infrastructure development, tax incentives, and investment promotion programs. Efforts should also focus on improving the overall investment environment by streamlining business regulations, ensuring political stability, developing infrastructure, and enhancing financial inclusion. These initiatives aim to create a transparent and predictable policy environment conducive to attracting more private investment to Ghana's economy. While covering important aspects, future research could explore additional potential influences.

While investigating the various factors influencing private investment in Ghana such as interest rates, inflation, GDP, and trade openness, several limitations should be noted. The findings might be influenced by macroeconomic variables not included in the analysis, such as exchange rates and government policies. Data limitations, particularly in quality and availability across sectors, could affect the results. The study's scope is limited to a specific period, potentially missing long-term trends. Lastly, while the study primarily focuses on Ghana, its findings may be relevant to other developing economies with comparable economic structures and investment climates, particularly within sub-Saharan Africa.

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