



Research Article

Financial Deepening in Ghana; Does Macroeconomics Matter

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Abstract — Financial deepening plays a pivotal role in fostering economic growth, alleviating poverty, and mitigating social inequalities. Employing the Vector Autoregressive Model (VAR), this study examines the implications of per capita gross domestic product (GDP), interest rates, and inflation rates for financial deepening (FD) in Ghana. GDP per capita and interest rates exhibit statistically significant impacts on FD in Ghana. The statistically significant influence of GDP per capita and interest rates underscores their significance as robust favourable determinants of financial sector development in Ghana. Hence, policymakers are entreated to closely monitor the behaviour of these macroeconomic variables that positively influence financial deepening, as they play crucial roles in fostering economic growth.

Keywords— Financial Deepening, GDP per capita, Economic Growth, Interest Rate, Inflation, VAR

1. Introduction

Macroeconomic factors serve as foundational pillars for economic stability and growth within any economy. Governments rely on these factors as guiding principles to shape governance strategies and policy frameworks [1]. Given the significant role banks play in Ghana's financial landscape, it becomes imperative to assess the sector's resilience to inform policy interventions aimed at ensuring its sustainability. Robust fiscal policy decisions are pivotal for fostering economic expansion, curbing inflationary pressures, and addressing unemployment challenges, thereby reinforcing overall systemic stability [2].

To maintain market and economic stability, certain macroeconomic decisions must be managed by the government, as described in Keynes' [3] General Theory of Employment, Interest rate, and Money. According to Keynes, production and unemployment are impacted by externalities, which also have an impact on aggregate demand. The financial system's smooth operation will be supported by modest fiscal policy actions taken by the government, such as interest rate changes.

However, with the Ghanaian financial sector at a crossroads, it has the power to invigorate and impair financial sector development [4]. A successful fiscal reform in the financial sector, especially the banking sector, is a necessary condition for stabilizing the economy. According to Feldman and Wagner [4] a well-developed financial system tends to enjoy stable and faster long-run growth. For instance, there is a

raging debate on the best interest rate regime for the growth of the financial sector and the economy at large. Some pioneer scholars think positive interest rates are macroeconomic policy measures to encourage individual saving [5,6,7] and Smyth [8]. The idea that lower interest rates facilitate higher consumption and spending during recessions is supported by additional research [9,10,11].

For economic growth, Quartey [12] emphasises deepening financial sector development is a pre-requisite. The question is whether macroeconomic indicators matter. Altaee and Al-Jafari [13] recently agreed that financial development not only boosts domestic savings but also has a long-term positive impact on the economy. Their argument is, that controlling macroeconomic variables like inflation and unemployment boosts economic growth [14]. This empirical study associates a positive link between financial sector development and unanticipated inflation [14]. Campbell and Lovati [15] associate price level increases with improvement in savings due to better quality of service in the financial sector. Amidst the existing debates, this study endeavours to present findings from its systematic investigation, employing secondary data, to evaluate the contribution pathway of macroeconomics to financial deepening in Ghana.

The article is structured into five main sections. The rest are as follows: the second part delves into the literature review, discussing relevant theories with the third section outlining the methodology, detailing the data type, sources, and model specifications used in the study. In part four, the results are presented and discussed in relation to the existing literature.

The concluding and summary of key findings of the study form the fifth section, and finally, the sixth compartment offers policy recommendations and suggestions for further research related to the research topic.

2. Related Work

The financial sector is made of several independent businesses such as the insurance companies, banking institutions, and security and investment companies governed by laws that permit transactions involving the initiation and repayment of loans, or the granting of credit [16]. The ownership of wealth can be separated from the actual control of capital by the financial system. The financial sector grows with an economy in terms of the variety and quantity of financial products it offers, the sophistication and interconnection of financial institutions, and the extent to which financial markets are penetrated geographically (a process known as financial sector development). The main goal of improving the financial industry is to lower systemic "costs." Financial contracts, intermediaries, and markets are the product of these efforts to lower the costs associated with information collection, contract enforcement, and transaction execution [17].

2.2 Economic Growth Theories

The pioneering works of Schumpeter [18 & 19] followed by Goldsmith [20], McKinnon [21], and Shaw [22], have sparked considerable interest in the macroeconomic domain regarding the intricate relationship between financial development and economic growth. Building upon Schumpeter's [18] seminal framework, recognized as the cornerstone of the finance-led growth hypothesis, it suggests that a well-functioning financial system acts as a catalyst for technological innovation, thereby fostering growth through efficient resource allocation from unproductive to productive sectors. This perspective resonates with Patrick's [23] growth-led finance hypothesis, which underscores the pivotal role of a robust financial sector in propelling economic expansion.

Patrick [23] contends that an effective financial sector, established in advance of demand, guides the real sector towards growth by reallocating resources based on optimal investment returns. Conversely, Robinson [24] and Patrick [20] present alternative perspectives, highlighting the growth-led finance and demand-led hypotheses. These theories posit that a burgeoning real sector generates heightened demand for financial services, necessitating the development of the financial sector to meet the evolving needs of the expanding economy.

Financial systems inherently affect the distribution of resources over space and time by mitigating market frictions [25]. For instance, the emergence of banks, which enhance information acquisition about businesses and managers, is likely to affect the allocation of loans. Likewise, financial structures that bolster investors' confidence in businesses' repayment capabilities are bound to influence individuals' savings deployment. Furthermore, the rise of liquid stock

and bond markets enables individuals reluctant to relinquish control of their funds for extended durations to trade claims to multi-year projects on a more frequent basis. This dynamic could significantly impact both the quantity and location of savings. The objective of this section is to elucidate models wherein market frictions incentivise the development of various financial arrangements, and how these resultant financial contracts, markets, and intermediaries shape incentives and constraints, thereby potentially influencing economic growth.

2.3. Related Works

The significance of macroeconomic variables in fostering the development of the financial sector stands as a pertinent area requiring substantial attention in Ghana. Quite recent research by Dilek, Ispir and Yetkiner [26] corroborates these assertions, illustrating that financial advancement in Turkey not only spurs short-term growth via domestic savings but also cultivates a lasting and notable positive impact on the savings culture of Turkish citizens. Further supporting evidence comes from Ewetan, Ike, and Urhie [27] who delineate an enduring relationship between macroeconomic indicators, the growth of the banking sector, and household savings in Nigeria. Similarly, the study by Horioka and Yin [28] and Ewetan et al. [27] delved into financial development within the Organisation for Economic Cooperation and Development (OECD) countries, highlighting its critical role in bolstering savings through a blend of low-interest rates, price stability, and consistent income patterns.

2.3.1 Financial Deepening and Interest Rates

Increased savings rates and the promotion of a robust saving culture are crucial for promoting financial deepening. As a result, the Central Bank utilizes the Policy Rate (PR) as a benchmark to signal the lending cost, which is a key driver for the development of the financial sector [29]. This approach is mirrored in the financial system through interbank transactions on one hand and the dynamics of the bank-customer relationship on the other.

The empirical findings presented by Hossin [30] through cointegration and error correction models reveal a positive relationship between the deposit rate of interest and financial depth in Bangladesh. Another comprehensive analysis of interest rates and their volatility effects in the banking sector by Gulcay Tuna, Hamed Ahmad Almahadin [31] unearthed two revelations: firstly, under a low (negative) interest rate environment, there exists both a contractionary (substitution effect) and an expansionary effect on saving (income effect). While the substitution effect diminishes the motivation for private saving, the imperative to safeguard financial income precipitates a surge in private deposits.

Azu and Amahi [32] studied the influence of interest rate dynamics on financial deepening. The results underscore a positive significant relationship between interest rates and financial deepening, along with indicating that there is a long-term link between them. Furthermore, the study

unveils a positive and significant impact of interest rate changes on Nigeria's financial development. These findings underscore the imperativeness for policymakers to implement strategies aimed at fostering economic growth, enhancing the liquidity reserve ratio, bolstering the domestic savings-to-GDP ratio, and instituting reforms to bolster the efficiency and advancement of the financial sector.

According to Smith [33] negative interest rates offer notable benefits to the economy by invigorating consumption and facilitating increased borrowing and lending activities by banks. Smith [34] further contends that negative interest rates play a pivotal role in combating deflationary pressures and averting economic recessions. Moreover, Smith underscores that the imposition of low interest rates heightens the cost associated with hoarding capital, thereby fostering a propensity for expenditure. Hughes [34] echoes a similar theoretical stance, positing that negative interest rates serve as a catalyst for economic vitality. The central bank accomplishes this by increasing lending to commercial banks at lower interest rates during recessions.

2.3.2 Financial Deepening and GDP Per Capita

The study endeavours to establish a correlation between GDP per capita, representing economic growth, and the development of the financial sector in Ghana. Here, economic growth is defined by the growth rate of GDP per capita. Economists have contended that a more advanced financial sector plays a pivotal role in fostering economic growth [35]. In the case of Sackey and Nkrumah [36] a quarterly time series dataset spanning a decade (2000 – 2009) in Ghana was used. The study revealed a statistically significant positive correlation between Financial Sector Development and GDP per capita proxied as Economic Growth. This finding aligns with the outcomes observed in much of the reviewed literature.

Ehigiamusoe, Guptan, and Narayanan [37] conducted an investigation into the non-linear influence of real GDP per capita on financial development across a panel comprising 125 countries. Their findings indicate a positive impact of GDP on financial development across the entirety of the panel.

2.3.3 Financial Deepening and Inflation

Rising inflation inevitably results in diminished value for all existing financial assets. It is evidenced that without a substantial increase in monetary savings to offset these inflation-driven losses, the potential for financial deepening within a country is significantly reduced. Santosh and Lakshmi [38] discovered that both domestic and private savings, crucial for financial progress, suffered negative impacts due to inflation. Similarly, Batayneh, Al Salamat, and Momani [39] investigated the short- and long-term consequences of inflation on the financial sector's growth in Jordan from 1993 to 2018, revealing a noteworthy negative influence of inflation on financial sector development across both time frames.

3. Methods and Model Specification

Time series data spanning 1978 to 2019 were used. The variables incorporated in the analysis comprised financial deepening, deposit interest rates, inflation rates, and gross domestic product (per capita). The selection of these variables was informed by existing literature and the availability of data, guiding the choice of the investigation period. Data for the study were systematically gathered from sources including the World Bank Development Indicators [40], Ghana Statistical Service, and reports from the Bank of Ghana.

3.1 Model Specification

This study makes use of an empirical strategy for data analysis for the purpose of achieving the objectives set. In analyzing and explaining financial sector development, it is important, to set up a model where financial sector development is made to depend on selected macroeconomic indicators as shown in the equation below:

$$fd_t = \alpha_0 + \sum_{i=1}^p b_i fd_{t-i} + \sum_{l=1}^q \eta_l eg_{t-l} + \sum_{m=1}^q g_m ir_{t-m} + \sum_{n=1}^q \phi_n inf_{t-n} + \omega_t$$

(Under the VAR Model, there are no endogenous/dependent or exogenous/independent variables, each of the variables in the model can equally be a dependent variable).

Where:

fd = Financial Deepening

ir = Deposit Interest Rate

eg = Economic Growth (Gross Domestic Product Per capita)

b_i , η_l , g_m and ϕ_n are Coefficients of each variable in the model

$\sum_{i=1}^p$ = Maximum Lag Length in each equation (q), whilst t =

lag time for each variable

α = Constant

ω = Stochastic Error Term known as Impulse/Innovations/Shocks in the System.

3.2 Stationarity Test and its Significance

Time series data often show trends of either increasing or decreasing values, highlighting the importance of checking the stationarity of variables. Testing the integration order of these variables is crucial for model accuracy, preventing the possibility of spurious (false) relationships amongst used variables in the analysis. To accomplish this, the study used the Augmented Dickey-Fuller and Philip Perron tests to assess stationarity.

3.3 Augmented Dickey-Fuller (ADF) Test

The Augmented Dickey-Fuller (ADF) test is an improved version of the Dickey-Fuller test, designed to handle correlated error terms. Unlike the Dickey-Fuller test, which assumes uncorrelated error terms following a white noise pattern, the ADF test acknowledges the common correlation among many macroeconomic variables and their tendency to exhibit trends over time [41]. By incorporating additional

lagged terms of the dependent variable, the ADF test effectively addresses issues related to autocorrelation.

3.4 Cointegration

The cointegration test is essential for determining whether integrated variables exhibit a long-term relationship between the dependent and independent variables. Johansen and Juselius [42] introduced the Johansen maximum likelihood procedure within a vector autoregressive framework, which has become a crucial tool for estimating models involving time series data. In this study, the Johansen cointegration approach is favoured because it allows for the estimation of a dynamic error correction specification, providing insights into both short and long-run dynamics. Additionally, this approach is considered highly reliable and suitable for analyzing small sample properties. Eagle and Granger [43] developed two likelihood ratio tests, namely the Trace Test and the Maximum Eigenvalue Test, which are used to examine the presence of cointegrating vectors between financial development and macroeconomic variables.

4. Results and Discussion

4.1 Descriptive Statistics

The variability of the variables from their means is assessed through the standard deviation column in Table 1. Elevated standard errors indicate the presence of outliers, which may significantly impact the dataset. Furthermore, the spread of the data can be evaluated by examining the difference between the minimum and maximum values of the variables. A wider gap in a variable's range corresponds to a greater standard deviation for that variable. Table 1 provides a summary of descriptive statistics for the variables used in the model, offering insights into statistics such as mean, median, standard deviation, minimum, and maximum values.

Table 1: Descriptive Statistics

Variable	Mean	Min	Max	Std. Dev	Obv.
Lnfd	1.966	0.432	2.765	0.75	42
Lneg	6.941	6.542	7.541	0.287	42
Lnir	2.742	2.184	3.577	0.381	42
Lninfl	3.061	1.964	4.811	0.716	42

Source: Authors' computation from WDI data

Analysis show that during Financial Deepening (*fd*) averaged approximately 1.97 per cent, exhibiting a notable standard deviation of 0.75, suggesting considerable dispersion from the mean. This variability may be attributed to fluctuations in macro variables throughout the study period, indicative of macroeconomic instability.

Furthermore, the average Gross Domestic Product (*gdp*) rate proxied as Economic Growth (*eg*) stands at 6.94, with an estimated deviation of 0.29 from the mean, resulting in minimum and maximum values of 6.54 and 7.54, respectively.

In contrast, T-bill rates, commonly used as a proxy for interest rates (*ir*), demonstrate an average of 2.74 over the years, accompanied by a standard deviation of 0.38. The

minimum and maximum returns for T-bill rates are at 2.18 and 3.58, respectively.

Moreover, the average inflation rate, reflecting the general price trend over time, is approximately 3.10. However, it deviates from its mean by 0.72, with minimum and maximum values observed at 1.96 and 4.81, respectively.

4.2 Correlation Matrix

In many instances, the correlation coefficient acts as a measure to evaluate both the strength and direction of the relationship between paired independent variables or between paired dependent and independent variables. A negative coefficient denotes an inverse correlation, while a positive coefficient signifies a direct relationship. The absolute value of the coefficient reveals the magnitude of the correlation. According to Cooper and Schindler [44], a correlation value of 0.8 or above between paired independent variables indicates multicollinearity, warranting further consideration.

However, according to the findings presented in Table 2, there are no indications of collinearity issues among the paired explanatory variables. Furthermore, the correlation values are relatively low, affirming the absence of multicollinearity concerns, as observed in prior research by Bryman and Cramer [45] and Adusei [46].

Table 2: Correlation Matrix

Variable	Lnfd	Lneg	Lnir	Lninfl
Lnfd	1	0.1789	-0.1809	0.1015
Lneg	0.1789	1	-0.5997	-0.1468
Lnir	0.1809	0.5997	1	0.0198
Lninfl	0.1015	-0.1468	0.0198	1

According to the findings presented in Table 2, Financial Deepening (*fd*) exhibits a significant positive relationship with EG, which serves as a proxy for GDP, as well as with the deposit interest rate (*ir*). This suggests that an increase in the deposit interest rate may favourably impact the efforts of most banks to deepen financial services. Conversely, *fd* demonstrates an inverse relationship with inflation rate (*infl*).

Furthermore, the results indicate that GDP (*eg*) has a negative relationship with both the deposit interest rate (*ir*) and inflation (*infl*). Notably, a positive relationship is established between inflation and the deposit interest rate.

4.3 Augmented Dickey-Fuller Stationarity Test

The study assumed non-stationary macroeconomic data and conducted a pretest to ensure the presence of a stationary cointegration relationship among variables. Prior to conducting Ordinary Least Squares (OLS) estimations, the study examined the time series properties of the variables using unit root tests and assessed the presence of a stochastic trend in the adapted regression model. This methodological approach is guided by research insights such as those presented by Fosu, Bondzie, and Okyere [47], who employed the Augmented Dickey-Fuller (ADF) test and unit-root testing. Consistent with these methodologies, the

ADF test was conducted, as illustrated in Tables 3 and 4. For consistency, all variables are converted to their log forms.

Table 3: Augmented Dickey-Fuller Stationarity Test (Constant)

LEVELS	FIRST DIFFERENCE							
	Variable	ADF stats	t-	Critical Value	ADF stats	t-	Critical Value	Order of Intg.
Lnfd	-1.592	-2.935	-8.047533	-	3.606***	1	I(1)	
Lnir	-1.113	-2.935	-7.345794	-	3.606***	1	I(1)	
Lneg	-1.796	-2.935	-6.403373	-	3.607***	1	I(1)	
Lninfl	-4.733	-2.601	-3.904208	-	3.633***	1	I(1)	

Notes: *** under first difference at 1% significant level.

The results from Tables 3 and 4 (constant, constant & trend respectively) indicate non-stationarity at the levels of all variables (I(0)), except for Lninfl. To ensure consistency in the analysis, all variables were transformed to their first differences. Consequently, at the first difference or integration of order one (I(1)), all variables became stationary, satisfying a necessary condition for the estimation of cointegration and error correction models.

Table 4: Augmented Dickey-Fuller Stationarity Test (Constant and Trend)

LEVELS	FIRST DIFFERENCE						
	Variable	ADF t-stats	Critical Value	ADF t-stats	Critical Value	Order of Intg.	Concl
Lnfd	-1.592	-2.935	-8.154	-4.205***	1	I(1)	
Lnir	-1.113	-2.935	-7.315	-4.205***	1	I(1)	
Lneg	-1.796	-2.935	-6.389	-4.205***	1	I(1)	
Lninfl	-4.733	-2.601	-4.456	-4.243***	1	I(1)	

Notes: *** critical values at first difference denote a 1% significant level. **Critical values at The first difference denotes a 5% significant level incorporating the trend in the test, Table 4 gives details of the results.

4.4 Determination of the optimal lag length

Another crucial step before estimating the Johansen Cointegration Test is determining the optimal lag length. The results from running the test are presented in Table

Table 5: Determination of the optimal lag length

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-548.150	NA	23298912	28.315	28.486	28.377
1	449.356*	172.26*	335602.30*	24.07*	24.92*	24.38*
2	-441.219	12.518	516646.700	24.473	26.008	25.024
3	-436.201	6.690	975181.300	25.036	27.254	25.832

Source: Researcher's elaborations using WDI data

The findings indicate that Lag 1 under AIC is the most suitable option for model analysis, as it demonstrates the lowest value among the asterisked alternatives. This suggests that in the event of shocks or disturbances in the

system related to the regressors, it would take approximately one year for the response variable to react and adjust to the induced shocks by these explanatory variables (eg, ir & infl). However, it is crucial to acknowledge that this study exclusively concentrates on short-run analysis due to the absence of evidence for any long-run relationships among the variables. Therefore, the VAR Model is employed for this purpose. Information regarding the inability of the Trace Test to establish long-run characteristics is provided in Table 6.

4.5 Johansen Cointegration Test

Based on the results, Lag 1 under AIC is deemed appropriate for the model analysis as it exhibits the lowest value among the asterisked options. This implies that if there are shocks or disturbances in the system concerning the regressors, the response variable will take a year to react and adjust to the shocks induced by these explanatory variables (eg, ir & infl). However, it's important to note that this research focuses solely on short-run analysis due to the lack of evidence for any long-run relationships among the variables. Hence, the VAR Model is utilized. Details regarding the failure of the Trace Test to establish long-run characteristics are provided in Table 6.

Table 6: Johansen unrestricted cointegration test (Trace & Max-Eigen Value)

No. of CEs Hypothesized	Trace Test				Max-Eigen Value Test		
	Eigen Value	Trace Stats	5% Critical Value	Prob**	Max-Eigen Stats	5% Critical Value	Prob**
None	0.43	41.99	47.86	0.16	22.32	27.58	0.20
At most 1	0.28	19.67	29.81	0.44	12.96	21.13	0.46
At most 2	0.15	6.71	15.51	0.61	6.68	14.27	0.53
At most 3	0.00	0.03	3.84	0.86	0.03	3.84	0.86

Note: Due to the nature of the formatting required by the template, figures are run to two decimal places.

Source: Researchers' Elaboration Based on Local Macroeconomic Data/WDI

****significant at 5%**

As proposed by Engel and Granger [43], if the variables of interest exhibit cointegration at the first difference, it is essential to employ appropriate statistical techniques such as the Vector Autoregression (VAR) Model for short-term analysis and the Vector Error Correction Model (VECM) for long-term analysis. However, following the estimation of the Johansen Cointegration Test, the system failed to establish a cointegration equation among the variables. As a result, this study was restricted to estimating only the VAR Model.

Table 7: Simple vector auto-regression (VAR) analysis

Variable	Coeff	Stand. Error	t-statistic	Prob
fd(-1)	0.703691	0.17997	3.91015	0.0002
eg (-1)	1.485859	0.17334	8.57208	0.0000
ir(-1)	0.584512	0.69265	0.84387	0.0079
infl (-1)	-0.005652	0.01386	-0.40774	0.6842
Constant	0.014301	1.85886	-0.00769	0.9939

	fd	eg	ir	infl
R-square	0.925407	0.993821	0.800813	0.475678
Adj. R-sq	0.906158	0.992226	0.749411	0.340369
F-statistic	48.07392	623.2563	3.515490	15.57913
Log-likelihood	-70.30744	-188.4167	-172.1248	-103.6597
Akaike AIC	3.965372	9.870837	9.056241	5.632984
Schwarz SC	4.345370	10.25083	9.436239	6.012982
Durbin Watson	2.133500	1.70897	2.285036	2.083998

Note: Font size of figures are reduced to fit within the tables.

Source: Researchers' Elaboration Based on Macroeconomic Data/WD

It is crucial to acknowledge that the VAR Model is estimated using the Ordinary Least Squares (OLS). In this model, Financial Deepening (*fd*) acts as the endogenous variable, while *gdp* proxied by economic growth (*eg*), Deposit Interest Rate (*ir*), and Annual Inflation Rate (*infl*), serve as the exogenous variables.

Examination of historical data reveals a notable upsurge in Financial Deepening (*fd*) of around 70 percent compared to previous levels (see Table 7). Notably, among the exogenous variables, Economic Growth (*eg*) and Deposit Interest Rate (*ir*) demonstrate a significant positive association with *fd*. This suggests a robust influence of *eg* and *ir* on financial sector development in Ghana, aligning with the postulation of Schumpeter [18], who theorized a direct correlation between financial development and *eg*. Furthermore, a pioneering study by Goldsmith [20] supports a positive relationship between financial development and *gdp* per capita, as represented by *eg*. Recent research by Ehigiamusoe et al. [37] further underscores these findings, reaffirming the constructive impact of *gdp* on financial development.

In Table 7, the study confirms a strong positive relationship between interest rates and financial deepening. These results are consistent with that of Hossin [28], who, through comprehensive analyses employing cointegration and error correction models, revealed a positive link between deposit interest rates and financial depth in Bangladesh. Thus, the empirical evidence indicates that an increase in deposit interest rates paves the way for financial deepening, with other factors remaining constant. Additionally, the findings of Azu and Amahi [32] bolster these conclusions, highlighting the favourable long-term association between interest rates and financial deepening.

Although inflation exerts a negative influence on financial deepening (*fd*) in this study, it remains a topic worthy of

discussion. The interaction between inflation and financial development is a significant concern for *fd* in developing economies such as Ghana. The study of Santosh and Lakshmi [36] explored the impact of inflation on financial deepening, both domestic and private savings were considered crucial for financial development, and therefore negatively affected by inflation. This suggests that inflationary pressures may hinder the accumulation of domestic and private savings, thereby impeding financial sector growth.

5. Conclusion

This study provides contemporary insights into the impact of macroeconomic indicators on financial deepening (*fd*) in Ghana, highlighting the collective influence of Gross Domestic Product (*gdp*), Deposit Interest Rate (*ir*), and Inflation (*infl*) on financial development. A key finding reveals a significant positive correlation between financial development and GDP, emphasizing the importance of enhancing GDP performance to reduce transaction costs within the financial system. The findings have significant implications for policymakers and stakeholders, urging a re-evaluation of monetary policy strategies and a focus on alternative approaches to foster economic growth and financial stability. Overall, the research provides valuable insights for guiding policy decisions and promoting sustainable economic development in Ghana.

6. Recommendations

Drawing from the insights gleaned in this study, several recommendations can be put forth for diverse stakeholders, encompassing publicly traded companies, policymakers, academics, and others. Foremost, governmental efforts should concentrate on prioritizing the adoption of sustainable macroeconomic policies geared towards nurturing economic growth and establishing an enabling environment for local industries and businesses. These policies ought to centre on augmenting the capacity utilization of local industries and businesses, thereby fostering heightened demand for credit and enhancing the well-being of financial institutions.

changes in these variables, policymakers can effectively stimulate economic growth and promote financial deepening. Given the statistically significant impact of the *gdp* growth rate on financial deepening, policymakers should prioritize initiatives aimed at accelerating economic growth. This may include investments in infrastructure, technology, and human capital development to stimulate economic activity and drive financial sector expansion.

Moreover, academics should conduct further research on macroeconomic variables and their impact on *fd* to enhance our understanding of these complex relationships. Educational initiatives should also be undertaken to raise awareness among stakeholders about the importance of macroeconomic stability for sustainable financial development.

By implementing these recommendations, stakeholders can contribute to the promotion of sustainable economic growth and the development of a robust financial sector that benefits all segments of society. Policymakers should closely monitor the behaviour of macroeconomic variables that influence Financial Deepening (*fd*). By understanding and responding to

Data Availability

All data were accessed from the World Bank Development indicator website for the period under reference.

Study Limitations

None.

Conflict of Interest

Authors declare that they do not have any conflict of interest.

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None

Authors' Contributions

Author-1 conceived the research idea, researched literature and interpreted the analysis. Author-2 involved in data collection, coding, analysis and putting results in Tables. Both authors reviewed and edited the manuscript and approved the final version of the manuscript.

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