Gross Domestic Product, Inflation, and Stock Market Performance. Does Board Financial Expertise Matter? Insights from Tanzania

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Abstract: This study examines the effects of Gross Domestic Product (GDP) and inflation on stock market performance, as well as the moderating role of the financial expertise of the board of directors in Tanzania. The study employed system- and resource-based view theories and used a sample size comprising 384 observations from companies listed on the Dar es Salaam Stock Exchange (DSE). Data covering the period from 2007 to 2022 were drawn from the audited financial statements of the listed entities, the Dar es Salaam Stock Exchange (DSE), and the National Bureau of Statistics (NBS). The Random Effects Model was employed, and the Augmented Mean Group (AMG) model was used for the robustness tests. The results indicate that GDP negatively affects stock market performance across all models. On the contrary, inflation has a strong positive effect on stock market performance in all models. Financial expertise has a positive and significant moderating effect on the connection between GDP and stock market performance, but not on the link between inflation and stock market performance. The findings of this study have managerial and policy implications.

Keywords: Gross Domestic Product, Inflation, Stock Market Performance, Financial Expertise, Dar es Salaam Stock Market, Tanzania.

JEL classification: E31, E44, E60, G10, O55

1.0 Introduction

Over the years, stock markets have been highly recognised for their valuable efforts in mobilising funds from private and public investors (Nuta, Habib, Neslihanoglu, Dalwai, & Rangu, 2024). This originates from the financial intermediary roles in creating capital sources and liquidity for listed companies and the public. Thus, they are essential for financing corporations in developed, emerging, and developing countries. The existence of an effective functioning stock market promotes the achievement of the United Nations Sustainable Development Goals (UN-SDGs). This relates to creating employment

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opportunities, eradicating poverty, and fostering inclusive and fair labour conditions for everyone. Based on this argument, governments in developed, emerging, and developing economies have undertaken improvements to strengthen their stock market functions. In Tanzania, for instance, the DSE engagement in digital technologies has contributed to market accessibility by reducing the cost of transactions among investors. These technologies have led to the establishment of an alternative trading system and governing framework that allows trading over mobile phones, which has accelerated market growth and created an efficient trading mechanism (DSE 2023). In general, these technologies have increased the number of listed companies from one in 1998 to 28 in 2022 (DSE, 2022; Kapaya, 2020).

Despite notable developments in the Tanzanian stock market, its overall performance remains suboptimal, creating a need for our study. The limited research on stock market performance in developing countries, particularly Tanzania, underscores the relevance and necessity of this study. For instance, the DSE has underperformed for the last four (4) years compared to Kenya and Rwanda (the oldest and youngest stock markets in the EAC, respectively). As **Figure 1** shows, the performance of the DSE in terms of market capitalisation remained stagnant, as urged by Ghumro, Soomro, and Abbas (2024) and Rakhal (2015), who establish that established that stagnation and fluctuations in market capitalisation indicate inadequate market performance.
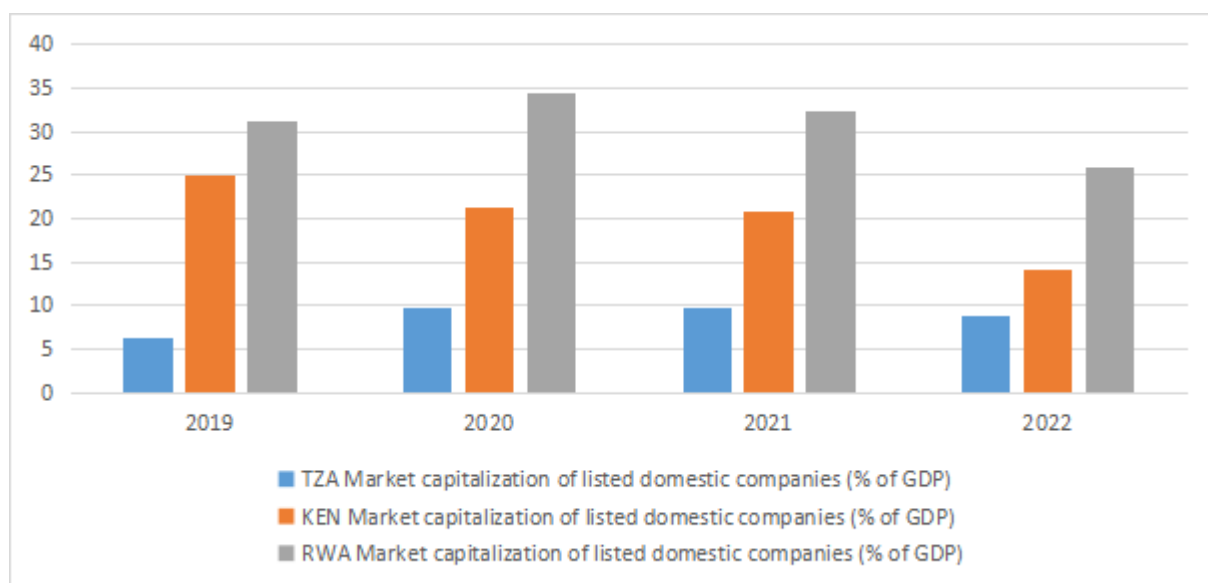
Figure 1: *Market CAP (%GDP) Trend*

Since stock market performance depends on the functions of various attributes, past studies, such as those by Muturi and Kalui (2022) and Verma and Bansal (2021), have documented that the role of macroeconomic indicators, such as GDP and inflation rate, should be given special consideration when explaining economic performance, including stock market performance. Based on this, Ullah, Noreen, Rehman, and Shinwari (2020)

emphasised that GDP and inflation rate are major global economic development indicators, requiring maximum attention. Therefore, to understand stock market performance, it is essential to consider the impact of the inflation rate and GDP. Despite this assertion, available studies on stock market performance reside in developed markets such as Romania, the United States, and BRICS (Ghumro, Soomro, & Abbas, 2024; Nuta et al., 2024; Ren et al., 2025; Rout & Das, 2024). The major focus of these studies was on the COVID-19 pandemic, investors' sentiments, environmental, social, and governance (ESG) performance, and stock market performance. Results from these studies cannot be appropriate for developing capital markets due to major differences in economic growth, regulatory framework, and maturity of the markets (Aluko & Kolapo, 2020; Ho & Odhiambo, 2018; Ho, 2019). This highlights the fact that none of these studies have examined the connection between the inflation rate, GDP, and the performance of the stock market, preferably in developing economies such as Tanzania. Furthermore, because the stock market embraces various listed companies directed by the board of directors, their financial expertise plays a vital role in creating conducive environments for stock market performance.

From this perspective, this study examines the relationship between gross domestic product, inflation rate, and stock market performance, and the moderating effects of the board's financial expertise on the inflation rate, GDP, and stock market performance. Parallels resource-based view and system theory, advocating the embracement of internal resources such as the financial expertise of board members to create an enabling environment for the adequate performance of companies (Barney, 1991; Kruesi, & Bazelmans, 2023; Kruesi, & Bazelmans, 2023; Penrose, 1959). Also, inflation rate and GDP an external variable outside the internal environment of the entity that create a favourable environment for economic performance, including stock market performance (Gong, Jiang, & Jia, 2023). In this context, the study implies that possessing financial and accounting expertise among board members provides a suitable environment for examining the link between GDP, inflation rates, and stock market performance. Based on this argument, the current study fills the knowledge gap in developing countries because available studies have not considered the moderating role of board financial expertise (Kasongwa & Minja, 2022).

Based on the findings of this study, the following contributions will be made. First, as per researchers' understanding and knowledge, our study paves the way for the connection between inflation rates, GDP, and stock market performance in the context of developing countries, using the case of Tanzania. Second, it examines this relationship in the context of developing countries where stock markets are characterised by emerging stock market regulations and corporate governance practices. The second section presents a literature review related to GDP, inflation rate, stock market

performance, and financial expertise, and the third section presents the research methodology. The fourth and fifth sections present the results and discussion, respectively, and the conclusions, implications, and areas for further studies are presented in the final section.

2.0 Literature Review and Hypotheses Development
2.1 Theoretical Review
2.1.1 System Theory

To examine the effects of GDP and inflation rates on stock market performance, this study employs system theory, which shows how the performance of entities such as stock markets is explained by principles and laws originating from external parties (Bertalanffy, 1968; Yang et al., 2023). This theory assumes that an organisation's performance is a function of external and internal variables, commonly recognised and grouped under open and closed systems, respectively (Bofinger et al., 2023). Applying this theory to the current study emanates from the view that external factors such as inflation rates and GDP (Javanmardi et al., 2023), originating from the open system, play a significant role in explaining stock market performance.

This finding implies that the stock market performance is highly influenced by inflation rates and the country's GDP. This study argues that inflation rates and GDP, as macroeconomic variables outside the internal environment of the stock market, offer valuable interactions related to economic performance, including stock market performance. This is consistent with prior studies that have applied system theory to examine economic and social performance (Gong, Jiang, & Jia, 2023; Schneider, Wickert, & Marti, 2017). Based on these perspectives, this study employs systems theory to examine the impact of GDP and inflation rates on the performance of the stock market in Tanzania. Despite the usefulness of this theory, it does not explain how the board of directors embraces internal resources, mainly the board's financial expertise, and affects the stock market's performance. To address this, resource-based view theory is applied to determine the moderating effects of the board's financial expertise on the relationship between GDP, inflation rates, and stock market performance.

2.1.2 Resource-Based View Theory

This study employs resource-based view theory to determine the moderating effects of board financial expertise on the link between inflation rates, GDP, and stock market performance. The theory assumes that internal resources embedded in an organisation create an enabling ground for effective performance and growth (Penrose, 1959; Barney, 1991; Kruesi & Bazelmans, 2023). This highlights that, as per Bertram (2016) and Nayak et al. (2023), the competitive advantage and performance experienced by various companies, including the stock market, is a function of the internal resources embraced by the entity. This originates from the belief that entities are blessed with internal

resources addressed in terms of rarity, value, imitability, and organisation (McGahan, 2021; Davis & DeWitt, 2021). These attributes are considered a package of internal capabilities and resources that are significantly unique, non-substitutable, rare, and valuable, and are embraced by the board of directors, management, and the entire entity. The application of these resources creates a competitive advantage and enables the environment to describe the performance of an entity.

As financial expertise originates from the possession of financial and economic skills among board members, it is considered a valuable, rare, and non-imitable skill that plays an important role in the connection between GDP, inflation rates, and performance of the stock market. Since organisational resources could be tangible or intangible, previous studies such as Arda, Montabon, Tatoglu, Golgeci, and Zaim (2023) and Coppola, Vollero, and Siano (2023) have put forward attainments of planned performance of the company significantly explained by hidden resources. Such hidden resources are highly embraced through corporate governance attributes (Haji, and Ghazali, 2018; Temba, Kasoga, and Keregero, 2023). Such attributes include the financial expertise of the board of directors (Almujamed & Alfraih, 2020; Kalantonis et al., 2022). These attributes are mainly advocated by a strong and effective board of directors (Toumi & Hamrouni, 2023).

2.2 Hypotheses Development
2.2.1. Gross Domestic Product and Stock Market Performance
Few studies have examined the effects of the Gross Domestic Product (GDP) on stock market performance. Some of the available studies concentrate on the effects of other macroeconomic variables such as interest rates, exchange rates, foreign direct investments, and consumer price index on stock market performance (Chang et al., 2021). Existing studies in Africa have examined the drivers of stock market growth (Emmanuel et al., 2024) with inadequate focus on specific countries such as Tanzania. These studies reveal that stock market growth and GDP are positively and significantly connected (Emmanuel et al., 2024). Others have examined stock market development and macroeconomic variables in South Africa and Ghana (Ho, 2019; Olokoyo, Ibhagui & Babajide, 2020) and developed countries, particularly G7 nations (Humpe & McMillan, 2020). The results of these studies cannot be applied to Tanzania because they focus on stock market development and growth in emerging and developed nations, while ignoring stock market performance in developing countries such as Tanzania. They fail to consider the conditions of specific countries, thus limiting their suitability. Based on these arguments, this study argues the following.

H_i: GDP and stock market performance are positively and significantly connected.

2.2.2. Inflation and Stock Market Performance

Prior studies of inflation and stock market performance in various developing countries have yielded conflicting results. For example, the link between the stock market performance and inflation in Asian countries is statistically negative and insignificant (Hasan & Sharif, 2019; Jamaludin, Ismail, & Ab-Manaf, 2017). This implies that in developing and emerging countries, the rate of inflation is still unpromising, resulting in unfavourable effects on the performance of the economy, including the stock market. These studies have focused on Asian countries, which are significantly different from Tanzanian environments in terms of regulatory practices, institutional settings, and the maturity of the stock market. They also applied the stock market index as a measure of stock market performance, which could yield unexpected outcomes. This indicates that the results of Hasan and Sharif (2019) and Jamaludin, Ismail, and Ab-Manaf (2017) cannot be generalised to the Tanzanian context because of their highlighted shortcomings. To overcome this, this study employs market capitalisation to operationalise the performance of the stock market in Tanzania. However, there are limited studies in Tanzania, such as Kasongwa and Minja (2022), which have examined the link between the inflation rate and the performance of the stock market and found that they are significantly and negatively correlated. Despite their usefulness, these results are limited by the consideration of monthly data (130 observations) from the Dar es Salaam stock market. Therefore, this study considered listed commercial banks in the DSE, considering quarterly data with a total of 384 observations. Based on these arguments, this study proposes the following hypotheses:

H_2: *Inflation rates and stock market performance are negatively related.*

2.2.3 Moderating Effects of Board Financial Expertise

As advocated by the resource-based view theory, board financial expertise is embraced by the internal capabilities and resources possessed by an organisation through its management and the board of directors (Penrose, 1959; Barney, 1991; Kruesi & Bazelmans, 2023). As financial expertise is considered a unique, non-substitutable, rare, and valuable resource, it offers a supporting environment for attaining the required performance of an entity, including stock market performance (McGahan, 2021; Davis & DeWitt, 2021). Prior studies, such as those by Magoma et al. (2024), highlight that the increase in bank performance is a function of an increase in board members with accounting and finance expertise. In the setting of financial performance, EL-Ammari (2023) concluded that directors' financial expertise significantly moderates the connection between corporate financial performance and political connections. This is also consistent with Singhania and Panda (2024), who observed that knowledge intensity, such as financial knowledge, moderates the connection between firm performance and audit committee effectiveness.

In the context of our study, this implies that possessing financial and accounting expertise among board members provides a suitable environment for examining the link between GDP, inflation rates, and stock market performance. Based on this argument, the current study fills the knowledge gap in developing countries because available studies have considered the moderating role of oil prices (Kasongwa & Minja, 2022) and not board financial expertise. From this perspective, our study advocates the following.

H_3: *Board financial expertise significantly moderates the connection between GDP and stock market performance.*

H_4: *Board financial expertise significantly moderates the relationship between inflation and stock market performance.*

Figure 2 shows the hypothesised relationship between GDP, inflation, financial expertise, and stock market performance.
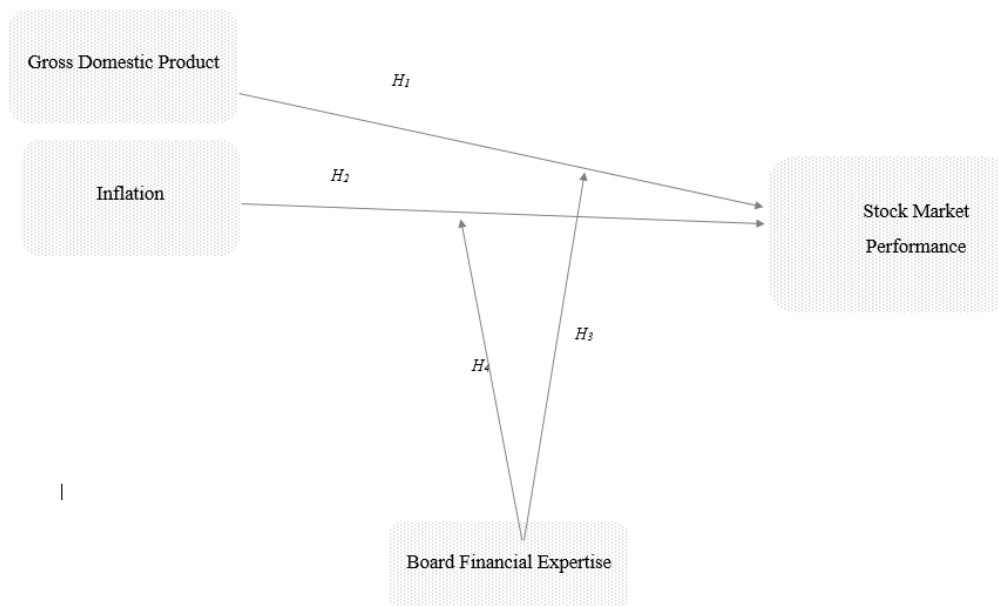
Figure 2: Conceptual Framework
Source: Wu & Zumbo (2008).

3.0 Methodology
3.1 Data Specification.

This study is based on panel data comprising 384 observations, where the dataset combines financial information (board financial expertise) from six banks listed under DSE, with macroeconomic indicators such as GDP and inflation, sourced from the Dar es Salaam Stock Exchange (DSE) and the National Bureau of Statistics (NBS). The data covers the period from the first quarter of 2007 to the fourth quarter of 2022. The unit of analysis of the study is the entity year, which stands for a specific entity and specifically focuses on the banking sector, which plays an essential role in monetary policy, which eventually affects the macroeconomic variables and the stock market performance.

Also, the sector bears uniqueness in its structure and operations from other firms (Khatib & Nour, 2021). By following individual companies over time, the data structure captures both differences across firms and changes over the years, which justifies treating it as panel data for the analysis. This approach allows the analysis to capture both firm-level variations and temporal dynamics.

To predict the dependent variable (performance of the stock market), this study applied stock market capitalisation as a dependent variable, inflation rates, and GDP as independent variables, and considered board financial expertise as a moderating variable. **Table 1** presents the measurements for these variables. This study employed a panel data analysis of gross domestic product, inflation, and stock market performance. Panel data enables the control of unobserved heterogeneity among cross-sectional units over time (Baltagi, 2005) and provides enhanced flexibility in capturing behavioural variations across entities (Greene, 2003).

Table 1: Measurements of the Variables

S/N	Variables		Measurements	Reference
1	Independent	GDP	Annual change in real GDP	(Ashour, Sayed, & Abbas, 2023)
		Inflation	Annual change in the Consumer Price Index (CPI)	(Ashour, Sayed, & Abbas, 2023)
2	Dependent	Stock market performance	Market Capitalisation = Number of shares outstanding times the closing price per share	(Kumar & Kumara, 2021)
3	Moderating	Board financial expertise	Number of board members with expertise in accounting, finance, and economics	(EL-Ammari, 2023)

Source: Authors

3.2 Model Specification
The general model used in the analysis is as follows.
$$y_{it} = \alpha + x'_{it}\beta_{it} + \varepsilon_{it} \text{ .... (1)}$$
In the model, y_{it} denotes the dependent variable, α is the intercept, β is a k×1 vector of parameters, y_{it} is a vector of explanatory variables, and ε is the error term. A key decision in panel data analysis is choosing between fixed- and random-effects models (Baltagi, 2005). The fixed-effects model assumes a correlation between the regressors and the error term, whereas the random-effects model assumes no such correlation, allowing the inclusion of time-invariant variables. The Hausman test (Hausman, 1978) helps to determine the appropriate model (Gujarati, 2003; Wooldridge, 2002). If regressors are correlated with the error term, fixed effects are preferred; otherwise, random effects are more efficient (Johnston & Dinardo, 1997).

In estimating the impact of Gross Domestic Product, inflation rate and stock market performance and assessing whether board financial expertise matters in the context of Tanzania, the baseline model can be specified as follows:

$$MC_{it} = \theta_0 + \theta_1 GDP_{it} + \theta_2 IR_{it} + +\varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots \text{ (model 1)}$$
$$MC_{it} = \theta_0 + \theta_1 GDP_{it} + \theta_2 IR_{it} + \theta_3 (GDP_{it} * FE_{it}) + \theta_4 (IR_{it} * FE_{it}) + \varepsilon_{it} \ldots\ldots \text{ (model 2)}$$

Where MC represents market performance, GDP is Gross Domestic Product, IR is inflation rate, GDP*FE moderation effect between Gross Domestic Product and financial expertise, and IR*FE is the moderation effect between inflation rate and financial expertise.

After estimating both fixed- and random-effects models, the Augmented Mean Group (AMG) estimator developed by Eberhardt and Teal (2010) was employed as a robust method to account for cross-sectional dependence. As implemented by Eberhardt (2012), the AMG estimator for cross sections i =1…, N and periods t =1…, T is specified as follows:

$$y_{it} = \beta_i x_{it} + \mu_{it} \ldots\ldots\ldots\ldots\ldots \text{ (1)}$$
$$\mu_{it} = \alpha_{1i} + \lambda_i f_t + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots \text{ (2)}$$
$$x_{it} = \alpha_{2i} + \lambda_i f_t + \Upsilon_i g_t + e_{it} \ldots\ldots\ldots\ldots \text{ (3)}$$

where y_{it} and x_{it} are the observed series, β_i is the slope of the specific country on the observed regressor, μ_{it} is the sum of the non-observed common factors, and ε_{it} is the error term. The unobservables in (2) are made up of group fixed effects α_{1i}, which captures time-invariant heterogeneity across groups, as well as an unobserved common factor f_t with heterogeneous factor loadings λ_i, which can capture time-variant heterogeneity and cross-sectional dependence. The factors f_t and g_t are not limited to linear evolution over time; they can be nonlinear and nonstationary, with obvious implications for cointegration. ε_{it} and e_{it} are assumed to be white noise

4.0 Results and Discussion
4.1 Descriptive Results
As presented in **Table 2,** descriptive statistics highlight a stable macroeconomic environment in Tanzania, with an inflation rate (mean = 2.722, SD = 0.1) and GDP growth (mean = 1.777, SD = 0.352) contributing to relatively stable market capitalisation (MktCap, mean = 9.36, SD = 0.673). A narrow inflation range suggests minimal uncertainty in real investment returns, whereas GDP variability indicates a mix of developing and transitional market phases. However, the role of financial expertise (FinExp) as a moderator was highly variable, as seen in GDP × FinExp (mean = 8.202, SD = 3.549) and InfRate × FinExp (mean = 12.677, SD = 5.2). This suggests that financial expertise amplifies and mitigates the effects of GDP and inflation on market capitalisation (stock market performance). This may be due to strong firm-level governance structures and risk-management strategies.

Table 2: Descriptive Results

Variable	Obs	Mean	Std. Dev.	Min	Max
MktCap	384	9.36	0.673	8.043	10.074
GDP	384	1.777	0.352	0.95	2.521
InfRate	384	2.722	0.1	2.555	2.939
GDP FinExp	384	8.202	3.549	1.713	20.768
InfRate FinExp	384	12.677	5.2	2.654	28.491

4.2 Correlation among Study Variables

As shown in **Table 3,** the correlations between GDP, inflation, financial expertise, and stock market performance were examined. Pearson's correlations reveal that inflation (0.439, $p < 0.001$) has a strong positive association with market capitalisation (MktCap), suggesting that rising prices may drive nominal asset values rather than erode stock market performance. In contrast, GDP (-0.061, not significant) shows a weak negative correlation with MktCap, denoting that GDP does not directly translate into stock market performance, possibly due to structural inefficiencies in Tanzania's stock market. The board of directors' financial expertise significantly enhances the effects of both GDP (0.208, $p < 0.001$) and inflation (0.279, $p < 0.001$) on market capitalisation, emphasising the crucial role of financial expertise in translating macroeconomic conditions into stock market performance. The strong correlation between GDP_FinExp and InfRate_FinExp (0.776, $p < 0.001$) suggests a close relationship between financial expertise's moderating effects on GDP and inflation, although VIF values (mean = 1.32) confirm no serious multicollinearity concerns since the scores for VIF are lower than 5 (Daoud, 2017).

Table 3: Pairwise correlations.

Variables	MktCap	GDP	InfRate	GDP_FinExp	InfRate_FinExp
MktCap	1.000				
GDP	−0.061	1.000			
InfRate	0.439***	0.051	1.000		
GDP_FinExp	0.208***	0.363***	0.177***	1.000	
InfRate_FinExp	0.279***	−0.081	0.266***	0.776***	1.000
VIF		1.01	1.61	1.57	1.1
1/VIF		0.988	0.623	0.635	0.911
Mean VIF	1.32				

*** $p<0.001$, ** $p<0.05$, * $p<0.1$

4.3 Unit Root Test

The unit root test was performed as shown in **Table 4.** This study aimed to assess the stationarity of the data, which is an essential requirement for analysing panel data. To achieve this, cross cross-sectional augmented Im-Pesaran-Shin unit root test was conducted. The results in **Table 4** highlight the significant cross-sectional dependence

and stationarity issues for all variables under analysis. The Breusch–Pagan LM test and Pesaran CD test confirm significant cross-sectional dependency (CD) for all variables with extremely high-test statistics (e.g., 960 for MktCap, GDP, and InfRate, and 201.31 for GDP FinExp), all highly significant at the $p < 0.001$ level. This indicates that the variables exhibit significant interdependencies across cross-sectional units, implying that shocks or events affecting one unit (e.g., firms, countries) may influence other units in the system. The CIPS panel unit root test results further reveal that all variables are stationary at this level, except for InfRate FinExp, which requires differencing to achieve stationarity. This implies that these variables do not exhibit unit roots and are ready for analysis without requiring differencing. The findings highlight the importance of using second-generation panel unit root tests that account for cross-sectional dependence because they provide more reliable stationarity assessment results in interdependencies between units.

Table 4: Cross-section dependency analysis and CIPS panel unit root analysis.

	Cross-section dependency (CD)		Cross-sectionally augmented IPS (CIPS) panel unit root	
	Breusch–Pagan LM test	Pesaran CD test	CIPS panel unit root	CIPS first difference
Variables	Test statistics	Test statistics	Constant	Constant
MktCap	960***	30.984***	2.61***	1.7
GDP	960***	30.984***	2.61***	1.7
InfRate	960***	30.984***	2.61***	1.7
GDP FinExp	201.31***	10.455***	2.395**	-2.269
InfRate FinExp	166.252***	7.336***	-1.448	-6.190***

*Note: Significance levels: *** p<0.001, ** p<0.05, * p<0.1*

4.4 Testing for Slope Heterogeneity

Table 5 presents the results of the slope heterogeneity test, which assesses whether the slope coefficients for MktCap and the adjusted version (Adj.), correcting for small sample bias, are homogeneous across cross-sectional units. The results show significant negative slope coefficients for both variables (-2.465 for MktCap and -2.592 for Adj), with p-values of 0.014 and 0.010, respectively, both of which are significant at the 5% level. This leads to the rejection of the null hypothesis of homogeneous slope coefficients, thus demonstrating that the relationships between MktCap, Adj, and the dependent variable vary across different units in the sample. Therefore, the results suggest slope heterogeneity, meaning that panel data models assuming uniform slopes

across units may not be appropriate, and models that account for this variation should be considered.

Table 5: Slope Heterogeneity

Variables	Delta	P-Value
MktCap	-2.465	0.014**
Adj.	-2.592	0.010**

*Note: Significance levels: *** p<0.001, ** p<0.05, * p<0.1*

4.5 Estimation of the Specified Model

A model specification process was conducted to determine a suitable model for this study. As shown in **Tables 6** and **7,** the Hausman test was used to compare the FE and RE models to determine the most appropriate model. The Hausman statistic is 0.00(1.00) for only two independent variables and all variables with a moderator of 6.16, with a p-value of 0.188, which is greater than 0.05. This indicates that the difference between the FE and RE models is not statistically significant, suggesting that the RE model is preferred because it is more efficient and does not suffer from issues that would make the FE model necessary (such as omitted variable bias or endogeneity).

Table 6: Model 1

VARIABLES	FE	RE
GDP	-0.159*	-0.159*
	(0.088)	(0.088)
InfRate	2.985***	2.985***
	(0.311)	(0.309)
Constant	1.519*	1.519*
	(0.853)	(0.848)
Observations	384	384
R-squared	0.200	
Hausman Test	0.00(1.00)	
Number of firms	6	6

The standard errors are shown in parentheses. *** p<0.001, ** p<0.05, * p<0.1

Table 7: Model 2

VARIABLES	FE	RE
GDP	-0.490**	-0.486**
	(0.223)	(0.222)
InfRate	2.819***	2.947***
	(0.354)	(0.351)
GDP_FinExp	0.084*	0.080*
	(0.046)	(0.046)
InfRate_FinExp	-0.022	-0.029
	(0.030)	(0.030)
Constant	2.147**	1.920**
	(0.850)	(0.846)
Observations	384	384
R-squared	0.244	
Hausman Test	6.16(0.188)	
Number of firms	6	6

The standard errors are shown in parentheses. *** p<0.001, ** p<0.05, * p<0.1

4.6 Results of the Regression Model

Regression analysis was performed to establish the association between GDP, inflation, and stock market performance. As indicated in **Table 8**, the regression results across the three models (RE) reveal significant insights into the relationships between GDP, Inflation Rate (InfRate), financial expertise interactions (GDP_FinExp and InfRate_FinExp), and market performance (presumably, market capitalisation). This is evidenced by the constant term being significant in all models, with the AMG model showing the highest value (3.800, p < 0.001), reflecting a strong baseline level of market performance. The R-squared values suggest that the models explain 20% to 23% of the market performance variance, indicating that factors other than GDP, inflation, and financial expertise interactions may influence stock markets in Tanzania.

GDP shows a negative relationship with stock market performance across all models. In the RE models, GDP had a weak negative effect in Model 1 (-0.159, p < 0.1) and a more pronounced negative impact in Model 2 (-0.486, p < 0.05). However, the AMG model provides the strongest negative effect (-0.586, p < 0.05), indicating that once heterogeneity and cross-sectional dependence are accounted for, GDP has a stronger adverse effect on stock market performance. This suggests that AMG provides more accurate estimates of GDP's negative influence on market performance; hence, H_1 is not accepted. These results may be due to contextual factors related to low GDP in various developing countries, including Tanzania. This implies that, because the GDP of developing countries is limited when compared with their population levels and

workforce, the negative correlation between the performance of the stock market and GDP could be explained by such conditions. These findings do not agree with those of Emmanuel et al. (2024), who reveal that the growth of the stock market and GDP are positively and significantly related.

In contrast, the inflation rate (InfRate) has a strong positive effect on stock market performance in all models. The RE models show coefficients of 2.985 ($p < 0.001$) in Model 1 and 2.947 ($p < 0.001$) in Model 2, whereas the AMG model shows a slightly smaller but still significant coefficient of 2.104 ($p < 0.001$). This finding suggests that inflation is consistently linked to a higher stock market performance. This may be due to nominal asset price adjustments. Despite a slight reduction in the AMG model, the positive impact of inflation remains robust, underlining its importance in driving stock market performance. These results contribute to the rejection of H_2 in which inflation and stock market performance are expected to be negatively and significantly correlated.

This contradicts prior studies, such as Kasongwa and Minja (2022), Hasan and Sharif (2019), and Jamaludin, Ismail, and Ab-Manaf (2017), who determined that the stock market's performance is negatively and significantly explained by inflation. The existence of disagreements with past studies may be attributed to the limited number of observations considered in past and current studies. For example, our study involved 384 observations, while 130 observations were made by Kasongwa and Minja (2022). Also, these results do not align with other theoretical commentary, which emphasizes that inflation negatively impacts the stock market; this is because, in underdeveloped countries, an increase in inflation can lead to rising prices, and firms may hedge by passing costs to consumers to stay profitable, and thus support the stock market, Mfugale and Olomi (2023), Alagidede & Panagiotidis (2010), and Salisu et al., (2022), where else in banking sector, the rise in inflation is taken as base to raise lending rates and fees therefore increase in profit.

The moderating role of financial expertise is particularly notable in its interaction with the GDP. **Table 8** shows that GDP_FinExp has a positive effect on stock market performance in RE model 2 (0.080, $p < 0.1$) and the AMG model (0.141, $p < 0.1$), signifying that financial expertise moderates the relationship between GDP and stock market performance. The AMG model strengthens this effect by highlighting the crucial role of financial expertise in managing the impact of the GDP on stock market performance. This leads to H_3 in which it is anticipated that financial expertise significantly and positively moderates the connection between GDP and stock market performance. These findings imply that with increased financial expertise on the board of directors, the impact of GDP on stock market performance increases. This finding indicates that financial expertise provides a suitable basis for examining the relationship between stock market performance and GDP. This is supported by EL-Ammari (2023) and

Singhania and Panda (2024), who concluded that the link between corporate financial performance and political connections is significantly moderated by directors' financial expertise. However, InfRate_FinExp remains insignificant across all the models, indicating that financial expertise does not significantly moderate the relationship between inflation and stock market performance. This finding suggests that financial expertise is not an effective moderator between inflation and stock-market performance. This also demonstrates that the impact of inflation on stock market performance decreases with increased financial expertise.

Table 8: Results of the Regression Model

VARIABLES	RE	RE	AMG
GDP	-0.159*	-0.486**	-0.586**
	(0.088)	(0.222)	(0.292)
InfRate	2.985***	2.947***	2.104***
	(0.309)	(0.351)	(0.508)
GDP_FinExp		0.080*	0.141*
		(0.046)	(0.082)
InfRate_FinExp		-0.029	-0.005
		(0.030)	(0.025)
Constant	1.519*	1.920**	3.800***
	(0.848)	(0.846)	(1.351)
R-squared	0.200	0.232	
Observations	384	384	384
Wald chi2(4)	95.21	114.52	180.31
Prob > chi2	0.000	0.000	0.000
Number of firms	6	6	6

The standard errors are shown in parentheses. *** $p<0.001$, ** $p<0.05$, * $p<0.1$

4.7 Robustness Check

To validate our findings, we performed a robustness test using the Wald chi2 tests. As presented in **Table 9**, the Wald chi2 tests show strong significance ($p < 0.001$) across all models, with the AMG model achieving the highest chi2 value (180.31), confirming that the inclusion of cross-sectional dependence and heterogeneity in AMG provides a more accurate representation of market dynamics.

Table 9: Robustness Test

VARIABLES	AMG
GDP	-0.586**
	(0.292)
InfRate	2.104***
	(0.508)
GDP_FinExp	0.141*
	(0.082)
InfRate_FinExp	-0.005
	(0.025)
Constant	3.800***
	(1.351)
Observations	384
Wald chi2(4)	180.31
Prob > chi2	0.000
Number of firms	6

The standard errors are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1

In conclusion, while inflation plays a consistent role in boosting stock market performance, AMG's robustness provides the most accurate reflection of how GDP and financial expertise influence stock market performance, underscoring the importance of GDP stability and financial expertise in shaping financial outcomes in various stock markets.

5.0 Implications, Areas for Further Studies and Conclusion
5.1 Implications

The results of this study add to the knowledge gap on how GDP and inflation rates explain stock market performance in the context of developing countries, primarily Tanzania, guided by system theory and resource-based view theory. This study offers theoretical insights into the interactive effect of financial expertise while appraising stock market performance. This implies that this study contributes significantly to the insufficient number of studies addressing stock market performance in developing and emerging countries. In addition, our study contributes to the existing literature by paving the way to the assessment of the moderating role of the board of directors' financial expertise in determining the link between GDP, inflation, and stock market performance. This finding implies that financial expertise as an internal board competence of listed firms offers a conducive environment for describing stock market performance. Also provide insight to policymakers and regulators on enhancing the expertise and financial literacy in forming the governance to cushion the entities against external shocks. Additionally, the findings of this study stand as an eye-opener by revealing the need to

revisit regulations, policies, and guidelines governing inflation and GDP in Tanzania and the rest of the developing states.

5.2 Limitations and Areas for Future Studies

Like other studies, the present study was not immune to these limitations. This study considers only GDP and inflation while ignoring other macroeconomic variables. This implies that further studies should be conducted by incorporating the rest of the macroeconomic variables, such as interest and exchange rates. In doing so, a strong generalisation has been documented. Furthermore, this study is limited to the stock markets in developing countries. Future research should consider comparative studies between emerging, developing, and developed nations. This will contribute to a wide explanation of world stock market performance. Additionally, this study ignores the impact of the COVID-19 pandemic, which may have nonstandard effects on the performance of stock markets in emerging and developing countries. This study suggests that additional studies should be conducted to consider the implications of the COVID-19 pandemic, thus spotting its impact on stock market performance. Finally, we examined the moderating role of financial expertise. Further studies should assess the effects of other moderating variables, beyond the audit committee effectiveness, political connections, and institutional governance, and consider other listed firms.

5.3 Conclusion

Examining the relationship between GDP, inflation, and stock market performance and the moderating role of the board's financial expertise, GDP was found to negatively explain stock market performance, while inflation rate has a positive relationship with stock market performance We conclude that GDP undermine stock market performance in developing and emerging stock markets and the inflation rate explains well stock market performance in the context of developing countries, primarily Tanzania. These results suggest revisiting our model by introducing other macroeconomic variables to generalise our results better. Regarding the moderating effects, our findings reveal evidence of the significant role of financial expertise in the connection between GDP, inflation, and stock market performance. Thus, we conclude that having a board of directors with members with financial expertise and their contribution to the link between stock market performance and GDP provides a conducive environment for stock market performance.

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References

Alagidede, P., & Panagiotidis, T. (2010). Can common stocks provide a hedge against inflation? Evidence from African countries. Review of financial economics, 19(3), 91–100.

Aluko, O. A., & Kolapo, F. T. (2020). Macroeconomic factors and stock market development in sub-Saharan Africa: does the measure of stock market development matter? Transnational Corporations Review, 12(1), 53–62.

Arda, O. A., Montabon, F., Tatoglu, E., Golgeci, I., & Zaim, S. (2023). Toward a holistic understanding of sustainability in corporations: resource-based view of sustainable supply chain management. Supply Chain Management: An International Journal, 28(2), 193–208.

Ashour, G. H., Sayed, M. N., & Abbas, N. A. (2023). Macro determinants of sustainable financial development in the Middle East and North Africa (MENA) region countries. Management & Sustainability: An Arab Review.

Barney, J. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99–120. https://doi.org/10.1177/014920639101700108

Bertalanffy, L. V. (1968). General system theory: Foundations, development, applications. G. Braziller.

Bertram, M., & Bertram, M. (2016). Theoretical foundation: the resource-based view (RBV) of the firm. The Strategic Role of Software Customisation: Managing Customisation-Enabled Software Product Development, 67–102.

Bofinger, P., Geißendörfer, L., Haas, T., & Mayer, F. (2023). Schumpeter's insights into monetary macroeconomics and the theory of financial crises. Industrial and Corporate Change, 32(2), 573–603.

Chang, B. H., Bhutto, N. A., Turi, J. A., Hashmi, S. M., & Gohar, R. (2021). Macroeconomic variables and stock indices: An asymmetric evidence from quantile ARDL model. South Asian Journal of Business Studies, 10(2), 242-264.

Coppola, C., Vollero, A., & Siano, A. (2023). Developing dynamic capabilities for the circular economy in the textile and clothing industry in Italy: A natural-resource-based view. Business Strategy and the Environment.

Daoud, J. I. (2017). Multicollinearity and regression analysis. In Journal of Physics: Conference Series (Vol. 949, No. 1, p. 012009). IOP Publishing.

Davis, G. F., & DeWitt, T. (2021). Organisation theory and the resource-based view of the firm: The great divide. Journal of Management, 47(7), 1684-1697.

EL Ammari, A. (2023). Does political connection affect corporate financial performance? The moderating role of directors' financial expertise. Journal of Financial Reporting and Accounting, 21(5), 1073-1099.

Emmanuel, O. N. B., Thierry, M. A., Christian, A. Z. C., & Ludé, D. A. (2024). What drives financial market growth in Africa? International Review of Financial Analysis 91, 102990.

Ghumro, N. H., Soomro, I. A., & Abbas, G. (2024). Asymmetric effect of exchange rate and investors' sentiments on stock market performance. Journal of Economic and Administrative Sciences, 40(5), 1192-1204.

Gong, Y., Jiang, Y., & Jia, F. (2023). Multiple multi-tier sustainable supply chain management: a social system theory perspective. International Journal of Production Research, 61(14), 4684-4701.

Haji, A. A., & Ghazali, N. A. M. (2018). The role of intangible assets and liabilities in firm performance: Empirical evidence. Journal of Applied Accounting Research, 19(1), 42–59. https://doi.org/10.1108/JAAR-12-2015-0108

Hasan, E., & Sharif, S. (2019). Do Macroeconomic variables affect stock market performance? A case study of DSEX and DS30 Index of Dhaka Stock Exchange. Business and Economic Research, 9(3), 182-203.

Ho, S. Y. (2019). Macroeconomic determinants of stock market development in South Africa. International Journal of Emerging Markets, 14(2), 322-342.

Ho, S. Y., & Odhiambo, N. M. (2018). Analysing the macroeconomic drivers of stock market development in the Philippines. Cogent Economics & Finance, 6(1), 1451265.

Humpe, A., & McMillan, D. G. (2020). Macroeconomic variables and long-term stock market performance. A panel ARDL cointegration approach for G7 countries. Cogent Economics & Finance, 8(1), 1816257.

Jamaludin, N., Ismail, S., & Ab Manaf, S. (2017). Macroeconomic variables and stock market returns: Panel analysis from selected ASEAN countries. International Journal of Economics and Financial Issues, 7(1), 37-45.

Javanmardi, E., Liu, S., & Xie, N. (2023). Exploring the Challenges to Sustainable Development from the Perspective of Grey Systems Theory. Systems, 11(2), 70.

Kalantonis, P., Delegkos, A. E., Sotirchou, E., & Papagrigoriou, A. (2022). Modern business development and financial reporting: Exploring the effect of corporate governance on the value relevance of accounting information—Evidence from the Greek listed firms. Operational Research, 1-19.

Kasongwa, L., & Minja, E. (2022). Moderating effects of oil price on the impact of macroeconomic variables on stock market performance. Business management review, 25(1), 75-89.

Khatib, S. F., & Nour, A. (2021). The impact of corporate governance on firm performance during the COVID-19 pandemic: Evidence from Malaysia. Journal of Asian Finance, Economics and Business, 8(2), 0943-0952.

Kruesi, M. A., & Bazelmans, L. (2023). Resources, capabilities and competencies: a review of empirical hospitality and tourism research founded on the resource-based view of the firm. Journal of Hospitality and Tourism Insights, 6(2), 549-574.

Kumar, M. P., & Kumara, N. M. (2021). Market capitalisation: Pre- and post-COVID-19 analysis. Materials Today: Proceedings, 37, 2553-2557.

Magoma, A., Ernest, E., & Kasheshi, E. (2024). Board characteristics and financial performance of banks listed on frontier stock markets in East Africa. A panel analysis. Cogent Business & Management, 11(1), 2400615.

McGahan, A. M. (2021). Integrating insights from the resource-based view of the firm into the new stakeholder theory. Journal of Management, 47(7), 1734-1756.

Mfugale, N., & Olomi, W. (2023). The impact of inflation and exchange rate on stock market returns in Tanzania. European Journal of Theoretical and Applied Sciences, 1(6), 1019–1026.

Muturi, N. A., & Kalui, F. M. (2022). Macro-Economic, Corporate Governance Factors and the Financial Performance of Listed Firms on Nairobi Securities Exchange.

Nayak, B., Bhattacharyya, S. S., & Krishnamoorthy, B. (2023). Integrating the dialectic perspectives of resource-based view and industrial organisation theory for competitive advantage review and research agenda. Journal of Business & Industrial Marketing, 38(3), 656-679.

Nuta, A. C., Habib, A. M., Neslihanoglu, S., Dalwai, T., & Rangu, C. M. (2024). Analysing the market performance of Romanian firms: do the COVID-19 crisis and classification type matter? International Journal of Emerging Markets.

Olokoyo, F. O., Ibhagui, O. W., & Babajide, A. (2020). Macroeconomic indicators and capital market performance: Are the links sustainable? Cogent Business & Management, 7(1), 1792258.

Penrose, E. (1959). The theory of the growth of the firm. John Wiley & Sons, New York.

Rakhal, R. (2018). Determinants of stock market performance. NCC Journal, 3(1), 134-142.

Ren, F., Liu, X., Charles, V., Zhao, X., & Balsalobre-Lorente, D. (2025). Integrated efficiency and influencing factors analysis of ESG and market performance in thermal power enterprises in China: A hybrid perspective based on parallel DEA and a benchmark model. Energy Economics, 141, 108138.

Rout, B. S., & Das, N. M. (2024). BRICS stock markets' performances during COVID-19: Comparison with other economic crises. Vikalpa, 49(3), 230-243.

Schneider, A., Wickert, C., & Marti, E. (2017). Reducing complexity by creating complexity: A systems theory perspective on how organisations respond to their environments. Journal of Management Studies, 54(2), 182-208.

Singhania, A. K., & Panda, N. M. (2024). Does an effective audit committee influence firm performance? The moderation role of knowledge intensity. Corporate Governance: The International Journal of Business in Society, 24(4), 764–779.

Temba, G. I., Kasoga, P. S., & Keregero, C. M. (2023). Corporate governance and financial performance: Evidence from commercial banks in Tanzania. Cogent Economics & Finance, 11(2), 2247162.

Toumi, K., & Hamrouni, A. (2023). Islamic corporate governance quality and value relevance of accounting information in Islamic banks. Journal of Financial Reporting and Accounting.

Ullah, I., Noreen, H., Rehman, Z. U., & Shinwari, N. (2020). Impact of macroeconomic variables on return on assets of textile industry of Pakistan. European Journal of Business and Management Research, 5(6).

Verma, R. K., & Bansal, R. (2021). Impact of macroeconomic variables on the performance of stock exchange: a systematic review. International Journal of Emerging Markets, 16(7), 1291–1329. https://doi.org/10.1108/IJOEM-11-2019-0993

Wu, A. D., & Zumbo, B. D. (2008). Understanding and using mediators and moderators. Social Indicators Research, 87, 367–392.

Yang, Y., Jiang, Y., Jia, F., & Chen, L. (2023). The impact of supplier instability on corporate social responsibility performance over the firm lifecycle: a social systems theory perspective. British Journal of Management, 34(3), 1259–1281.