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Modeling the Interactive Relationship Between Macroeconomics and Institutions on Stock Market Liquidity in Sub-Saharan Africa

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Stock markets play a crucial role in enabling the easy exchange of financial assets globally. The effectiveness of stock markets worldwide, including those in sub-Saharan Africa, depends heavily on having sufficient liquidity. However, research shows that stock markets in sub-Saharan Africa often lack enough liquidity, leading to inefficiencies and high trading costs. Therefore, this study aimed at investigating the interactive relationship between macroeconomics and institutions on stock market liquidity in sub-Saharan Africa. The study adopted ex-post facto research design. The population of the study consisted of 26 stock markets in Sub-Sahara African countries. Purposive sampling technique was used to select 11 most prominent stock exchanges in terms of trade volume and market liquidity. The study employed secondary data sourced from World Governance Indicators, World Development Indicators between 1996 and 2023. The study employed Generalized Method of Moments (GMM) for the analysis. The findings of the study were that: the interaction of government effectiveness and macroeconomic index has a significant negative effect on stock market liquidity with (β = -0.431; p-value = 0.004); the interaction of regulatory quality and macroeconomic index has significant positive effect on stock market liquidity with (β = 0.521; p-value = 0.000); the interaction of rule of law and macroeconomic index has insignificant positive effect on stock market liquidity with (β = 0.434; p-value = 0.239); the interaction of political stability and absence of violence and macroeconomic index has a significant negative effect on stock market liquidity with (β = -0.083; p-value = 0.008); the interaction of control of corruption and macroeconomic index has a significant negative effect on stock market liquidity with (β = -0.463; p-value = 0.000); and the interaction of voice and accountability and macroeconomic index has a significant negative effect on stock market liquidity with (β = -0.501; p-value = 0.033). The study concluded that the interaction between macroeconomics and institutions affect stock market liquidity in sub-Saharan Africa. Therefore, the study recommended that investors should diversify their investment portfolios to mitigate risks and focus on markets with strong governance, regulatory quality, and political stability to achieve sustained returns on investment in the SSA region

1. Introduction

Stock markets serve as a cornerstone of financial systems, facilitating long-term financial intermediation, capital formation, critical to the functioning of economic activities across the globe including sub-Saharan Africa. The performance of stock market serves as a barometer of economic health. A well-functioning stock market is an indicator how effectively capital is allocated within the economy; and crucial for financing long-term investment projects in both developed and developing economies (Anjaly & Malabika, 2021; Bhattacharjee & Das, 2021).

Stock market liquidity is influenced by the interaction of both macroeconomic factors and institutional quality, which capture both the macroeconomic and institutional environments where stock trading activities take place. In other words, economies with favourable macroeconomic and robust institutional environments facilitate efficient mobilization, redistribution and reallocation of domestic and foreign resources that promote capital formation.

Literature has shown that macroeconomic variables such as interest rates, inflation, exchange rates, money supply, unemployment rates, among others; as well as indicators of institutional quality such government effectiveness, corruption control, political stability, regulatory quality, and rule of law are critical indicators of a country's financial health with notable influence on the sustained economic activities of any nation (Muhammad & Muhammad, 2023; Balagobei & Bandara, 2022). According to Ordue, Yua, Ityavyar and Tarnongo (2024), effects of macroeconomic factors are very intense, such that instead of affecting only one unit, they typically affect the economy at large, which, in turn, affects the liquidity of the stock market.

The sub-Saharan African stock markets, like every other stock markets in developing economies, are often affected by macroeconomic instability and inherent institutional weakness which may exert greatly influence on stock risk and returns. Recent studies such as Hedau (2024), Matar (2023), Sahoo (2023), Rehman (2021), Aluko and Kolapo (2020) have reported that these macroeconomic factors are less stable in developing economies including sub-Saharan Africa (SSA) compared to developed economies. As noted by Chen and Yen (2021), unstable macroeconomic instability, especially in emerging and developing economies, lead to instability in stock market liquidity and overall performance, which in turn lead to heightened risk, associated with stock returns and potential market crises.

Similarly, literature has shown that institutional quality like political stability, corruption control, government effectiveness, regulatory quality, and rule of law play a vital role in shaping investor confidence and fostering stock market performance. Strong institutional frameworks foster investor confidence by ensuring that market activities are fair, predictable, and protected against corruption and political instability, thereby encouraging greater market participation and increases liquidity (Ogbuabor et al., 2020; Wanjiru & Prime, 2020).

Countries with stable political environment and strong regulatory oversight will likely attract more foreign and domestic investors, as these indicators reduce the perceived risks associated with investments. As such, strong institutional framework promotes investor trust which makes more likely to invest in the stock market, leading to increased liquidity and market growth. This trust in the institutional framework, combined with favourable macroeconomic conditions, can lead to a more dynamic and resilient stock market (Ahmed et al. 2021; Ogbuabor, et al., 2020; Chen & Yen, 2021). However, institutional weakness such as corruption and political instability, hinder stock market maturity and discourage both domestic and foreign investors in the SSA region (Wanjiru & Prime, 2020; Ogbuabor, et al., 2020).

Efforts to stabilize macroeconomic factors and strengthen institutional frameworks in SSA include developing the banking sector, automating stock markets, improving governance, and protecting shareholders seems to have boosted performance in terms of more investors from within and outside the region. However, persistent challenges of low liquidity and trading volumes continue to limit stock market growth in the region (Muhammad & Muhammad, 2023; Mensah, et al., 2022; Pole & Cavusoglu, 2021).

Literature has shown that economies, particularly advanced economies, with strong institutional structures are better positioned to experience robust market liquidity, thereby exhibiting higher returns on equity and lower levels of risk. However, sub-Saharan Africa (SSA) stock markets were characterized with smaller sizes and higher volatility which have exposed the market to unique challenges from economic shocks such as 2008 financial crisis and COVID-19 pandemic (Chen & Yen, 2021).

1.2 Statement of the Problem

Stock markets are essential drivers of economic growth and development, providing a platform for capital formation, investment, and wealth creation. However, in Sub-Saharan Africa, stock markets witnessed constraints such as low liquidity and limited size, which undermine their potential to support growth and development. These limitations are driven by the interaction

of macroeconomic instability and weak institutional environment, both of which exert combined but varying levels of influence over stock market performance.

Macroeconomic instability and institutional weakness have led to declining market capitalization, low liquidity, and reduced investor confidence. For instance, African Capital Market News (2023) reported significant declines in stock market turnover across several SSA stock markets. Between 2021 and 2022, in Botswana stock market turnover fell from 9.15% to 4.48%; Ghana from 8.20% to 0.35%; Mauritius from 6.36% to 5.04%; Namibia from 3.75% to 1.95%; and Nigeria from 6.18% to 4.38%. In the same manner, across stock markets in the SSA region, the aggregate stock turnover dropped from 31.54% in 2021 to 26.17% in 2022 due to institutional weakness and macroeconomic instability, which may have reduced market liquidity and investor confidence (African Market News, 2023; Alabi, Asikhia & Binuyo, 2019).

Moreover, countries like Nigeria, Kenya, and Ghana exhibit declining market capitalization and liquidity, attributed to corruption, fluctuating interest rates, and weak governance (Global Market Report, 2023; Alabi et al., 2019). Kenyan stock market saw a 14.62% decline in market capitalization from $25.06 billion in 2019 to $21.40 billion in 2020; and 25.4% decline to $15.96 billion in 2021. Other African economies also face similar challenges. In Morocco, market capitalization grew by 0.24%, from $65.4 billion in 2019 to $65.6 billion in 2020, but fell by 5.36% in 2021 compared to 2018. Despite a 14.67% drop in 2009, Ghana's market capitalization increased by 281.02% in 2020, only to drop by 89.5% in 2021.

Nigeria’s market capitalization dropped from 8.6% to 7.34% in 2021, and the stock turnover rate fell from 12.7% to 9.5% within the same period. These were probably associated with challenges of stock illiquidity due to low investor patronage, caused by weak institutional quality and unstable macroeconomic environment which reflected in uncontrollable corruption, non-adherence to rule of law, political instability; fluctuating interest rates, inadequate money supply, unstable exchange rates, and high inflation (Global Market Report, 2023; Central Bank of Nigeria, 2021; Alabi et al., 2019). Thus, it could be summed up that majority of countries in Africa including SSA are subjected to similar challenges of unstable macroeconomic and weak institutional environment (World Bank Governance Rank Report, 2022; Babangida & Khan, 2021; Azeez & Obalade, 2019).

The challenges of low market liquidity, unstable macroeconomic indices, and weak institutional quality underscored the need for this study. The objective of this study is to investigate the interactive effect between macroeconomic index and institutional quality on stock market liquidity in sub-Saharan Africa.

The instability and rapid decline in stock market liquidity in the SSA region have garnered attention from scholars and stakeholders, emphasizing the need to investigate the effect of unstable macroeconomic variables and weak institutional qualities on stock market performance. Past related studies such as Omar, Ali, Mouneer, Kouser, and Al-Faryan (2022), Khandaker and Al Farooque (2021) and Karpuz and Özkan (2021) focused on the effect of institutional quality and macroeconomic factors on stock market performance. While Omar, Ali, Mouneer, Kouser, and Al-Faryan (2022) considered only corruption control out of six governance indicators; and Khandaker and Al Farooque (2021) and Karpuz and Özkan (2021) using only three out six governance indicators. However, excluding other institutional qualities and the failure to give attention to the interactive effect could lead to misleading outcome, thereby resulting in the loss of ability to formulate inclusive policy direction.

Furthermore, some studies also focused on the link between institutional quality and stock market performance, ignoring the interactive effect macroeconomic factors, these include Habib and Habib (2023), Jumaah et al. (2023), Darsono et al. (2022), Khandaker and Al Farooque (2021), Ahmed et al. (2021), Karpuz and Özkan (2021), and Modugu and Dempere (2020). Thus, predictive power of the study's model can be compromised due to the exclusion of important variables. In the SSA region, studies like Iyoboyi (2021) and Yakubu et al. (2021) only focused on institutional quality's impact on stock market performance in Nigeria and Ghana, respectively, neglecting the interactive effect macroeconomic factors. This can result in skewed interpretations where the role of one variable is overstated. Therefore, the need for this study to bridge the existing gap in macroeconomic variables.

2. Literature Review

Macroeconomic variables refer to indicators or primary signposts that indicate current economic trends. Macroeconomic variables include interest rates, inflation rates, foreign exchange rates, gross domestic product (GDP), economic growth rate, industrial production, international trade, money supply, among others. The IMF (2020) highlighted that key features of effective economic policies include achieving price stability, economic growth, full employment, and enhanced stock market performance and development.

Chang (2023) defines institutional quality as a set of measures that reduce uncertainty and promote human utility, comprising economic laws that regulate social, political, and economic activities in a nation. Demir and Hu (2020) describe institutional quality as societal regulations (e.g., standards on interpersonal connections) that, once established, govern the opportunities

and costs of particular activities. The primary aim of institutional factors is to provide a stable framework for interpersonal interaction, thereby minimizing uncertainty.

Çam and Özer (2021) emphasize that institutional factors are intended to lower transaction costs and improve transactional efficiency, serving as primary influencers of stock market and economic performance. Key components of institutional quality include government effectiveness, regulatory quality, rule of law, control of corruption, voice and accountability, political stability and absence of violence.

Stock market performance refers to how well specific stocks within the stock market are doing over certain period of time. The performance is viewed in terms of development and growth of market indices which enhance resource mobilization, capital formation and efficient allocation of capital to productive sectors of the economy. Umar and Shittu (2020) defined stock market performance in terms of progressive indicators such as market capitalization, trade volume, market liquidity and stock turnover, among other indices.

Naik and Reddy (2021) defined stock market liquidity as the market's ability to absorb a large volume of securities at a lower execution cost in a short period without affecting asset prices. Stock market liquidity is a critical attribute that supports the smooth operation of the market, whereas its absence creates market anxiety. Tiwari, Abakah, Karikari, and Gil-Alana (2022), and Akinmade, Adedoyin, and Bekun (2020) define stock market liquidity as the financial value of traded stocks over a period, measured by stock turnover, which is the ratio of the value of stock transactions to market capitalization.

According to Chebbi, Ammer, and Hameed (2021), trading volume and market turnover are the best indicators of stock liquidity, and investors should consider these factors before making any investment decisions in a stock exchange market. Leippold and Wolff (2022) used stock turnover, which is the ratio of volume traded to the total number of outstanding shares over a given period, to quantify stock market liquidity. In this study, stock market liquidity is taken as stock market turnover, which is calculated by dividing the value of stocks traded by the market capitalization. This is based on weekly data from stock market indicators like trade volume and market capitalization.

3. Methodology

3.1 Model Specification

This study adapted the model used by Habib and Habib (2023) in their study on the impact of institutional quality on the stock market of 43 emerging markets and developing countries. The Generalized method of moments (GMM) model is specified below:

$$[SR]_{it} = \alpha_i + \beta_1 [IQ]_{it} + [\beta]_2 [CV]_t + \mu_{it} \quad (1)$$

Where; SR represents stock market performance, IQ represents individual institutional quality factors, and institutional quality index and CV represents control variables which are Inflation, Exchange rate, GDP per capita.

However, modifications were made to the model to incorporate the interaction variable which is macroeconomic index constructed with the aid of principal component analysis (PCA). The macroeconomic index is made up of three macroeconomic factors including inflation rate as a proxy for reduction in purchasing power; exchange rate as the strength of one country's currency in relation to another country's currency; and money supply growth rate as a measure of yearly percentage increase or decrease in currency in circulation. As a result, two models were specified for this study. The first model examined the effect of institutional quality on stock market performance, while the second model examined the interactive effect between macroeconomic index and institutional quality on stock market performance.

Thus, the functional model for this study is specified as:

$$SML = f(GOV, RUL, REG, POL, VOI, COR, MI) \quad (2)$$

$$SML = f(MI*GOV, MI*RUL, MI*REG, MI*POL, MI*VOI, MI*COR) \quad (3)$$

The model is further stated in econometric form as:

$$[SML]_{it} = \alpha_{it} + \beta_1 [GEF]_{it} + \beta_2 [RUL]_{it} + \beta_3 [REG]_{it} + \beta_4 [POL]_{It} + \beta_5 [VOI]_{It} + \beta_6 [COR]_{It} + [MI]_{it} + \mu_{it} \quad (4)$$

$$[SML]_{it} = \alpha_{it} + \beta_1 [MI*GEF]_{it} + \beta_2 [MI*RUL]_{it} + \beta_3 [MI*REG]_{it} + \beta_4 [MI*POL]_{It} + \beta_5 [MI*VOI]_{It} + \beta_6 [MI*COR]_{It} + \mu_{it} \quad (5)$$

Where; SMLit = stock market liquidity; VOIit = voice and accountability; POLit = political stability; GOVit = government effectiveness; REGit = regulatory quality; RULit = rule of law; CORit = control of corruption; MI = macroeconomic index; μit = error term.

The research design employed in this study is ex post facto research design, which is suitable for analyzing historical data. The population of this study comprises 26 stock exchanges in Sub-Sahara African countries while the study samples consist of 11 most liquid stock exchanges in terms of trading volume which include Ghana Stock Exchange (GSE), Johannesburg Stock Exchange (JSE), Nairobi Securities Exchange (NSE), Stock Exchange of Mauritius (SEM), Mozambique Stock Exchange (BVM), Namibian Stock Exchange (NSX), Nigerian Exchange Group (NGX), Rwanda Stock Exchange (RSE), Tanzania Stock Exchange (DSE), Uganda Securities Exchange (USE), and Zimbabwe Stock Exchange (ZSE). Annual data covering the period 1996 and 2023 were used for this study. The data were sourced from World Governance Indicators (WGI) and World Development Indicators (WDI).

4. Data Presentation and Discussion of Findings

4.1 Preliminary Analyses: Descriptive statistics

Dataset representing the entire population or only a sample of it can be summarized using coefficients in descriptive statistics. The mean, median, and mode are examples of central tendency measures that provide information about the values of the data. On the other hand, measures of variability such as standard deviation and variance provide information about the dispersion of the data points.

Table 1: Descriptive Statistics

	Mean	Std. Dev.	Max	Min
Stock market liquidity	26.7783	138.939	1721.544	0.01467
Government effectiveness	-0.9711	0.3968	0.9900	-1.2100
Rule of law	-1.0336	0.4117	0.8400	-1.5100
Regulatory quality	-0.8928	0.3438	0.5600	-1.5500
Political stability	-1.7028	0.7336	1.6200	-2.2100
Control of corruption	-1.1496	0.1311	-0.9000	-1.500
Voice and accountability	-0.6553	0.2470	-0.3200	-1.5500

Macroeconomic index	0.0013	1.0000	3.4373	-1.0525

Source: Author's Computations (2024)

Stock market liquidity has a positive trend with mean value of 26.78, with minimum value of 0.014 to maximum value of 1721.54 which indicated that selected stock markets in the sub-Sahara (SSA) region gained increment in market liquidity. Furthermore, government effectiveness (GOV), regulatory quality (REG), rule of law (RUL), control of corruption (COR), voice and accountability (VOI), and political stability (POL) have negative mean values of -0.97, -0.89, -1.03, -1.15, -0.65 and -1.70, respectively, thereby showing negative trend of institutional quality across SSA countries. Likewise, GOV, REG, POL, RUL, COR and VOI have negative minimum value of -1.21, -1.55, -2.21, -1.51, -1.5 and -1.55, respectively. However, GOV, REG, POL and RUL have positive maximum values of 0.99, 0.56, 1.62 and 0.84 respectively, while COR and VOI have negative maximum values of -0.90 and -0.32 respectively.

4.2 Cross-Section Panel Dependence Test

In panel analysis, the cross-sectional dependence test, also known as the Pesaran's CD test, is used in panel data analysis to determine whether the cross-sectional units in the panel dataset are correlated with one another. This is important because the presence of cross-sectional dependence can affect the validity of econometric results, such as biasing standard errors and test statistics.

Table 2: Result of the Cross-section Dependence Test

Variables	t-statistic	p-value
SML	5.344	0.029**
REF	9.089	0.001**
RUL	4.456	0.018**
COR	7.004	0.008**
VOI	8.117	0.000**
POL	9.520	0.033**
GOV	5.298	0.049**
MI	11.011	0.006**

Source: Author (2024)

The results in Table 2 showed cross-sectional dependence in the data set, implying that errors are independent across cross-sections. This outcome meant that changes in stock market liquidity, institutional qualities (RQ, RL, COC, VA, PST, GE) and macroeconomic index (MI) in any of the sub-Saharan countries also has corresponding changes on other nations. After cross-sectional dependence test, stationarity checks were crucial since all of the predicted variables' integration orders should either be I(0) or I(1). The Im, Pesaran and Shin (2003), and Levin et al. (2002) unit root tests were used to look for signs of stationarity.

4.3 Panel Unit Root Tests

Table 3: Panel Unit-Root Test for Study

Variables	Im-Pesaran-Shin (IPS) Test		Levin-Lin-Chu (LLC) Test	
	Level	1st Difference	Level	1st Difference
SML	0.643	5.860**	0.412	8.564**
REG	4.771**	-	3.141**	-
RUL	5.087**	-	4.935**	-
COR	5.455**	-	3.241**	-
VOI	4.321**	-	7.110**	-
POL	8.886**	-	6.734**	-
GOV	9.188**	-	5.345**	-
MI	10.202**	-	8.632**	-

Source: Author (2024)

The results of the panel unit root tests were displayed in Table 3. The factors have unit roots at the individual level, according to the findings of the LLC and Im-Pesaran-Shin (IPS). It was discovered that the variables are stationary at level I(0) and first difference I(1). The mixture of level and first difference led to one step GMM. The benefits of GMM include the ability to estimate various variables with various orders of stationarity.

4.4 Generalized Method of Moments (GMM) Model

The Generalized Method of Moments (GMM) is used to estimate parameters of models when traditional methods, such as Ordinary Least Squares (OLS), may not be suitable due to endogeneity or other complexities. GMM is particularly useful for models with panel data and can handle potential issues like heteroskedasticity, autocorrelation, and omitted variable bias.

Table 4: GMM Model Result

Model One				Model Two			
Variables	Coeff.	Z	p-value	Variables	Coeff.	Z	p-value
Lag SML (-1)	0.6383	3.51	0.000	Lag SML (-1)	0.5473	5.35	0.000
Lag SML (-2)	0.0930	2.51	0.012	Lag SML (-2)	0.6270	9.68	0.000
GOV	-0.2133	2.27	0.023	MI*GOV	-0.4314	-4.31	0.000
REG	0.0588	2.07	0.048	MI*REG	0.5208	3.25	0.000
RUL	3.9632	-0.65	0.613	MI*RUL	0.4338	1.30	0.239
POL	7.2890	6.21	0.000	MI*POL	-0.0829	-3.77	0.008
COR	-2.6619	-2.59	0.010	MI*COR	-0.4627	4.04	0.000
VOI	-0.9042	-5.59	0.000	MI*VOI	-0.5006	2.49	0.033

MI	-0.0479	-5.71	0.000	C	2.8911	1.03	0.373
C	3.2501	2.82	0.005			
	Wald X^2 = 4.42 P >X^2 = 0.000 R^2 = 0.7617 AR (1) p-value = 0.0004 AR (2) p-value = 0.3304				Wald X^2 = 3.76 P >X^2 = 0.000 R^2 = 0.8001 AR (1) p-value = 0.0002 AR (2) p-value = 0.2147		

Source: Author (2024)

Table 6 displayed the GMM result.

4.4.2.1 Discussion of Findings

Government Effectiveness and Stock Market Liquidity

The result showed that government effectiveness has a significant negative effect on stock market liquidity in sub-Sahara Africa, implying that poor governance or inefficiencies in the institutional framework adversely affect stock market liquidity. Thus, inefficiencies in government operations such as corruption, bureaucratic delays, or lack of enforcement erode investor confidence, discouraging trading activity and reducing liquidity. Likewise, ineffective governance may foster uncertainty, causing market participants to adopt a "wait-and-see" approach, resulting in fewer trades and lower liquidity. This finding is consistent with the findings of Habib and Habib (2023) which found government effectiveness to have significant negative effect on stock market performance. Moreover, this finding aligns with new institutional economics theory's assertion that institutional changes, while beneficial in the long term, may create short-term disruptions or uncertainty, discouraging active participation in the stock market and reducing liquidity. However, this finding contradicts the findings of Iyoboyi (2021), Imran, Ejaz, Spulbar, Birau and Nethravathi (2020) which found government effectiveness to have a significant positive effect on stock market performance.

The result also showed that the interaction of government effectiveness and macroeconomic index has a significant negative effect on stock market liquidity in sub-Sahara Africa, implying that poor governance may reduce the capacity to implement sound macroeconomic policies, exacerbating the negative effects of macroeconomic factors such as inflation, exchange rate volatility, and money supply fluctuations on stock market liquidity. Sub-Saharan Africa's financial markets are often characterized by limited market depth, low capitalization, and heavy reliance on foreign investment. Poor governance exacerbates these weaknesses, making the stock markets more vulnerable to macroeconomic shocks. Hence, poor governance, combined with unfavourable macroeconomic conditions, can heighten uncertainty and risk

aversion among investors, leading to lower trading activity and reduced liquidity. Ultimately, this weakens the ability of economies to maintain stable and liquid stock markets.

Regulatory Quality and Stock Market Liquidity

The results showed that regulatory quality has a significant positive effect on stock market liquidity in sub-Saharan Africa, implying that strong, clear, consistent, and well-enforced regulations minimize uncertainties, making investors feel secure about participating in the stock market, leading to higher trading activity and increased liquidity. Moreover, strong regulatory quality reduces the risks of fraud, insider trading, and market manipulation. A transparent trading environment encourages more investors to participate, which directly contributes to better stock market liquidity. Regulatory quality ensures that financial markets operate efficiently by enforcing rules, monitoring compliance, and addressing irregularities promptly. This finding is consistent with the findings of Darsono, Wong, Nguyen, Jati and Dewanti (2022), Fagbemi, Adeosun, and Bello (2021), Iyoboyi (2021) which found regulatory quality to have positive effect on sustainable investment returns. Additionally, this finding aligns with new institutional economics theory's central idea that regulatory quality provides a stable institutional environment that can cushion markets against macroeconomic shocks. As such, well-regulated markets are less prone to erratic fluctuations, encouraging continuous trading activity and maintaining liquidity even in turbulent times. However, this finding contradicts the findings of Habib and Habib (2023), Modugu and Dempere (2020) which found regulatory quality to have a significant negative effect on stock market performance.

In the same manner, the result showed that the interaction of regulatory quality and macroeconomic index has significant positive effect on stock market liquidity in sub-Sahara Africa, implying that the combination of strong regulatory frameworks and favourable macroeconomic conditions can create a synergistic environment that boosts stock market liquidity. In other words, stable macroeconomic conditions lower systemic risks, while regulatory quality ensures that these conditions are effectively leveraged to create a predictable investment environment. As such, strong regulatory frameworks enhance the benefits of stable macroeconomic conditions (e.g., controlled inflation, stable exchange rates, and adequate money supply). Investors are more likely to trade in a stable and well-regulated environment, leading to higher market liquidity. This is because stable macroeconomic conditions reduce risk aversion, while strong regulations encourage active trading by safeguarding investments. Therefore, regulatory quality ensures fair and transparent markets, while macroeconomic stability reduces uncertainties related to external factors. This

combination encourages both domestic and foreign investors to participate actively in the stock market.

Rule of Law and Stock Market Liquidity

The results showed that rule of law has a significant positive effect on stock market liquidity in sub-Saharan Africa, implying that environments where laws are well-established, consistently enforced, and respected by both the government and the public contribute positively to the functioning of stock markets. Enforcing the rule of law helps minimize fraudulent activities and market manipulation. This fosters fair trading practices and encourages more participants in the stock market, which increases trading volumes and liquidity. Well-defined rule of law ensure that investors have ownership over their assets without fear of arbitrary seizure or interference. This assurance makes investors more willing to buy, sell, and hold assets, contributing to market liquidity. This finding is consistent with the findings of Ahmed et al. (2021), Modugu and Dempere (2020) which found rule of law to have a significant positive impact on stock market performance. Moreover, this finding aligns with new institutional economics theory's assertion that rule of law, as a cornerstone of institutional quality, ensures a transparent and predictable legal framework. However, the finding contradicts the findings of Habib and Habib (2023), Jumaah, Bahrudin, Muda, Sahudin and Abdullah (2023), Khandaker and Al Farooque (2021), Iyoboyi (2021) which found rule of law to have a significant negative impact on stock market performance.

However, the result showed that the interaction of rule of law and macroeconomic index has insignificant positive effect on stock market liquidity in sub-Sahara Africa, implying that the strength of the rule of law alone may not be enough to offset the effect of unstable macroeconomic conditions like inflation, exchange rates, and money supply. In other words, when inflation is high, exchange rates are volatile, or money supply is constrained, these factors may overshadow the potential benefits of a strong rule of law. As such, if macroeconomic conditions are unstable, they may dilute the potential benefits of a strong rule of law. Even with good governance and enforcement mechanisms, unfavourable macroeconomic indices (e.g., high inflation or volatile exchange rates) could discourage market activity, leading to the observed insignificant interaction effect. Therefore, in markets with history of instability, investors may remain wary of relying solely on legal protections, especially if macroeconomic conditions remain volatile.

Political Stability and Stock Market Liquidity

The result showed that political stability and absence of violence has a positive and significant effect on stock market liquidity in sub-Saharan Africa, implying that stable and peaceful political environment is conducive to higher levels of trading activity and investment in the stock market. Political stability and the absence of violence contribute to a safer investment environment. Investors are more likely to participate in stock market activities when they feel confident that their investments are not at risk from political turmoil or violence. This trust leads to higher liquidity as more participants enter the market and trade more frequently. This finding is consistent with the findings of Jumaah, Bahrudin, Muda, Sahudin and Abdullah (2023), Darsono, Wong, Nguyen, Jati and Dewanti (2022), Karpuz and Özkan (2021), Modugu and Dempere (2020) which found political stability and absence of violence to have a significant positive effect on stock market performance. In addition, this finding validates new institutional economics theory's central claim that that stable political environments reduce uncertainties and transaction costs for economic agents. Political stability minimizes risks associated with governance disruptions, allowing investors to operate in a predictable market environment, thereby fostering higher trading volumes and enhances stock market liquidity. However, this finding contradicts the findings of Habib and Habib (2023), Iyoboyi (2021) which found political stability and absence of violence to have a significant negative effect on stock market performance.

The result also showed that the interaction of political stability and absence of violence and macroeconomic index has a significant negative effect on stock market liquidity in sub-Sahara Africa, implying that under certain macroeconomic conditions, the benefits of political stability and the absence of violence may be outweighed by economic challenges. For example, if the macroeconomic index reflects high inflation, exchange rate volatility, or poor economic growth, the positive impact of a stable political environment might not be sufficient to sustain stock market liquidity. Thus, investors could be more concerned about economic fundamentals than political stability, leading to reduced trading activity.

In countries plagued with macroeconomic instability like those in sub-Saharan Africa (e.g., high inflation or exchange rate fluctuations), investors might become risk-averse, even in politically stable environments. This risk aversion could cause investors to move their assets to safer alternatives, such as foreign currencies or precious metals, rather than participating actively in the stock market. Likewise in cases of high inflation, the real returns on investments can become unattractive. Investors may perceive that the potential returns in the stock market do not adequately compensate for the risks. During periods of economic distress, even politically

stable countries might experience capital flight, where investors move their assets out of the country to seek more secure or profitable investments elsewhere. This movement can reduce liquidity in the domestic stock market, making it harder for market participants to trade freely.

Control of Corruption and Stock Market Liquidity

The result showed that control of corruption has a significant negative effect on stock market liquidity in sub-Sahara Africa, implying that the implementation of anti-corruption measures can disrupt established informal networks and practices, creating uncertainty for market participants. This uncertainty can reduce trading activity, negatively affecting liquidity. This could dampen trading activity, thus reducing liquidity. Investors may be wary of increased scrutiny and the potential for sanctions or enforcement actions, leading to lower market participation. Hence, effective control of corruption may curb speculative trading or unregulated activities in the market, which often contribute to high liquidity but do not necessarily indicate market efficiency. As corruption is curtailed, investors might shift their attention to more transparent and regulated sectors outside the stock market, reducing activity in equities.

This finding is consistent with the findings of Habib and Habib (2023), Darsono, Wong, Nguyen, Jati and Dewanti (2022) which found control of corruption to have significant negative effect on stock market performance. Additionally, this finding aligns with new institutional economics theory's assertion that in environments where corruption is deeply entrenched, attempts to control it may initially disrupt established informal systems. These disruptions can increase uncertainty and reduce the efficiency of market operations, negatively affecting liquidity. However, this finding contradicts the findings of Iyoboyi (2021), Ahmed et al. (2021) which found control of corruption to have significant positive effect on stock market performance.

The result also showed that the interaction of control of corruption and macroeconomic index has a significant negative effect on stock market liquidity in sub-Sahara Africa, implying that in region like the SSA region with high inflation, exchange rate volatility, or unstable money supply, anti-corruption measures might introduce additional uncertainty, discouraging investors already grappling with challenging economic conditions. When macroeconomic fundamentals are weak, anti-corruption measures may be perceived as restrictive or punitive in the short term, reducing investor confidence and trading activity. In addition, investors might doubt the credibility or consistency of anti-corruption efforts, leading to reduced participation in stock markets. Therefore, poor macroeconomic conditions may erode the capacity of financial institutions to support liquidity-enhancing mechanisms (e.g., market-

making, efficient trading platforms), and controlling corruption alone cannot compensate for these weaknesses.

Voice and Accountability and Stock Market Liquidity

The results showed that voice and accountability has a significant negative effect on stock market liquidity in sub-Saharan Africa, implying that the public has limited influence over government decisions, and there is a lack of transparency and responsiveness from authorities. This can create an environment of uncertainty and distrust among investors, as they perceive the market and government actions to be less predictable and possibly skewed in favour of private or elite interests rather than public welfare. This finding is consistent with the findings of Iyoboyi (2021), Modugu and Dempere (2020) which found voice and accountability to have a significant negative impact on stock market performance. Moreover, the finding aligns with new institutional economics theory's view that political stability minimizes disruptions, such as violence or instability, that can increase transaction costs for investors. However, Jumaah, Bahrudin, Muda, Sahudin and Abdullah (2023), Habib and Habib (2023), Karpuz and Özkan (2021), Ahmed et al. (2021) found voice and accountability to have significant positive effect on stock market performance.

The result also showed that the interaction of voice and accountability and macroeconomic index has a significant negative effect on stock market liquidity in sub-Sahara Africa, implying that macroeconomic conditions (e.g., inflation, exchange rate volatility, money supply) coupled with poor voice and accountability will result in lower stock market liquidity. Governments may be unresponsive to public demands or needs, and policies are enacted without sufficient public input. When governments are not accountable or do not actively engage with their citizens, policies may be imposed in a top-down manner without considering public opinion or economic consequences. Poor accountability often translates to opaque governance practices, where the lack of a clear and transparent communication between governments and stakeholders amplifies perceived risks, discouraging market participation. This can create an environment where investors become risk-averse and withdraw from the market, reducing overall liquidity. This can also deter foreign investors, who may view the market as too risky or poorly regulated.

Macroeconomic index and Stock Market Liquidity

The results showed that macroeconomic index has a significant negative effect on stock market liquidity in sub-Saharan Africa, implying that that unfavorable macroeconomic conditions adversely impact the ability of the stock market to facilitate active trading and efficient

resource allocation. Poor macroeconomic conditions often push investors to withdraw from the stock market and invest in less risky assets, such as government bonds, foreign currencies, or even commodities like gold. This shift reduces the volume of transactions in the stock market, lowering liquidity. High inflation, for instance, erodes investor wealth, distorts market expectations and valuations, making stock trading less attractive. Similarly, exchange rate volatility increases uncertainty, discouraging foreign investors who are concerned about currency risks and reducing liquidity. Moreover, poorly managed money supply (e.g., too tight or too loose) can restrict access to credit or lead to inflationary pressures, both of which can negatively affect market liquidity.

This finding is consistent with the findings of Phuong (2020) which found macroeconomic factors such as inflation to have a negative on stock market performance. Sara and Rozina (2021), Norehan and Ridzuan (2020) found money supply to have significant negative effect on the stock market performance. Mohammed et al. (2023), Udo et al. (2022), Balagobei and Bandara (2022), Anjaly and Malabika (2021) found exchange rate and inflation to have significant negative effect on the stock market performance.

Likewise, this finding aligns with the arbitrage pricing theory's view that asset returns are influenced by systematic risks, which arise from macroeconomic factors such as inflation, interest rates, exchange rates, and money supply. These factors are pervasive and cannot be eliminated through diversification. When adverse macroeconomic conditions prevail (e.g., high inflation or unstable exchange rates), they increase uncertainty and transaction costs, leading to reduced trading activity and lower liquidity in the stock market. However, this finding contradicts the findings of Ordue et al. (2024), Udo et al. (2022), Norehan and Ridzuan (2020), Muritala et al. (2020) which found inflation rates and exchange rates to have significant positive effect on the stock market performance. Balagobei and Bandara (2022), Anjaly and Malabika (2021), Khandaker and Al Farooque (2021) found money supply to have significant positive effect on the stock market performance.

5. Conclusions and Recommendations

The study concluded that the interaction between macroeconomics and institutional quality affect stock market liquidity in sub-Saharan Africa. Therefore, the study recommended that investors should diversify their investment portfolios to mitigate risks associated with volatile macroeconomic environments and focus on markets with strong governance, regulatory quality, and political stability to achieve sustained returns on investment. Policymakers should

focus on stabilizing macroeconomic indices through prudent monetary and fiscal policies and implement reforms that improve governance, regulatory quality, and legal protections to build investor confidence, attract foreign capital, and enhance stock market performance.

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