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Political change, elections, and stock market indicators: a generalized method of moment analysis

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Abstract

Purpose – The performance of financial markets is significantly influenced by the political environment during general elections. This study investigates the effect of general elections on stock market performance in selected African markets.

Design/methodology/approach – Prior studies have been inconsistent in determining whether electioneering events negatively or positively influence stock market performance. The study utilized panel data set with annual observations from 1990 to 2020. The generalized method of moments (GMM) is employed to investigate the effect of electioneering and change in government on key stock market performance indicators, including stock market capitalization, stock market turnover ratio and the value of stock traded.

Findings – The study finds that electioneering activities generally have a positive impact on the performance of the stock market, whereas a change in government has a negative impact. As a result, the study recommends that stakeholders of the stock market remain vigilant and actively monitor electioneering events to devise and implement effective policies aimed at mitigating political risks during general elections. By adopting these measures, investor confidence can be significantly enhanced, fostering a more robust and secure investment environment.

Originality/value – The study investigates a neglected section of the literature by highlighting not only the effect of elections on stock market indicators but also possible change in government during elections.

Keywords Political instability, Electioneering, Stock market, Elections, GDP, Change in government, Generalized method of moment

Paper type Research paper

1. Introduction

Since the 1960s, political instability has been widely considered an epidemic in many African nations, with over fifty coups occurring on the continent following the attainment of independence by numerous countries. The repercussions of this instability on the performance of financial markets have been extensively deliberated, particularly in the context of African nations. According to Diamonte *et al.* (1996), political risk is a more significant factor in determining stock returns in emerging markets than in developed ones. Presidential elections can have various impacts on stock returns, with election campaigns often resulting in substantial spending (Musah *et al.*, 2023; Yiadom and Abdul-Mumuni, 2022). This research focuses on the relationship between election years and financial market

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performance, specifically examining selected markets in Africa. The African stock market is categorized as an emerging market (Tetteh and Arthur, 2020), comprising 29 exchanges and 32 members of the African Securities Exchange Association (ASEA).

Bedemo (2023) explores the political economy of financial development: empirical evidence from Ethiopia. In this study, the author investigates the intricate relationship between political factors and financial development, focusing on the Ethiopian context. Through empirical analysis, the research sheds light on how political dynamics shape the trajectory of financial developments, providing insights into the nuanced interplay between policy decisions and economic progress. In a related study, Musah *et al.* (2023) present presidential elections and stock return volatility: evidence from selected sub-Saharan African stock markets. Their study delves into the impact of presidential elections on stock market volatility within sub-Saharan Africa. By analyzing selected stock markets, the authors unearth the link between political events and financial market behaviors, contributing to a broader understanding of how political uncertainties reverberate within the realm of investments. These studies point to the fact that the financial system of a country is intertwined with elections and political activities.

Again, In the study conducted by Smales (2014), the Australian federal elections were employed as an instrumental measure of political uncertainty, highlighting their substantial influence on the dynamics of financial markets. Additionally, Musah *et al.* (2023) have both presented evidence of a strong correlation between elections and financial markets. Białkowski *et al.* (2008) argue that the effects of general elections on stock investors are significant and discernible.

Political instability is a prevalent issue across many African nations, with leaders often grappling with the challenge of both nation-building and legitimizing their hold on political power. Ghana, for instance, holds presidential elections every four years, with a history of peaceful transitions of power occurring at least once every eight years. Despite this, Ghana has experienced five successful coups, which continue to have adverse effects on the country. In the last two decades, Ghana has held significant democratic elections (Tetteh and Arthur, 2020). The study of political turmoil in developing regions, such as Latin America and Africa, became a significant undertaking for both policymakers and academics, following a series of government and military overthrows. The repercussions of this instability on the performance of financial markets have been extensively deliberated, particularly in the context of African nations.

Extensive research has been conducted in the empirical literature to explore the correlation between PI and stock markets, particularly in the aftermath of the recent financial crisis (Asteriou, 2016; Dziwornu *et al.*, 2023; Mensah *et al.*, 2018; Ofosu-Mensah Ababio *et al.*, 2023; Yalley *et al.*, 2018). Investing in the stock market entails various risks, including political risks, exchange rate risks, cross-border capital flow risks and inflationary risks (Mnasri and Essaddam, 2021). As cited in Tetteh and Arthur (2020), it is well-established that political risk is statistically significant in emerging stock markets.

Sottilotta (2012) explains political risk as any disruption in the business environment arising from political change, which could potentially impact a firm's profit or objectives. Political risk can manifest in various ways, including political instability, election-related activities, corruption, coups d'état, presidential elections, civil unrest and terrorism (Tetteh and Arthur, 2020). Nonetheless, political instability is the most commonly referred to form of political risk. The political environment refers to the ongoing pattern of human relationships characterized by control, influence, power or authority (Mensah *et al.*, 2018; Yiadom *et al.*, 2021). The question is whether political events, such as elections, have an impact on the investment decisions of stock market investors. Research suggests that there is a close relationship between politics and the economy (Huang, 2012). According to Musah *et al.* (2023), presidential elections can have a significant effect on stock returns, partly because election campaigns often involve substantial spending.

In Africa, every country experiences political risk in different ways and to different extents. Research on the influence of political risk on financial market performance has predominantly focused on Kenya in East Africa and the United States, particularly with presidential elections.

The African political landscape is characterized by frequent political instability. In Africa, political party politics often leads to the risk of confrontation and conflict, among other issues. The rise in this conflict poses a significant obstacle to business patronage and discourages potential investors. According to Kabiru *et al.* (2015), investors respond to the heightened uncertainty by undervaluing stocks, but as the election outcome becomes more certain, security prices tend to increase, correcting the initial undervaluation. This phenomenon highlights the influence of national elections on stock performance, which this paper will investigate.

While previous studies have explored this area of research, a notable research gap remains in our understanding of the dynamic relationships between these variables. Most existing research has primarily relied on traditional regression models, often facing issues of endogeneity and omitted variable bias. Additionally, these studies have often focused on the impact of elections alone, overlooking the potential ramifications of a change in government during elections. To address this multifaceted gap, this study employs the generalized method of moment (GMM) analysis, a sophisticated econometric technique that allows for a more comprehensive examination of the causal links between political events, elections, stock market indicators and government transitions. By doing so, this research aims to provide a more in-depth and accurate insight into the complex interplay between electoral dynamics, changes in government and market behavior, offering valuable contributions to both academic literature and practical decision-making in the financial sphere.

The objective of this research is to establish the effect of political events, specifically national elections, on the stock market performance indicators, including stock market turnover ratio, stock market value traded and stock market capitalization.

2. Literature review

2.1 Theoretical underpinnings

2.1.1 Efficient market hypothesis. The efficient market hypothesis (EMH) provides a relevant framework to explore the impact of elections and political change on stock market performance in Africa. According to Jones and Netter (2008), an efficient capital market is characterized by securities' prices accurately reflecting all available information regarding their fundamental value. This theory is widely recognized as a prominent approach to understanding stock behavior. While the concept of market efficiency originated in the 1900s, it was not until the 1970s that Eugene Francis Fama, an American economist, extensively discussed the theory. Fama (1991) defined an efficient market as one where market participants act rationally in their pursuit of profits. The theory further argues that the existing stock prices comprehensively reflect all pertinent information regarding a company's worth, rendering it impractical to consistently generate above-leverage profits by leveraging information beyond the scope of the overall market.

According to Smales (2014), the existence of an efficient market is driven by the intense competition among investors to capitalize on new information. The theory also utilizes statistical time series models to explain stock price movements. Essentially, the EMH suggests that all available information regarding investment securities, including stocks, is already reflected in their prices. Therefore, the EMH does not assume that investors always behave rationally but rather suggests that individual investors exhibit random behavior. Moreover, the theory addresses one of the fundamental questions in finance, namely why prices change in security markets and how these shifts occur. In the context of Africa,

understanding the implications of the EMH can shed light on the relationship between elections, political change and stock market performance in the region.

2.1.2 Rational expectations theory. The theory of rational expectations (RE) has implications for understanding the relationship between elections and stock market performance in Africa. Introduced by economist Muth (1961), and further developed by Ljungqivst and Sargent (2004), RE is based on the assumption that economic agents make decisions based on the best available information and learn from past patterns. The theory suggests that while individuals may occasionally make errors, on average, their expectations will be accurate.

According to RE, economic agents in Africa will base their investment and spending decisions on rational expectations of future events. They will utilize all available information and economic theories to make informed choices. The theory operates on three key assumptions: first, individuals learn from past mistakes; second, their forecasts are unbiased, incorporating all available information; and third, individuals possess an understanding of how the economy operates and how government policies impact macroeconomic variables such as price levels, unemployment and aggregate output.

Rational expectations serve as a foundation for the efficient markets theory of securities prices, the analysis of hyperinflations, the permanent income and life cycle theories of consumption, and the design of economic stabilization policies. By definition, rational expectations yield predictions of future events that deviate from the actual outcomes only due to independent errors unrelated to the variables used to generate the predictions (Tesfatsion, 2019).

In the context of elections and stock market performance in Africa, the rational expectations theory suggests that economic agents will make decisions based on their rational assessment of the future. This implies that market participants will incorporate political factors, including election outcomes, into their expectations and investment strategies. Understanding how rational expectations influence stock market behavior in the African context can provide insights into the relationship between elections and stock market performance, helping investors and policymakers make informed decisions.

2.1.3 Prospect theory. Prospect theory, also known as the loss-aversion theory, explains how humans make decisions when faced with multiple options. It suggests that individuals are more averse to losses than they are motivated by gains. In the context of elections and stock market performance in Africa, this theory has significant implications.

According to prospect theory, individuals tend to choose options that they perceive as less likely to result in a loss, even if it means sacrificing potential gains. This risk-averse behavior influences investment decisions and market behavior during elections, as political uncertainties can introduce perceived risks. Investors prioritize preserving their current resources over taking risks that could lead to gains.

The decision-making process in prospect theory involves two phases. The editing phase focuses on how individuals frame and perceive available choices, influenced by factors such as the wording or order of options presented. The evaluation phase involves assessing potential outcomes and choosing the option with higher utility. However, individuals often struggle to understand risk intellectually and process it emotionally, which affects their investment decisions.

Understanding how prospect theory influences elections and stock market performance in Africa provides insights into investor behavior. It highlights the role of emotions and perceptions of gains and losses in shaping decision-making during election periods. This understanding enhances the comprehension of the interplay between politics and the stock market within African contexts, leading to a more profound understanding of their dynamics.

2.1.4 Political business cycle theory. The political business cycle theory, originally conceptualized by Nordhaus (1975), posits that incumbent politicians may strategically

manipulate economic policies to enhance their reelection prospects. In essence, this theory suggests that when an election is approaching, politicians may engage in economic policies that create an appearance of a healthier economy. They may increase government spending, lower interest rates or take other measures that appear favorable to the economy just before the voters head to the polls. The underlying motivation is to generate a positive economic sentiment among the electorate and secure their reelection. However, after the election, these politicians may reverse these policies, potentially resulting in economic fluctuations. In light of this theory, we are interested in exploring how such changes in economic conditions around election periods can impact the stock market.

2.1.5 Event study theory. Event study theory, pioneered by Fama *et al.* (1969), serves as a precise analytical tool for scrutinizing the impact of specific occurrences, such as significant news events or corporate actions, on stock market dynamics. Recognizing the importance of event study theory as a method to analyze the impact of specific events on asset prices, including stocks, we have chosen to utilize this approach. In our research, we employ event studies to assess the precise influence of political events on stock prices, enabling a deeper comprehension of how investors react to pivotal news and, subsequently, how it shapes market behavior This theory explains how political events, such as elections, and changes in government can affect stock market indicators. We apply event study theory to isolate and quantify the effects of these discrete events on stock prices and market performance. In our analysis, we provide a quantitative and empirical foundation for understanding how these political events influence stock market behavior by selecting significant political events such as election dates, or pivotal political occurrences such as change in government.

2.1.6 Portfolio diversification. Portfolio diversification theory, as articulated in Markowitz (1952), is rooted in the idea that investors should spread their investments across a variety of assets, like stocks, bonds and real estate, to reduce risk. The relevance to our study becomes evident when we consider how political changes, elections and government transitions can influence investor behavior and, consequently, stock market indicators. In the lead-up to elections or during times of political uncertainty, investors may reassess their portfolios in response to the potential economic consequences of political outcomes. For instance, they might adjust their investments based on the perceived impact of new government policies, taxation changes or regulatory adjustments. Portfolio diversification theory informs us that such shifts in investor strategies can lead to changes in the composition of investment portfolios. Investors may choose to diversify more or less, depending on their assessment of political risks.

This relationship between politics and portfolio diversification is especially relevant in our research. We seek to explore whether political changes and elections trigger shifts in investor behavior, as they make investment choices based on their expectations regarding political outcomes. By analyzing these shifts in portfolio composition and examining the corresponding changes in investment strategies, we aim to understand how these adjustments in investor behavior might, in turn, impact stock market indicators.

2.2 Empirical review

The landscape of financial economics is enriched by a range of recent studies that delve into diverse aspects of financial markets, economic policies and their interplay. A glimpse into these studies showcases the depth and breadth of research within this field.

Bedemo's empirical analysis in 2023 illuminates how political dynamics play a role in shaping the trajectory of financial growth, offering insights into the nuanced interaction between policy decisions and economic advancement. In a parallel vein, Musah *et al.* (2023) explores the ramifications of presidential elections on stock market volatility in sub-Saharan African stock markets. By scrutinizing designated stock markets, the authors unveil the correlation between

political events and the behaviors of financial markets. This contribution expands our comprehension of how political uncertainties resonate across the domain of investments.

Addressing the influence of electioneering activities on stock market performance, Tetteh and Arthur (2020) conducted a study titled "The Impact of Electioneering Activities on the Ghana Stock Exchange." By examining the short-term, long-term and causal dynamics between electioneering activities and stock market performance, the researchers employed the Autoregressive Distributed Lag (ARDL) bound test approach to cointegration and Granger causality tests. They discovered that electioneering activities negatively impact the Ghana Stock Exchange (GSE) in both the short and long terms. The study also highlighted the intriguing trend of the Ghanaian cedi's behavior during elections, with rapid depreciation in the short run and limited appreciation in the long run. This adds exchange rate risk complexity to the GSE during elections, affecting investment decisions and private companies' capital raising.

Moving beyond the immediate impact of election-related events, Asteriou (2016) explored "Political instability and stock market returns: Evidence from Organization for Economic Co-operation and Development (OECD) countries." Analyzing the correlation between political instability and stock market returns in 18 OECD countries, they used political instability indicators and employed methodologies such as exploratory factor analysis (EFA), principal component analysis (PCA) and GARCH-M. Results revealed both direct and indirect correlations between political instability indicators and stock market returns, suggesting complex relationships. Some indicators exhibited non-significant or even positive results, emphasizing the multifaceted nature of political instability's impact.

In the context of Nigerian elections, Shehu (2019) investigated presidential elections and stock market returns in Nigeria. This study delved into factors influencing stock market returns around presidential elections from 1999 to 2019. Using the Nigerian Stock Exchange's all-share index, the research analyzed various factors, including policy changes, macroeconomic fundamentals, investor composition and global events. Employing symmetric and asymmetric GARCH models and the regime heteroskedastic Markov switching model, the study revealed two volatility regimes: low and high volatility. The analysis uncovered mixed results across election cycles, indicating varying impacts on stock returns. Specifically, the 2011 election cycle demonstrated a positive effect on returns during the election period.

The exploration of the relationship between political events, market dynamics and stock returns has been a subject of significant research. The study conducted by Chia (2018), Kabiru *et al.* (2015) contribute to our understanding of this complex interplay.

Chia (2018) focused on the Malaysian context in his study on the effect of political elections on stock market volatility in Malaysia. Investigating the 12th and 13th general elections, known for their political tensions, Chia utilized the EGARCH model and specific stock indices from Bursa Malaysia. While stock returns showed no significant impact, heightened stock volatility during pre-general election periods was notable. This volatility was particularly pronounced in certain indices, revealing the influence of market capitalization and political uncertainty. Kabiru *et al.* (2015) extended the inquiry to the "Impact of General Elections on Stock Returns at the Nairobi Securities Exchange." Focusing on Kenya's general elections between 1997 and 2013, the study employed the event study methodology. It uncovered varying market reactions linked to election volatility, with significant effects observed during the 1997 and 2007 elections. These findings highlighted the intricate relationship between politics and stock market behavior, underlining the relevance of political environments in stock market analyses.

Their research spanning 1957 to 1966 demonstrated a connection between US presidential cycles and stock returns in 18 OECD countries. This international scope highlighted the broader repercussions of political cycles on global markets, emphasizing the role of US presidential cycles in determining risk premiums across nations. The study identified a parabolic relationship between democracy, political risk and stock market

returns. Employing two measures of democracy and various data analysis methods, the research showcased the interactive effects of democracy and political risk on global markets. This comprehensive approach not only highlighted the influence of democracy but also underscored the nuanced variables shaping local returns and the segmentation of emerging stock markets. These studies collectively emphasize the intricate connection between political events, market dynamics and stock returns. They serve as building blocks for understanding the multifaceted relationship between politics and financial markets.

Expanding on this foundation, Lau and Yip (2023) delve into the effect of different periods of unconventional monetary policies on Japanese financial markets. This research dissects the responses of Japanese financial markets to varying phases of unconventional monetary policies, unraveling the complexities of policy implementation. Similarly, Desalegn *et al.* (2023) contribute by examining economic policy uncertainty, bank competition and financial stability. Their study delves into the interplay between economic policy uncertainty, bank competition and financial stability, shedding light on the influence of economic uncertainties on banking dynamics and overall financial stability. In a different regional context, Kumeka *et al.* (2022) provide insights into the resilience of sub-Saharan African stock markets in the face of health shocks. Their study titled "Is Stock Market in Sub-Saharan Africa Resilient to Health Shocks?" uncovers how health shocks impact stock market behavior in the region, adding to our understanding of market responses to unexpected challenges.

These studies collectively contribute to a broader comprehension of the intricate interrelationships between political events, market volatility and stock returns. As the current research explores the effect of unconventional monetary policies and economic policy uncertainties, it builds upon this foundation, enriching our understanding of the complex dynamics shaping financial markets.

A study by Xu *et al.* (2023) examines the effects of climate policy uncertainty (CPU) on stock markets, comparing China and the United States. Using the methods of copula functions and the distribution lag nonlinear model (DLNM), the study analyzes Chinese news data and stock market indices, including the Shanghai Composite Index (SSCI), NASDAQ, Shenzhen Composite Index (SCI) and the S&P 500. This paper provides a unique comparative analysis between China and the United States, offering a broader understanding of how climate policy uncertainty influences stock markets. The findings reveal that for China, high CPU is associated with a reduction in current stock market returns, an increase in short-term volatility and a decrease in future volatility. Moreover, high CPU is found to enhance the upper tail dependence between the volatilities of China's and the US's stock markets. In the United States, the findings reveal that high CPU levels tend to decrease stock market returns in the short term, while positively influencing returns in the long term. Additionally, both low and high CPU levels lead to increased correlation between the volatilities of China's and the US's stock markets.

This research addresses an important gap in the literature by quantifying and examining the climate policy uncertainty (CPU) in China from January 2000 to March 2022. It utilizes Chinese news data to construct a daily and monthly CPU index, a novel approach in this context. A seminal contribution to this area is the Policy Uncertainty Index (PUI) introduced by Baker *et al.* (2021), which gauges policy-related uncertainty and its consequences for economic decisions and market behaviors. Given China's ever-increasing role in the global economy and its unique environmental and climate policy landscape, assessing CPU in this context is crucial.

In their seminal study, Fulgence *et al.* (2023) researched on political uncertainty on stock price informativeness. This study analyzed panel data encompassing 49 countries and a vast data set of 441,882 firm-year observations spanning the period from 2000 to 2020.

This question of stock price informativeness arises from the recognition that political uncertainties, particularly during election periods, can significantly influence financial markets. A substantial body of prior research has suggested that such uncertainties can lead to changes in investor behavior, affecting stock prices. The findings of their study indicate that political uncertainty appears to reduce the informativeness of stock prices in the lead-up to elections and during election years. This observation is consistent with our findings on stock market performance and elections, which have highlighted how uncertainty in political environments can lead to more cautious investment behavior and decreased trading activity. The study also reveals that stock prices tend to be more informative in non-election years. This finding implies a cyclical pattern, emphasizing that the effect of political uncertainty on stock price informativeness is contingent on the timing of elections.

Similar to our study, the findings reveal that the influence of political uncertainty on stock price informativeness varies across industries, particularly between less regulated and regulated sectors. The findings also indicate that during election years, firms tend to disclose less information, which may contribute to the observed decrease in stock price informativeness. This result aligns with the event study theory by Fama *et al.* (1969) highlighting how businesses might adopt a more cautious approach to information disclosure during times of political uncertainty.

In a similar vein, Kayaçetin (2023) explore the relationship between elections and stock market returns: evidence from Borsa Istanbul.

This review centers on a recent study that delves into the stock market behavior around political elections, with a specific focus on Borsa Istanbul, where political risk holds significant implications for asset risk premiums. The research investigates returns for a range of indicator and sectoral indices of Borsa Istanbul stocks and the US dollar–Turkish Lira exchange rate during political elections in Turkey from 2001 to 2020. The findings reveal compelling patterns of stock price behavior. Notably, the study identifies economically and statistically significant positive abnormal returns for all Borsa Istanbul stock indices during the period surrounding elections. This observation is in line with earlier research that has indicated the presence of predictable market patterns around political events (Kamstra and Kramer, 2023).

Conversely, the US dollar–Turkish lira exchange rate exhibits negative abnormal returns during the same election periods. This behavior echoes the concept that political risk, which tends to surge during elections, can influence exchange rates (Bekaert *et al.*, 2023). The timeframe for these stock and exchange rate movements is also intriguing. The effect starts approximately a month before the election and extends for two weeks into the post-election period, with a particular emphasis on the week immediately following the election. This time pattern aligns with the recognition that election-related uncertainty can lead to distinct market reactions (Fulgence *et al.*, 2023).

An essential contribution to the field can be found in the work of Morni and Yazi (2021) where they examined stock market reaction to political regime change in Malaysia.

This study investigates a unique political event – the 2018 general election in Malaysia – and its effects on the value of actively traded stocks in the Malaysian stock market. The research builds on a sample of 656 listed stocks on May 9, 2018, the election date in Malaysia. The study employs event methodology, specifically focusing on abnormal returns (AR) and cumulative average abnormal returns (CAAR). AR is calculated for individual firms and then averaged across these firms, providing a more accurate measure of the effect of the election announcement. CAAR represents the overall impact of the event across all firms.

The findings of the study unveil a compelling narrative. They present substantial evidence that a significant political announcement, such as election results, followed by a change in government, has a discernible influence on the value of actively traded stocks. This

impact is characterized by significantly positive CAAR values within the selected event windows, both prior to and following the election event. They also observed that the stock market appears to experience volatility during the observation period, suggesting that the impact of a political regime change extends beyond the immediate post-election period. This aligns with previous research indicating that political events can lead to prolonged market uncertainty and adjustment periods (Choudhary and Kumar 2022).

In their research, Obenpong Kwabi *et al.* (2023) explore the role of institutional quality in the relationship between political uncertainty and stock market liquidity, size and transactional cost.

This review centers on a study that employs panel data encompassing 42 countries and spanning from 2001 to 2019. The study's primary objective is to investigate whether political uncertainty, in the context of national elections, can account for variations in cross-country liquidity, market size and transaction costs within stock markets. Additionally, the research explores whether the quality of institutional frameworks plays a moderating role in mitigating the adverse effects of political uncertainty on stock market development.

Similar to later papers, this study's findings reveal that political uncertainty exerts a negative influence on stock market size, liquidity and transaction costs. This observation is consistent with prior research that has highlighted how political uncertainties can disrupt financial markets by affecting investor sentiment and trading activity (Baker *et al.*, 2021; Xu *et al.*, 2023; Bekaert *et al.*, 2023; Yiadom *et al.*, 2022, 2023; Vassiliades *et al.*, 2022). Their results also indicate that institutional quality can act as a moderator, attenuating the detrimental effects of political uncertainty on stock market development. However, observation is made regarding emerging markets, where the prevalence of weak institutions seems to nullify the moderating impact of institutional quality.

3. Methodology

A one-step system GMM from stock markets across fifteen (15) African countries was used for the 1990–2020 period. The data for the study were collected from World Bank's World Development Indicators. However, data relating to elections and changes in government were collected from each country's election commission/directorate website. The 15 selected countries include Ghana, Kenya, Mauritius, Namibia, Nigeria, Botswana, Rwanda, South Africa, Tanzania, Zambia, Zimbabwe, Eswatini, Morocco, Egypt and Tunisia.

The GMM estimation approach was compatible with this study as a result of a heteroskedasticity test, which was conducted to point out the type of estimator to use to run the panel data set (Mensah *et al.*, 2021; Ofosu-Mensah Ababio *et al.*, 2023). The test, however, suggested that the GMM was the appropriate estimator to use for this particular type of data. This paper analyzed the stock market performance of the securities market before, during and after the general election within thirty years.

Three empirical models are specified to achieve the three objectives of the study.

$$\begin{aligned}\text{stratio}_{it} = {} & \beta_{11}\text{stratio}_{it-1} + \beta_{12}\text{edummy}_{it} + \beta_{13}\text{gdummy}_{it} + \beta_{14}\text{gdp}_{it} \\ & + \beta_{15}\text{dcredit}_{it} + \beta_{16}\text{dinvest}_{it} + \beta_{17}\text{infl}_{it} + \beta_{18}\text{drate}_{it} + \beta_{19}\text{rule}_{it} + \text{v}_i + \varepsilon_{it} \quad (1)\end{aligned}$$

$$\begin{aligned}\text{strade}_{it} = {} & \beta_{21}\text{strade}_{it-1} + \beta_{22}\text{edummy}_{it} + \beta_{23}\text{gdummy}_{it} + \beta_{24}\text{gdp}_{it} \\ & + \beta_{25}\text{dcredit}_{it} + \beta_{26}\text{dinvest}_{it} + \beta_{27}\text{infl}_{it} + \beta_{28}\text{drate}_{it} + \beta_{29}\text{rule}_{it} + \mu_i + \in_{it} \quad (2)\end{aligned}$$

$$\text{smcap}_{it} = \beta_{31}\text{smcap}_{it-1} + \beta_{32}\text{edummy}_{it} + \beta_{33}\text{gdummy}_{it} + \beta_{34}\text{gdp}_{it} + \beta_{35}\text{dcredit}_{it} + \beta_{36}\text{dinvest}_{it} + \beta_{37}\text{infl}_{it} + \beta_{38}\text{drate}_{it} + \beta_{39}\text{rule}_{it} + \omega_i + \delta_{it} \quad (3)$$

Where *i, t* represents country i at time *t*, stratio represents the stock market turnover ratio, strade is the stock market value traded divided by GDP, smcap is the stock market capitalization divided by GDP, edummy represents the election dummy that takes on the value of 1 in the election year of a country, and 0 otherwise. The operative definition of election or electioneering refers to the activities and efforts undertaken by individuals, political parties and organizations to influence the outcome of an election, typically to promote a particular political agenda.

The gdummy represents the change in government dummy that takes on the value of 1 if the elections led to a change in government, and 0 otherwise. The substantive meaning of change in government refers to the transition of political authority and leadership within a country or region.

The gdp is the gross domestic product per capita; dcredit is the domestic credit provided by financial sector divided by GDP; dinvest is the domestic investment divided by GDP; infl is the consumer prices annual inflation; drate is the deposit interest rate; trade is the net international trade divided by GDP; rule is the rule of law. v_i,μ_i and ω_i represent the country's fixed effect. ε_{it},$\in_{it}$ and δ_{it} are the error terms in the three equations. Table 1 contains the variables' description and computation.

4. Results and discussions

4.1 Summary statistics

Table 2 presents the descriptive statistics of the variables used in the study.

The results indicate that stock market capitalization constitutes about 33.8% of GDP among the 15 selected countries. This implies that stock market activities can highly influence economic growth in the selected countries. Also, the standard deviation of 52.25% reveals a highly volatile market. This makes the case of elections and change in government plausible risk that may exacerbate the uncertainty in the 15 selected stock markets. Also, the trading activities in the stock markets represented by the total value of stocks traded as a percentage of GDP of 5.6% is quite significant. This shows an active stock market and can as well contribute to the economic development. The stock turnover ratio of 19.14% gives an impression of a profitable market to investors.

Variable	Description	Source
stratio	Stocks traded, turnover ratio of domestic shares (%)	World Bank (2021)
strade	Stocks traded, total value (% of GDP)	World Bank (2021)
smcap	Market capitalization of listed domestic companies (% of GDP)	World Bank (2021)
edummy	Election dummy	Country website
gdummy	Change in government dummy	Country website
GDP	GDP per capita (current US$)	World Bank (2021)
dcredit	Domestic credit provided by financial sector (% of GDP)	World Bank (2021)
dinvest	Domestic investment (% of GDP)	World Bank (2021)
Infl	Inflation, consumer prices (annual %)	World Bank (2021)
drate	Deposit interest rate (%)	World Bank (2021)
Trade	Trade (% of GDP)	World Bank (2021)
Rule	Rule of law: estimate	World Bank (2021)

Source(s): Research Study (2023)

Table 1. Variables' description and computation

Variables	Obs	Mean	Std. Dev	Min	Max	p1	p99	Skew	Kurt
smcap	464	33.815	52.256	−5.911	352.156	−3.537	276.601	3.49	15.978
strade	464	5.961	16.134	−0.231	135.795	−0.127	81.045	4.413	24.888
stratio	464	19.143	97.241	−7.542	1721.544	−4.007	189.027	14.717	237.458
edummy	464	0.205	0.404	0	1	0	1	1.463	3.142
gdummy	464	0.08	0.271	0	1	0	1	3.103	10.627
dcredit	463	34.532	50.543	0	192.66	0	176.733	1.319	3.649
Rule	464	−0.25	0.649	−1.868	2.054	−1.802	1.054	−0.208	3.227
Trade	464	71.257	29.712	19.684	175.798	23.578	155.972	0.655	3.138
infl	464	9.759	15.467	−2.431	183.312	0	72.836	6.752	64.075
drate	464	11.649	16.409	0	203.375	0	91.075	6.185	55.952
Gdp	464	2389.225	2192.012	126.955	11320.783	175.558	10153.938	1.546	5.473
dinvest	464	23.124	7.97	1.525	53.187	5.128	42.805	0.432	3.127

Table 2.
Descriptive statistics

Source(s): Research study (2023)

The correlation matrix explains the dependence and relationships in variables of a research. The correlation matrix is used to detect multicollinearity among the independent variables and helps to determine whether a particular variable should be retained or eliminated due to its similarity to other recorded data of the variables. The results in Table 3 do not give a reason for concern or worry about multicollinearity among the variables.

4.2 Heteroskedasticity test

The Breusch-Pagan test, developed by Trevor Breusch and Adrian Pagan in 1979, is a method used to detect heteroscedasticity in a linear regression model. The test assumes that the errors in the model are independently and identically distributed, and checks whether the variance of the errors is related to the values of the dependent variables. The test is crucial in determining the appropriate estimator to use when analyzing panel data (Yiadom *et al.*, 2023).

Figure 1 presents graphs of the heteroskedasticity test showing how variances in the data set are distributed in the case of each dependent variable.

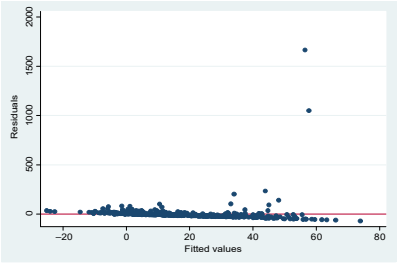
Given the graphs presented, all the heteroskedasticity test results for the three equations prove that the panel data of all the three dependent variables together with the independent variables are heteroskedastic. All the p-values of the three diagrams are less than 5%, which rejects the hypothesis of homoscedasticity of the panel data.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) dinvest	1.000								
(2) gdp	0.017	1.000							
(3) drate	−0.201	−0.281	1.000						
(4) infl	0.265	−0.224	0.284	1.000					
(5) trade	0.078	0.415	−0.028	−0.071	1.000				
(6) rule	0.245	0.592	−0.376	−0.074	0.442	1.000			
(7) dcredit	−0.037	0.226	−0.022	−0.147	0.003	0.051	1.000		
(8) edummy	0.015	0.025	−0.003	0.005	0.022	0.008	0.007	1.000	
(9) gdummy	−0.016	0.077	−0.054	0.020	0.080	0.028	−0.034	0.403	1.000

Table 3.
Correlation matrix

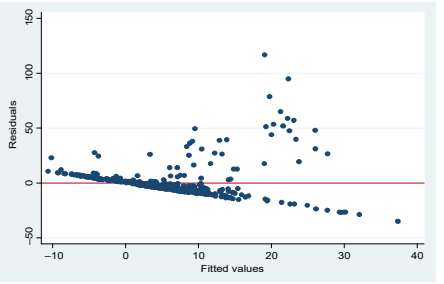
Source(s): Research study (2023)

Stratio



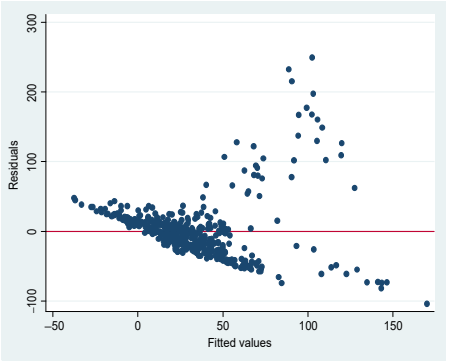
Breusch-Pagan/Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of stratio
chi2(1) = 1015.23
Prob > chi2 = 0.0000

Strade



Breusch-Pagan/Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of strade
chi2(1) = 613.71
Prob > chi2 = 0.0000

smcap



Breusch-Pagan/Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of smcap
chi2(1) = 555.35
Prob > chi2 = 0.0000

Source(s): Research Study (2023)

Figure 1.
Heteroskedasticity test

This test, therefore, suggests that the GMM is the appropriate estimator to use for this particular type of data.

4.3 Results of the GMM dynamic panel data analysis

To ascertain the effects of electioneering on stock market performance, we used the one-step system GMM. The system GMM is a linear dynamic panel data model specifically designed to analyze short, wide panels. The model also corrects endogeneity by introducing more instruments to dramatically improve efficiency and transforms the instruments to make them uncorrelated (exogenous) with fixed effects. The system GMM estimator emerged from the contributions of Arellano and Bond (1991), and its development was subsequently advanced by Arellano and Bover (1995) as well as by Blundell and Bond (1998). Arellano and Bond (1991) correct endogeneity by transforming all regressors through differencing. The difference estimator works by taking the first difference of the data and using the lagged values of the endogenous variables as instruments. According to Arellano and Bover (1995), the difference estimator faces a limitation when the lagged levels serve as weak instruments for first differences, especially when the variables closely resemble a random walk. To

address this issue of poor instruments, the system GMM estimator is introduced, which mitigates the problem by incorporating additional moment conditions.

Theoretical evidence presented by Hayakawa (2007) demonstrates that the system GMM estimator exhibits less bias in small samples compared to the difference GMM estimator. However, Roodman (2009) highlights a drawback of both estimators, particularly the system GMM, which is the potential issue of using an excessive number of instruments. This can introduce bias to the results or even weaken the Sargan/Hansen test for instrument validity. Moreover, the literature is still not clear on the problem of how many are "too many" instruments. Monte Carlo simulation evidence, however ,suggests that cutting the number of over-identifying instruments in half can reduce the bias by 40%. Although the system GMM has its limitations, it is still utilized as the primary approach in formal econometrics due to its ability to handle stock returns that resemble a random walk and perform better in small sample sizes compared to the difference GMM estimator.

Table 4 presents the findings of the GMM dynamic panel analysis, which explores the relationship between the stock market performance indicators (SMCAP, STRATIO and

Variables	(1) lsttratio	(2) smcap	(3) Strade
gdp	0.000172**	0.00660***	0.0078**
	(7.12e−05)	(0.00131)	(0.0119)
drate	−0.0201	−0.214	−0.00844
	(0.0196)	(0.181)	(0.00672)
dinvest	−0.0123	−2.817***	−0.0226**
	(0.0272)	(1.063)	(0.0226)
infl	0.0178*	0.209*	−0.00110
	(0.0105)	(0.124)	(0.00672)
Trade	0.00790	−0.149**	0.00841
	(0.00833)	(0.0612)	(0.0121)
Rule	1.006	1.546	0.545
	(0.886)	(6.642)	(1.648)
dcredit	−0.000951	0.0681	−0.0139
	(0.00527)	(0.0551)	(0.0152)
edummy	0.136*	28.06***	1.537*
	(0.0756)	(9.626)	(0.851)
gdummy	−0.368*	−46.86***	−1.202
	(0.193)	(16.22)	(0.763)
L.lsttratio	0.687***		
	(0.0708)		
L.smcap		0.492***	
		(0.0733)	
L.strade			0.854***
			(0.0579)
Constant	−2.241	66.21	−0.132
	(2.025)	(43.15)	(4.556)
Observations	449	449	434
AR (1)	0.057	0.126	0.012
AR (2)	0.245	0.352	0.241
Hansen test	0.852	0.875	0.753
Number of instruments	9	9	10
Number of countries (groups)	15	15	15

Note(s): Standard errors in parentheses. ***, **, * are statistical significance at the 1%, 5% and 10% levels, respectively. *p*-values reported for AR (2) and Hansen statistics
Source(s): Research Study, 2021

Table 4.
GMM dynamic panel analysis for the stock market performance indicators and the variables

STRADE) and the control and explanatory variables. The dependent variables (SMCAP, STRATIO and STRADE) are influenced by a range of independent variables, such as EDUMMY (election dummy), GDUMMY (change in government dummy) and DCREDIT (domestic credit).

According to the results in the table, the EDUMMY coefficients remain rather positive across the estimations, indicating that electioneering activities can affect stock market performance positively, ceteris paribus, but the significance levels differ. A percentage change in the EDUMMY variable for the SMCAP is associated with a 28.06% increase in the performance of the stock market at 1% significance level in the short-run, ceteris paribus, while a percentage change in that of the STRATIO and STRADE will also result in an increase in the performance of the stock market by 0.136% and 1.537%, respectively, and are both significant at 10%. However, while the coefficients of the GDUMMY variable are significant in almost every case, they have a negative sign throughout, indicating that there is an inverse relationship between the GDUMMY variable and stock market performance, ceteris paribus, which implies that even though electioneering activities can positively affect stock returns, a change in government, on the other hand, impacts stock returns in the opposite direction, ceteris paribus.

Among the explanatory variables, GDP remains positive and significant for both SMCAP and the STRATIO model, which implies that an appreciation in the overall domestic production of local goods and services would lead to a higher stock market efficiency, but this is not the case for STRADE model which displays a rather insignificant and a negative coefficient. Inflation is significant at 10% for both the SMCAP and the STRATIO model and is positive, implying that increases in global price levels positively affect stock market performance, but the STRADE model displays the immediate opposite. The domestic investment (DINVEST) and the deposit interest rate (DRATE) variables are consistently negative across all the estimations, which implies they have an inverse relationship with stock market performance, but the domestic investment for stock market capitalization is significant at 1%. The trade variable for the SMCAP model is negative but significant at 5%, while that of the STRATIO and STRADE model is positive but insignificant.

In addition, the p-value of the AR (2) shows the absence of second-order autocorrelation. The Hansen statistics indicate our instruments are strictly valid, and therefore our model is not weakened by many instruments.

5. Conclusions

In conclusion, this comprehensive investigation into the financial markets of 15 African economies has successfully unraveled the intricate relationship between political risk, specifically electioneering, and the performance of the African stock market. The utilization of multiple performance measures and the robust one-step system GMM panel data method has provided compelling evidence and valuable insights, shaping our understanding of the interdependencies between political factors and financial market dynamics in Africa.

Drawing from the findings, it is evident that electioneering activities positively affect the performance of the stock market, signifying a direct relationship with the stock market performance indicators.

Furthermore, we also find quite robust evidence that whenever electioneering results lead to a change in government, the effect is that the stock market shrinks.

Furthermore, it is important to recognize that GDP and inflation rates significantly shape the stock market's performance. Therefore, it stands to reason that any discernible variable capable of exerting an influence on these factors would invariably cast an impact on the performance of the stock market.

Practically, investors operating in African markets should factor in the influence of electioneering activities, as they frequently have a positive effect on stock market

performance. Understanding how elections can influence stock markets can help investors make informed decisions to potentially capitalize on market movements. Moreover, the contrasting impact observed when a change in government occurs underscores the significance of government policies in shaping market dynamics.

Based on the findings and prior research cited, it is evident that considerable attention has been paid to the impact of national elections on the stock market's performance. However, only a few sources provide relevant information that can benefit long-term investors in their decision-making. Our unbiased view is that investors should focus on selecting an investment strategy that aligns with their long-term financial objectives rather than attempting to time the market or chase returns. One effective approach could be to diversify their portfolio investments to maximize their profit potential.

Future research may incorporate exploring the causal mechanisms underlying the relationship between elections and stock markets, conducting comparative analyses across countries and regions, examining long-term effects, assessing policy implications and delving into the behavioral aspects of different market participants during election periods to further enhance our understanding of this complex relationship between politics and financial markets in Africa.

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