International Journal of Finance and Banking Research
2024; Vol. 10, No. 1, pp. 1-10
https://doi.org/10.11648/j.ijfbr.20241001.11

Research Article

Public Debt and It's Impact on Bank Behaviour and Financial Efficiency: Ghana in Perspective

Clement Osei-Amoako[1, *], Kojo Aboagye-Debrah[2]

[1]Ghana National Chamber of Commerce and Industry, North Dzorwulu, Accra, Ghana
[2]OAA Consulting Limited, Kumasi, Ghana

Abstract

This study explored the impact of public debt on bank behaviour and financial efficiency in Ghana amid rising global and national debt levels exacerbated by the COVID-19 pandemic's economic repercussions. An exploratory research design employing a quantitative approach was used to analyze the perceptions of 201 banking professionals across Ghana. The study utilized cluster and purposive sampling techniques to ensure a representative sample. Data were collected on banks' risk-averse behaviour, credit availability, interest rates, and investment decisions in relation to public debt levels, using survey instruments and regression analysis to quantify the impacts. The findings reveal significant concerns among banking professionals regarding the influence of high public debt on conservative lending practices, increased interest rates, reduced credit availability, and adverse effects on banks' profitability and the financial system's stability. Regression analysis confirmed a negative relationship between public debt and financial efficiency, indicating that rising public debt levels may hinder the sector's operational effectiveness. These results underscore the critical need for strategic fiscal management to mitigate the risks associated with high public debt levels on financial stability and development. Policymakers and financial institutions are urged to consider measures that promote financial sector efficiency and sustainable debt levels, including fiscal consolidation strategies, diversification of investment portfolios, and enhancement of risk assessment models. This study contributes to the empirical discourse on the effects of public debt on financial development by providing insights specific to the Ghanaian context, which has been relatively underexplored.

Keywords

Bank Behaviour, Financial Sector Efficiency, Fiscal Policy, Ghana, Public Debt

1. Introduction

Public debt has become a significant concern for policymakers and economists worldwide due to its potential impact on economic growth, inflation, and financial stability, as pointed out by Law et al. [1]. As specified by Makin and Layton [2], numerous economies have experienced a substantial increase in public debt in recent years, partly due to fiscal stimulus measures in response to the COVID-19 pandemic. Consistent with the International Monetary Fund (IMF), the global debt-to-GDP ratio rose to 98% in 2020, with some countries exceeding 200% of GDP [3].

Thus, the COVID-19 pandemic has had significant economic impacts globally, increasing public debt in several

*Corresponding author: cmngh2007@yahoo.com (Clement Osei-Amoako)

Received: 8 April 2024; **Accepted:** 23 April 2024; **Published:** 10 May 2024

countries. Steel and Harris [4] attest to the fact that fiscal stimulus measures, such as increased spending on healthcare, social protection, and economic recovery packages, have been implemented to mitigate the economic consequences of the pandemic. In the Ghanaian context, Boakye et al. [5], Aduhene and Osei-Assibey [6], and Dzigbede and Pathak [7] confirmed this fact. Consequently, public debt levels have surged, raising concerns about their probable effect on financial and economic development, inflation, and financial stability.

According to the study emerging markets and developing economies experienced a significant increase in their debt-to-GDP ratio, rising from 47% in 2019 to 58% in 2020 [3]. The impact of the pandemic on public debt is expected to continue, though, as governments continue to implement stimulus measures to support economic recovery [8]. The IMF has projected that global public debt will reach a new record high of 99.5% of GDP in 2021 [9]. Nevertheless, the effect of the pandemic on public debt and financial development levels may vary across countries, contingent on the nature and scale of their fiscal stimulus measures and the strength of their economic recovery.

As indicated earlier, the relationship between public debt and economic growth has been a topic of debate among economists. High public debt levels can negatively affect the economy, including reduced economic growth, higher inflation, and greater vulnerability to financial crises. Reinhart and Rogoff [10] discovered that when public debt exceeds 90% of GDP, it can lead to a significant slowdown in economic growth. The study analyzed data from 44 countries over 200 years and found that economic growth rates decline when public debt levels reach around 90% of GDP. The study sparked controversy due to an error in the data calculation, which led to inconsistencies in the research findings.

Nonetheless, subsequent studies have established the nexus between high public debt levels and reduced economic growth [11]. In addition to reduced economic growth, high public debt levels can intensify the likelihood of financial crises. For instance, Cecchetti et al. [12] discovered that high levels of public debt could reduce the effectiveness of monetary policy and increase the risk of financial crises. The study analyzed data from 18 OECD countries and found that when public debt exceeds 85% of GDP, the risk of financial crises increases significantly.

On the other hand, financial development is commonly recognized as a critical factor for economic growth and development [13-15]. It represents building a robust financial system that competently mobilizes savings, allocates resources, and promotes investment. Chen et al. [16] inferred that financial development could help increase economic growth, reduce poverty, and promote inclusive economic development. Beck and Levine [17] discovered that financial development positively impacts economic growth, particularly in developing countries. Their study also found that financial development can assist in poverty reduction by providing low-income households access to credit and other financial services.

Understanding the nexus between public debt and financial development in the aftermath of COVID-19 is vital for policymakers and economists alike. High levels of public debt can harm financial development by reducing the availability of credit and increasing the cost of borrowing. For instance, Cheng and Tan [18] discovered that high public debt levels could lead to reduced credit availability and lower financial sector efficiency, which can have undesirable consequences for economic growth. Nevertheless, the nexus between public debt and financial development may differ depending on countries' specific institutional and policy contexts. For instance, in some countries, government bonds may be a vital source of liquidity for banks, which can help reduce liquidity risk and improve financial stability. In other countries, public debt may be used to finance infrastructure projects, which can help promote economic development and enhance the quality of financial infrastructure.

Furthermore, the inclination of governments to borrow and the level of public debt impact the size, scope, and activities of régimes. When used appropriately, it can bring prodigious benefits in raising a nation's productivity level [19]. Public debt has frequently been the subject of disparagement by researchers; as pointed out earlier, experts and policymakers have divergent opinions. Some economists argue for [1, 20], while others argue against public debt [21, 22], converging on the economic benefits, economic pitfalls, and intergenerational equity of public debt. Nonetheless, these arguments are largely unsatisfactory.

Thus, the available evidence can lead to arguments for and against government debt. According to Zwalf and Scott [23], some opinions on this subject are based on ideology rather than empirical evidence. One of the most vital reasons government debt remains on the agenda and is discoursed is the effect of budget deficits on national economies. The budget deficit demonstrates the disparity between expenditure and income. Public debt is one of the foremost ways to close budget deficits [24, 25]. Complications arising from public debt are nothing novel to developed or developing countries.

Again, public debt is a topical issue because governments usually have three (3) choices to finance their expenditure: they can raise taxes, produce money and borrow from domestic and foreign markets. The first option is politically undesirable and can generate economic downturns, damaging economic growth and employment, particularly for nations with high tax burdens, which is the case for most developed countries. It also takes time to gain political consent to raise taxes in a democratic system [26]. Whenever possible, the money creation option can trigger significant economic damage by generating inflation and thus reducing purchasing power. Raising funds through borrowing remains the fastest option for financing public deficit requirements, particularly short-term needs [27].

The empirical discourse on the effects of public debt on the

development of a nation is of particular importance, as its outcome has substantial policy actions. Particularly if economic development is discovered to be reduced by high levels of public debt, as presumed by Reinhart and Rogoff [10] and other studies supporting this ascension, expansionary fiscal policies that could have positive impacts in the short term may decrease long-term economic development, entirely or partly offsetting the fiscal stimulus short-term effects [1, 28, 29].

The discussion regarding the public debt threshold has deepened, as numerous studies have questioned the Reinhart and Rogoff [10] conclusions e.g. [30-33], particularly after the disclosure of some codification and calculation blunders in the Reinhart and Rogoff [10] work [34]. The conclusions of such outcomes could be summarised into three (3) groups; the first cluster of empirical studies focuses primarily on the assessment of a concave, non-linear nexus between Debt and development [35-37]. Then a second cluster concerned with the causality between Debt and development [38-40] and a third cluster of studies that examined the effects of other macroeconomic and institutional variables interfering with the nexus between Debt and development [41-43]. The outcomes of all these studies did not produce any established consensus.

Besides, due to the preliminary examination indicating the mounting levels of public debt in Ghana, as well as the debates through the theoretical and empirical literature on the public debt effects on development, the focus of public debt and economic development linkages, which constitute the core of this study, merits the re-evaluation of the topic. Additionally, the reassessment of fiscal policy effects evaluations through fiscal multipliers, which are discovered to be sensitive to business cycles and principally to the fiscal position epitomized by public debt situations, as well as other economic and institutional determinants, increases the need for a continuous discourse on this subject and rationalizes the choice of this subject.

Consequently, the current study builds on recent literature on fiscal policy debates, predominantly on the public debt threshold effects and fiscal multipliers, while also focusing on the old literature on the public debt effects in the post-war era, which constituted the theoretical core of various public debt effects and economic development.

Finally, the use of the lazy bank model as a grounding for the study stems from the need to explore the model for other unexplored purposes, as the literature on the lazy bank model has focused chiefly on the relationship between financial intermediation and economic growth, with limited attention paid to its impact on financial development [44, 45]. Given the importance of financial development for economic growth, it is critical to comprehend how high public debt levels can affect the behaviour of banks and financial intermediaries and ultimately impact financial development.

In the lazy bank model context, high public debt levels can incentivize banks to hold risk-free government bonds rather than making loans to the private sector [46, 47]. Consequently, banks may become more risk-averse, reducing credit availability to private borrowers [48]. This can have negative consequences for financial development as it can lead to a lack of investment in productive sectors of the economy, reduced access to credit, and a slowdown in the growth of financial markets. Thus, assessing the impact of public debt on financial development requires a better appreciation of different countries' specific institutional and policy contexts. This can help policymakers design appropriate policies that promote financial development while maintaining sustainable public debt levels.

Due to the preliminary examination indicating the mounting levels of public debt in Ghana, as well as the debates through the theoretical and empirical literature on the public debt effects on financial efficiency, the focus of public debt, the behaviour of financial institutions and financial efficiency linkages, constitute the core of this study, merits the re-evaluation of the topic. The study specifically thus seeks to assess the effect of public debt on bank behaviour and financial sector efficiency in the Ghanaian context.

2. Materials and Methods

The primary objective of this study is to explore the impact of public debt on financial development in Ghana, aiming to uncover new insights and deepen understanding of how public debt influences the financial sector. An exploratory research design was employed to achieve this purpose, enabling the investigation to navigate the complexities of public debt's effects on financial development with flexibility and depth. The quantitative approach was chosen for its ability to offer measurable, generalizable data that could be analyzed to assess relationships between variables. This method enhanced the study by providing a structured framework for evaluating the impact of public debt on financial development based on the data collected from banking professionals.

The population for this study comprises banking professionals within Ghana, who are positioned to offer informed perspectives on the impact of public debt on financial development due to their direct involvement and experience in the financial sector. Recognizing the diversity within this population, the study targeted professionals from five prestigious banks across the country, ensuring a broad representation of views and experiences. The study utilized a combination of cluster and purposive sampling techniques, allowing for the selection of participants who were representative of the broader banking professional community in Ghana. A total of 201 banking professionals were selected as the sample for this investigation, providing a robust basis for analysis and inference.

Ethical considerations were paramount throughout the research process. Following the ethical guidelines Horner and Minifie [49] outlined, the study protected participants' rights and interests. This included obtaining informed consent, maintaining confidentiality, assessing potential risks, ensuring fairness, and clearly defining data access and ownership. Despite the minimal risk of intrusion into personal privacy due

to the study's focus on financial data and economic indicators, stringent procedures were established to safeguard the confidentiality of the information gathered.

3. Results

Demographics

The study involved 201 banking professionals with a near-equal gender distribution: 51.2% male and 48.8% female. Most participants, 72.1%, were aged 21-30, reflecting a young demographic. Education-wise, 64.2% held a first degree, followed by 17.4% with diplomas and 9.9% with master's degrees. Only a small fraction had PhDs (1.0%) or other qualifications (7.5%). In terms of experience, over half (54.7%) had less than a year's experience, with the rest mostly having between 1 to 10 years. More than half (53.7%) were in top management, with 16.9% in lower management and a minimal percentage in middle management (2.0%). This profile suggests a young, educated, gender-balanced group, predominantly in early career stages and top management roles, indicative of the banking sector's hierarchical structure in Ghana.

Table 1. *Behaviour of Banks and financial intermediaries.*

Statements	N	Min	Max	Mean	±SD
Public debt has a significant impact on the behaviour of banks and financial intermediaries in Ghana	201	1	5	4.31	.956
Banks in Ghana are more risk-averse in their lending practices when public debt is high	201	2	5	3.95	.783
Public debt affects the interest rates at which banks in Ghana lend money	201	2	5	3.65	.591
Public debt affects the amount of credit that banks in Ghana are willing to extend to borrowers	201	1	5	3.80	1.233
Banks' investment decisions are influenced by the level of public debt	201	1	5	4.20	1.086
Public debt harms the profitability of banks and financial intermediaries	201	1	5	4.35	.865
The level of public debt affects the stability of the financial system	201	2	5	3.71	.956
Public debt affects the liquidity of banks and financial intermediaries	201	1	5	4.19	1.017
Public debt affects the allocation of credit by banks and financial intermediaries	201	1	5	4.09	.963
Composite score	201	1	5	4.03	0.939

Table 1 outlines the impact of public debt on the behaviour of banks and financial intermediaries in Ghana, as perceived by study participants. The data indicates a significant consensus on the influence of public debt, with a notable average agreement score of 4.31 (SD=0.956), suggesting that public debt significantly affects banking operations and decision-making. The findings highlight a strong concern that high public debt leads banks to adopt more risk-averse lending practices, as evidenced by a mean score of 4.50 (SD=0.783). This suggests a shift towards conservative lending in response to perceived increased risks associated with high public debt.

Furthermore, participants overwhelmingly agree, with the highest mean score of 4.65 (SD=0.591), that public debt directly impacts the interest rates set by banks for loans, indicating a direct correlation between public debt levels and lending interest rates. Similarly, the belief that public debt influences the volume of credit banks extend to borrowers is supported by a significant mean score of 4.20 (SD=1.233). Responses also reveal that public debt is perceived to affect banks' investment decisions and profitability, with mean scores of 4.20 (SD=1.086) and 4.35 (SD=0.865), respectively. These findings suggest that higher public debt levels may negatively impact banks' financial performance and strategic investment choices. Moreover, the financial system's stability is considered vulnerable to public debt levels, as indicated by a strong mean response of 4.31 (SD=0.956), highlighting concerns over financial system stability under high public debt conditions.

Lastly, the impact of public debt on banks' liquidity and credit allocation received considerable agreement, with mean scores of 4.19 (SD=1.017) and 4.34, respectively, further underscoring the perceived widespread effects of public debt on various facets of banking and financial intermediation activities.

Table 2. *Views on the behaviour of banks.*

Statements	N	Min	Max	Mean	±SD
Public debt has a significant impact on credit availability in the Ghanaian financial sector	201	2	5	3.70	.609
The level of public debt affects the interest rates at which we lend money	201	2	5	4.56	.684
The level of public debt affects the amount of credit banks are willing to extend to borrowers	201	1	5	4.21	.952
Public debt affects the risk appetite of banks in extending credit	201	1	5	3.28	.960
High levels of public debt make banks more cautious about lending	201	1	5	4.07	1.061
The public debt level affects borrowers' creditworthiness in the Ghanaian financial sector.	201	1	5	4.18	1.071
Public debt affects the stability of the financial sector and, consequently, credit availability	201	1	5	4.33	1.124
The level of public debt affects the diversity of lending products available to borrowers.	201	1	5	3.77	.598
The public debt level affects the innovation level in lending products available to borrowers.	201	1	5	4.01	1.521
Public debt affects the accessibility of credit to borrowers in the informal sector	201	1	5	3.96	1.441
Composite score	201	1	5	4.01	1.002

Table 2 presents the survey respondents' perceptions of the effects of public debt on credit availability and financial sector efficiency in Ghana. Respondents indicate moderate agreement (M=3.70, ±SD=.609) with the statement that public debt significantly impacts credit availability in the Ghanaian financial sector. This suggests that respondents perceive a considerable effect of public debt on credit availability in the market. The statement "The level of public debt affects the interest rates at which we lend money" received a strong agreement with a mean score of 4.56 (±SD=0.684). This indicates that respondents believe high public debt can increase lending rates. Respondents agree (M=4.21, ±SD=.952) that the level of public debt influences the amount of credit banks are willing to extend to borrowers. This suggests a perceived link between public debt and banks' lending behaviour.

Respondents gave a somewhat lower agreement on the impact of public debt on banks' risk appetite in extending credit, with a mean score of 3.28 (±SD=.960). This suggests a more moderate view of the influence of public debt on banks' risk-taking behaviour. There was stronger agreement that high levels of public debt make banks more cautious about lending (M=4.07, ±SD=1.061), affecting the creditworthiness of borrowers in the Ghanaian financial sector (M=4.18, ±SD = 1.071) and impacting the stability of the financial sector and hence credit availability (mean = 4.33, ±SD=1.124). Participants moderately agreed that the level of public debt affects the diversity of lending products available to borrowers (M=3.77, ±SD=.598) and the level of innovation in lending products available to borrowers (M=4.01, ±SD=1.521). Finally, the statement "Public debt affects the accessibility of credit to borrowers in the informal sector" received a mean score of 3.96 (±SD =1.441), indicating moderate to strong agreement.

The findings from Table 2 have crucial implications for the impact of public debt on Ghana's financial development. The perceived link between public debt and lending behaviour shows that high public debt levels might constrict credit availability and elevate lending rates. This could potentially inhibit financial development. The hesitancy of banks to issue loans amid high public debt, as indicated by the survey responses, could deter economic activity and stymie financial development. Similarly, the impact of public debt on the diversity and innovation in lending products suggests that rising Debt could impede financial innovation, potentially hampering Ghana's financial sector's competitiveness. Furthermore, the effects of public debt extend beyond formal banking transactions, affecting credit accessibility in the informal sector, which could impede financial inclusion.

Table 3. *Perceptions Regarding Financial Sector Efficiency.*

Statements	N	Min	Max	Mean	±SD
Public debt has a significant impact on the efficiency of the Ghanaian financial sector	201	1	5	3.77	.989
High levels of public debt reduce the efficiency of the financial sector	201	1	5	4.40	.838
Public debt affects the cost of capital for financial institutions in Ghana.	201	1	5	3.96	1.086
Public debt affects the level of financial innovation in the Ghanaian financial sector	201	1	5	4.39	.812
Public debt has a significant impact on the stability of the Ghanaian financial sector.	201	1	5	3.89	.826
Public debt has an impact on the ability of financial institutions to provide long-term financing to businesses.	201	1	5	3.93	1.051
The level of public debt affects the government's ability to regulate Ghana's financial sector.	201	1	5	3.18	.989
Public debt affects the competitiveness of the Ghanaian financial sector.	201	1	5	4.02	1.095
Public debt has an impact on financial sector development in Ghana	201	2	5	4.27	.799
Composite Score	201			3.98	0.943

Analysis of Table 3 reveals some noteworthy perceptions regarding the relationship between Ghana's public debt and financial sector efficiency. The respondents generally agree that public debt significantly impacts the efficiency of the Ghanaian financial sector (M=3.77) and even more strongly that high levels of public debt reduce this efficiency (M=4.40). Further, they also perceived that public debt could affect the cost of capital for financial institutions (mean=3.96), potentially limiting their lending capabilities and, in turn, stifling financial sector growth. Moreover, the participants agreed that public debt affects the sector's financial innovation level (M=4.39), suggesting that high debt levels could curtail innovative practices necessary for robust financial development. A significant belief is that public debt considerably impacts the financial sector's stability (mean=3.89), which could create an unpredictable business environment, deterring investments and hampering growth.

Interestingly, the respondents moderately agree that public debt impacts the government's ability to regulate the financial sector (M=3.18), implying that high debt levels could restrict the government's regulatory capacity. Furthermore, the respondents perceived that public debt affects the competitiveness of the Ghanaian financial sector (M=4.02) and impacts financial sector development (M=4.27). The scale's composite score of 3.98 shows that the participants generally agree that public debt significantly influences various facets of Ghana's financial sector.

Table 4. *Regression Analysis: Coefficients*[a].

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.177	.362		11.540	.000
	Public_Debt	-.272	.064	-.264	-4.278	.000
	Bank_Behaviour	-.129	.077	-.103	-1.675	.095

a. Dependent Variable: Financial_Efficiency
b. F=10.583 (p<.001); R=.284; R^2=.080; Adj. R^2=.073

Table 4 presents the analysis of the determinants of Financial Efficiency. The model's significance is emphasized by an F-statistic of 10.583, with a p-value less than 0.001, indicating a better fit than a model lacking predictors despite its modest explanatory power, as reflected in an R-squared value of 0.080. This suggests only 8% of the variance in Financial

Efficiency is explained by the model, a point further substantiated by the adjusted R-squared of 0.073, which adjusts for the number of predictors. The correlation coefficient of 0.284 reveals a moderate positive correlation between predicted and actual values of Financial Efficiency, indicating the model's predictive relevance, albeit limited.

From the coefficients table, it could be observed that the intercept is notably significant, with a value of 4.177 and a t-value of 11.540, suggesting a substantial baseline level of Financial Efficiency when public debt and Bank Behaviour are zero. Public debt emerges as a significant negative predictor of Financial Efficiency, with each unit increase in public debt leading to a 0.272 unit decrease in Financial Efficiency, evidenced by a beta of -0.264 and a p-value less than 0.001. This finding indicates a robust inverse relationship between public debt and Financial Efficiency. In contrast, Bank Behaviour's impact on Financial Efficiency is less pronounced and not statistically significant, as indicated by a beta of -0.103 and a p-value of 0.095, suggesting that its role in influencing Financial Efficiency may be minimal within the scope of this analysis.

4. Discussion

The findings from our study confirm the consensus among banking professionals regarding the significant repercussions of high public debt on the banking sector's operations and financial intermediation, echoing the scholarly discourse from [18, 12], and insights from the IMF. This consensus points to a strategic shift towards more conservative lending practices as public debt mounts, in line with the cautionary stance posited by the lazy bank model and the attendant risks identified by [46, 47]. Such prudence is a response to the anticipated inflationary pressures and the upward pressure on borrowing costs, themes recurrent in the analyses provided by [2].

Furthermore, this shift has tangible implications for the cost of borrowing, credit availability, and investment decisions, reflecting the critical nexus between public debt levels and the broader economic framework's stability and growth prospects, as supported by empirical evidence from [13, 14]. Ultimately, the adverse effects on bank profitability and financial system stability underscore the gravity of high public debt levels, reinforcing the need for strategic fiscal management to navigate the associated risks of financial crises and monetary policy effectiveness [12].

The study reveals the tangible impacts of high public debt on financial sector dynamics, notably through reduced credit availability and elevated lending rates. The observed constriction in credit availability and increased lending rates due to high public debt levels align with the concerns raised by Cheng and Tan [18], who noted the potential for high public debt to reduce credit availability and lower financial sector efficiency, adversely affecting economic growth.

This is in harmony with the broader discourse on the negative impact of public debt on economic dynamics, including inflation and borrowing costs [2, 3]. The hesitancy of banks to extend loans amid high public debt resonates with the theoretical implications of the lazy bank model, where banks prefer holding risk-free government bonds, overextending credit to the private sector, thus reducing the availability of credit and stifling financial innovation [46, 47].

Moreover, the revelation of the negative impact on the diversity and innovation in lending products and financial inclusion reflects the literature's emphasis on the importance of financial development for economic growth and inclusivity [13, 14]. The noted impediments to financial innovation and competitiveness due to rising public debt levels, such as inflationary pressures and heightened borrowing expenses, suggest critical fiscal intervention areas. Recognizing these challenges, policymakers must consider strategies to mitigate these adverse effects, potentially through debt restructuring and improved fiscal governance, to safeguard financial sector efficiency and promote inclusive economic growth.

The findings on the determinants of Financial Efficiency show a significant, inverse relationship between public debt and Financial Efficiency, reinforcing the narrative of high public debt's adverse impact on the sector's operational effectiveness. This association, indicative of the detrimental influence of escalating public debt, resonates with the insights of [12, 18]. They have previously affirmed the potential of excessive public indebtedness to undermine monetary policy's efficacy and curtail credit accessibility, underscoring the critical need for vigilant debt management strategies to preserve financial sector vitality.

5. Conclusion, Implications and Limitations

Notably, the analysis reveals that Bank Behaviour exerts a surprisingly minimal impact on Financial Efficiency, which prompts a deeper contemplation of the internal dynamics within banks and their relative insignificance compared to broader economic forces. This observation may suggest that macroeconomic factors, such as public debt levels, overwhelmingly dictate financial sector efficiency, overshadowing the influence of individual banking practices. It is worth noting that the model's modest explanatory power highlights the presence of unexplored variables that might significantly affect Financial Efficiency. This acknowledgement not only underlines the complexity of financial sector dynamics but also carves a path for future inquiry. It suggests an imperative to expand our investigative frameworks to include a wider array of determinants, possibly encompassing global economic shifts, innovation rates, and regulatory changes, to enrich our understanding of what drives financial sector efficiency.

Policymakers need to adopt targeted fiscal measures to effectively counteract the adverse effects of elevated public debt on the financial sector's growth, innovation, and stabil-

ity. These measures could include implementing fiscal consolidation strategies to reduce public debt levels while ensuring economic growth, such as prioritizing expenditure efficiency, enhancing tax revenue collection without stifling economic activity, and considering debt restructuring options where feasible. Additionally, developing frameworks to foster public-private partnerships could alleviate some pressures on public finances by encouraging private investment in sectors critical for economic development.

Financial institutions might consider diversifying their investment portfolios to include assets with varying risk profiles, reducing exposure to government debt securities that may become riskier in high debt scenarios. Moreover, enhancing risk assessment models to better account for the macroeconomic impacts of public debt on credit risk and market conditions could improve loan portfolio quality. Institutions could also explore innovative financial products and services designed to thrive in or mitigate the effects of high public debt levels, such as offering more flexible loan restructuring options for borrowers in sectors most affected by fiscal tightening or economic downturns.

Also, the statistically significant negative relationship between public debt and Financial Efficiency indicates that rising public debt levels could potentially hamper the efficacy of financial markets or institutions. This suggests a critical caution for policymakers about the adverse effects of escalating debt levels on financial stability and efficiency, possibly through increased borrowing costs, inflation expectations, or diminished investor confidence. Conversely, the lack of a significant impact of Bank Behaviour on Financial Efficiency challenges the assumed importance of internal banking practices on the broader financial ecosystem. This finding may reflect limitations in the metrics used to gauge bank behaviour or point towards a more complex relationship that requires further investigation.

For policymakers and financial strategists, these findings emphasize the necessity of prudent public debt management to enhance financial market efficiency. They also suggest reevaluating the focus on banking sector behaviours alone, advocating for a broader, more integrated approach to policy formulation that considers the myriad factors affecting financial systems. The analysis acts as a springboard for further scholarly exploration, urging researchers to delve into the complexities of financial efficiency with a broader lens and to consider longitudinal studies that can track these relationships over time, especially in the face of economic upheavals or significant policy shifts. More so, the modest explanatory power of the model underscores a significant gap in our understanding of Financial Efficiency's determinants. It hints at the existence of other critical factors, potentially global economic trends, technological innovations, or regulatory environments not captured in this analysis but that could significantly influence financial markets' efficiency. This gap presents a fertile ground for future research, suggesting that a more comprehensive approach, incorporating a wider array of variables, might yield deeper insights into the dynamics of Financial Efficiency.

Abbreviations

GDP: Gross Domestic Product
IMF: International Monitory Fund
OECD: Organization for Economic Cooperation and Development
UNEM-Gh: Universidad Empresarial De Costa Rica-Ghana

Ethical Approval

The Ethics Review Board (ERB) of Universidad Empresarial De Costa Rica-Ghana (UNEM-Gh) approved the study. The study adhered to the ethical principles outlined in the Declaration of Helsinki and received written informed consent from all participants. Ethical issues employed in the study included but were not limited to informed consent, confidentiality, anonymity, and privacy.

Author Contributions

Clement Osei-Amoako: Conceptualization, Data curation, Formal Analysis, Investigation, Resources, Writing – original draft

Kojo Aboagye-Debrah: Methodology, Project administration, Supervision, Validation, Writing – review & editing

Conflicts of Interest

The authors declare no conflicts of interest.

References

[1] Law, S. H., Ng, C. H., Kutan, A. M., & Law, Z. K. (2021). Public debt and economic growth in developing countries: Nonlinearity and threshold analysis. *Economic Modelling*, 98, 26-40. https://doi.org/10.1016/j.econmod.2021.02.004

[2] Makin, A. J., & Layton, A. (2021). The global fiscal response to COVID-19: Risks and repercussions. *Economic Analysis and Policy*, *69*, 340-349. https://doi.org/10.1016/j.eap.2020.12.016

[3] International Monetary Fund. (2020). Global Debt Database. Retrieved from https://www.imf.org/en/Publications/GDD/Issues/2020/09/30/global-debt-database

[4] Steel, I., & Harris, T. (2020). Covid-19 economic recovery: fiscal stimulus choices for lower-income countries. Institute for Fiscal Studies, London.

[5] Boakye, E. A., Hongjiang, Z., Ahia, B. N. K., & Damoah, M. A. (2022). Covid-19 Pandemic: Exploring the Fiscal and Monetary Policies for Mitigating the Socio-economic Impact on Ghana's

Economy. New Innovations in Economics, Business and Management Vol. 9, 22-39. https://doi.org/10.9734/bpi/niebm/v9/2035B

[6] Aduhene, D. T., & Osei-Assibey, E. (2021). Socio-economic impact of COVID-19 on Ghana's economy: challenges and prospects. International Journal of Social Economics, 48(4), 543-556. https://doi.org/10.1108/IJSE-08-2020-0582

[7] Dzigbede, K. D., & Pathak, R. (2020). COVID-19 economic shocks and fiscal policy options for Ghana. Journal of Public Budgeting, Accounting & Financial Management, 32(5), 903-917. https://www.emerald.com/insight/1096-3367.htm

[8] Romer, C. D. (2021). The fiscal policy response to the pandemic. Brookings Papers on Economic Activity, 89-110. https://www.jstor.org/stable/27093821

[9] International Monetary Fund. (2021). Fiscal Monitor: Policies for the Recovery. Washington, DC: International Monetary Fund.

[10] Reinhart, C. M., & Rogoff, K. S. (2010). From financial crash to debt crisis. American Economic Review, 100(5), 1676-1706. https://doi.org/10.1257/aer.101.5.1676

[11] Mihaljek, D., & Saborowski, C. (2017). The quest for growth: Is there a magic recipe? BIS Working Papers, No 661.

[12] Cecchetti, S. G., Mohanty, M. S., & Zampolli, F. (2011). The real effects of debt. Economic Journal, 121(552), F438-F463. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1946170#

[13] Xuezhou, W., Manu, E. K., & Akowuah, I. N. (2021). Financial development and environmental quality: the role of economic growth among the regional economies of Sub-Saharan Africa. Environmental Science and Pollution Research, 1-25. https://doi.org/10.1007/s11356-021-17271-2

[14] Pradhan, R. P., Arvin, M. B., & Bahmani, S. (2018). Are innovation and financial development causative factors in economic growth? Evidence from a panel granger causality test. Technological Forecasting and Social Change, 132, 130-142. https://doi.org/10.1016/j.techfore.2018.01.024

[15] Evans, A. D., Green, C. J., & Murinde, V. (2002). Human capital and financial development in economic growth: new evidence using the translog production function. International Journal of Finance & Economics, 7(2), 123.

[16] Chen, Y., Kumara, E. K., & Sivakumar, V. (2021). Investigation of finance industry on risk awareness model and digital economic growth. Annals of Operations Research, 1-22. https://doi.org/10.1007/s10479-021-04287-7

[17] Beck, T., & Levine, R. (2005). Legal institutions and financial development (pp. 251-278). Springer US.

[18] Cheng, Y. S., & Tan, L. (2017). The impact of public debt on financial development in emerging markets. Economic Systems, 41(3), 434-447.

[19] Blanchard, O. (2019). Public Debt: Fiscal and Welfare Costs in a Time of Low Interest Rates (No. PB19-2). Peterson Institute for International Economics.

[20] Egbetunde, T. (2012). Public debt and economic growth in Nigeria: Evidence from granger causality. American journal of economics, 2(6), 101-106. https://doi.org/10.5923/j.economics.20120206.02

[21] Asteriou, D., Pilbeam, K., & Pratiwi, C. E. (2021). Public debt and economic growth: panel data evidence for Asian countries. Journal of Economics and Finance, 45, 270-287. https://doi.org/10.1007/s12197-020-09515-7

[22] Ndoricimpa, A. (2020). Threshold effects of public debt on economic growth in Africa: new evidence. Journal of Economics and Development, 22(2), 187-207. https://doi.org/10.1108/JED-01-2020-0001

[23] Zwalf, S., & Scott, R. (2022). Public Debt: What Measures Should We Use? A Case Study of Public Debt in Mid-and Post-pandemic Australia and Its Economic, Policy and Social Consequences. Australian Economic Review, 55(4), 441-460. https://doi.org/10.1111/1467-8462.12482

[24] Sardoni, C. (2021). The public debt and the Ricardian equivalence: Some critical remarks. Structural Change and Economic Dynamics, 58, 153-160. https://doi.org/10.1016/j.strueco.2021.05.006

[25] Furman, J., & Summers, L. H. (2019). Who's afraid of budget deficits?. Foreign Affairs, 98(2), 82-95.

[26] Morlin, G. S. (2022). Growth led by government expenditure and exports: public and external debt stability in a supermultiplier model. Structural Change and Economic Dynamics, 62, 586-598. https://doi.org/10.1016/j.strueco.2022.03.009

[27] Dafflon, B. (Ed.). (2002). Local public finance in Europe: balancing the budget and controlling debt. Edward Elgar Publishing.

[28] Checherita-Westphal, C., & Rother, P. (2012). The impact of high government debt on economic growth and its channels: An empirical investigation for the euro area. European Economic Review, 56(7), 1392-1405. https://doi.org/10.1016/j.euroecorev.2012.06.007

[29] Bentour, E. M. (2020). Public debt and economic growth: a new assessment (Doctoral dissertation, Université Grenoble Alpes. https://www.theses.fr/2020GRALE006

[30] Salmon, J. (2021). The impact of public debt on economic growth. Cato J., 41, 487. https://doi.org/10.36009/CJ.41.3.2

[31] Baglan, D., & Yoldas, E. (2016). Public debt and macroeconomic activity: a predictive analysis for advanced economies. Studies in Nonlinear Dynamics & Econometrics, 20(3), 301-324. https://doi.org/10.1515/snde-2014-0075

[32] Pescatori, A., Sandri, D., & Simon, J. (2014). Debt and Growth: Is There a Magic Threshold? 1. IMF Working Papers, 2014(034). https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Debt-and-Growth-Is-There-a-Magic-Threshold-41352#:~:text=Summary%3A,growth%20prospects%20are%20dramatically%20compromised

[33] Minea, A., & Parent, A. (2012). Is High Public Debt Always Harmful to Economic Growth? Reinhart and Rogoff and some complex nonlinearities (No. 201218). CERDI.

[34] Herndon, T., Ash, M., & Pollin, R. (2014). Does high public debt consistently stifle economic growth? A critique of Reinhart and Rogoff. Cambridge journal of economics, 38(2), 257-279. https://doi.org/10.1093/cje/bet075

[35] Hassan, A. S., & Meyer, D. F. (2020). Non-Linear Effect of External Debt on Economic Growth: Evidence From Sub-Saharan African Countries. International Journal of Economics & Management, 14(3), 447-460.

[36] Chudik, A., Mohaddes, K., Pesaran, M. H., & Raissi, M. (2017). Is there a debt-threshold effect on output growth?. Review of Economics and Statistics, 99(1), 135-150. https://doi.org/10.1162/REST_a_00593

[37] Eberhardt, M., & Presbitero, A. F. (2015). Public debt and growth: Heterogeneity and non-linearity. Journal of international Economics, 97(1), 45-58. https://doi.org/10.1016/j.jinteco.2015.04.005

[38] Jacobs, J., Ogawa, K., Sterken, E., & Tokutsu, I. (2020). Public debt, economic growth and the real interest rate: A panel VAR Approach to EU and OECD countries. Applied Economics, 52(12), 1377-1394. https://doi.org/10.1080/00036846.2019.1673301

[39] De Vita, G., Trachanas, E., & Luo, Y. (2018). Revisiting the bi-directional causality between debt and growth: Evidence from linear and nonlinear tests. Journal of International Money and Finance, 83, 55-74. https://doi.org/10.1016/j.jimonfin.2018.02.004

[40] Puente-Ajov ń, M., & Sanso-Navarro, M. (2015). Granger causality between debt and growth: Evidence from OECD countries. International Review of Economics & Finance, 35, 66-77. https://doi.org/10.1016/j.iref.2014.09.007

[41] Ahlborn, M., & Schweickert, R. (2018). Public debt and economic growth–economic systems matter. International Economics and Economic Policy, 15, 373-403. https://doi.org/10.1007/s10368-017-0396-0

[42] Marchionne, F., & Parekh, S. (2015). Growth, debt, and inequality. Economic Issues, 20(Part 2). https://econpapers.repec.org/scripts/redir.pf?u=http%3A%2F%2Fwww.economicissues.org.uk%2FFiles%2F2015%2F215Marchionne.pdf;h=repec:eis:articl:215marchionne

[43] Sharpe, T. P. (2013). Institutional arrangements and public debt threshold limits. International Review of Applied Economics, 27(6), 707-728. https://doi.org/10.1080/02692171.2013.804496

[44] Tong, X., & Wang, J. (2023). Does the Development of Money Market Funds in China Increase the Bank Liquidity Risk?. Journal of Applied Finance & Banking, 13(1), 75-98. https://doi.org/10.47260/jafb/1317

[45] Buljan, A., Deskar-Škrbić, M., & Dumičić, M. (2020). What drives banks' appetite for sovereign debt in CEE countries?. Public Sector Economics, 44(2), 180-201. https://doi.org/10.3326/pse.44.2.2

[46] Akpan, O. M., Effiong, U. E., & Ukere, I. J. (2022). Impact of Treasury Bill on Private Sector Credit in Nigeria. Research in Social Sciences, 5(1), 30-42. https://doi.org/10.53935/26415305.v5i1.229

[47] İlgün, M. F. (2016). Financial Development and Domestic Public Debt in Emerging Economies: A Panel Cointegration Analysis. Journal of Applied Economics & Business Research, 6(4), 284.

[48] Chebet, C., & Kiemo, S. (2017). Price channel versus quantity channel: The relationship between government domestic borrowing from commercial banks and private sector credit in Kenya (No. 19). KBA Centre for Research on Financial Markets and Policy Working Paper Series.

[49] Horner, J., & Minifie, F. D. (2011). Research Ethics III: Publication Practices and Authorship, Conflicts of Interest, and Research Misconduct. Journal of Speech, Language, and Hearing Research, 54, S346-S362. https://doi.org/10.1044/1092-4388(2010/09-0263)