

The Mediating Effect Of Market Liquidity On The Relationship Between Financial Liberalization And Stock Market Returns Among East Africa Community Member Countries

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Abstract

The motivation for this study stems from the critical role of financial markets in economic development and the need to understand the factors influencing stock market performance in the East African Community (EAC) member countries. Financial liberalization, market liquidity, and macroeconomic stability are pivotal in shaping stock market returns. However, empirical studies examining these relationships within the EAC context are limited, prompting this comprehensive analysis. The general objective of this study was to investigate the effect of financial liberalization, market liquidity, and macroeconomic factors on stock market returns among EAC member countries. The study was anchored on the theory of financial liberalization, neoclassical theory, efficient market hypothesis, behavioral finance theory, and the general theory of employment, interest, and money. Data were collected from secondary sources, including financial reports, stock exchange databases, and relevant economic databases, covering the period from 2002 to 2021. The study employed fixed-effects regression models, chosen based on the Hausman specification test, to control for unobserved heterogeneity across countries. Baron and Kenny's approach was used to test for mediation and moderation effects. The analysis involved examining the direct and mediating relationships between the key variables. The findings revealed that financial liberalization significantly and positively affects stock market returns. Conversely, market liquidity was found to mediate this relationship, enhancing the positive effects of financial liberalization. The study concludes that financial liberalization is a crucial determinant of stock market performance in the EAC region. Market liquidity plays a significant role in amplifying the benefits of financial liberalization. For policymakers, the study recommends policymakers in EAC should focus on developing infrastructure that supports efficient trading systems. This recommendation is based on the finding that higher market liquidity significantly boosts the positive effects of foreign assets and liabilities on stock market returns.

Keywords: *Financial liberalization, foreign assets, foreign liabilities, market liquidity, stock market returns*

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I. Introduction

Background

The relationship between financial liberalization and stock market returns equalizes access to credit, reduces variations in expected returns. Financial liberalization broadens investor base and causes reduction in stock market returns volatility. The rationale for financial liberalization has been based on two potential benefits. First is quantity effect, manifested in higher levels of savings and investment in an economy, and secondly, quality effect, manifested in a more efficient allocation of capital. Bensethom (2021) document that increasing degree of financial liberalization broadens investor base and causes reduction in stock market returns volatility. Wu et al. (2017) opine that financial liberalization aids in streamlining the functioning of local financial markets because restricting liberalization on international portfolio flows improves the liquidity of stock markets which in return enhances stock market returns. Indeed, Adeyeye et al. (2017) and Sarr and Lybek (2017) explain how liquidity relates to stock market returns because the ease of trading financial instruments such as stocks occasioned by liquidity is of fundamental importance to financial markets, listed companies and investors. Macro-economic

factors are expected to influence the strength of the relationship between liberalization and stock market returns (Abiad, et al., 2018).

Globally, the relationship between financial liberalization, market liquidity, and macroeconomic factors plays a pivotal role in shaping stock market returns. As financial markets become more integrated, the removal of capital flow restrictions through liberalization has facilitated greater investment opportunities and enhanced market liquidity, fostering more efficient price discovery (Wu et al., 2017). Nevertheless, the association between financial liberation, market liquidity, and macroeconomic factors on stock market returns is causal in character even though its direction is yet to be clarified as noted by Adeyeye et al. (2017). Market liquidity is increasingly being shaped by advanced trading technologies and institutional investors, shifting from traditional market makers to a broader ecosystem of automated systems and high-frequency traders, under the influence of decentralized liquidity provision. Enhanced market liquidity not only attracts more investors but also contributes to a more dynamic and resilient financial market structure (Njikam, 2017; Crockett, 2018). Macroeconomic factors are broadening to include global economic shifts and geopolitical risks. Indeed, the increasing integration of economies indicates that the relationship between financial liberalization and stock market returns will increasingly depend on factors such as exchange rate stability, inflation control, and interest rate management, which directly influence investor confidence, capital flows, and market performance. Atsin and Ocran (2019) note factors like interests, production, risk premiums, inflation, money supply being critical factors explaining stock market returns.

Problem Statement

The stock markets of EAC countries have experienced varying returns despite financial liberalization efforts aimed at enhancing market efficiency. However, the interplay of market liquidity and macroeconomic factors remains unclear, potentially affecting stock market performance. Bensethom (2021) document that increasing degree of financial liberalization broadens investor base and causes reduction in stock market returns volatility. Sarr and Lybek (2017) illustrate how liquidity relates to stock market returns because the ease of trading financial instruments such as stocks occasioned by liquidity is of fundamental importance to financial markets, listed companies and investors. However, the interplay of market liquidity and macroeconomic factors remains unclear, potentially affecting stock market performance.

In EAC, as noted by Sanya and Gaertner (2017), the level of financial intermediation in the region is low and access to financial services remains limited. Less than a third of the population in Rwanda, Tanzania, and Uganda have access to the formal financial system. Even in Kenya and Uganda, a large segment of the population utilize informal financial services. The limited access to finance remains a key constraint on growth across the region, limiting the scope for smaller, less well-established firms to finance investment through the formal systems. For the years 2017 – 2021 the EAC focus is the establishment of distinct customs territory, expansion of infrastructure, mobility of factors of production, industrial development, promotion of good governance and institutional reforms (East African Community, 2017). Following the financial liberalization of the EAC community, it was important to conduct a study on how this affects stock market returns and the influence of market liquidity and macro-economic factors on this relationship. Although there are previous studies in this area, there exist a contextual gap as they were conducted in settings which are different from EAC. Market led integration focusing on the elimination of tariff and non-tariff barriers have been the hallmark of African integration efforts. Cooperation in trade liberalization and development is one of the pillars of the EAC. The trade liberalization initiative under the EAC is to be achieved through a series of steps, starting with establishment of a customs union, followed by a common market and eventually a monetary union

Studies linking market liquidity on the relationship between financial liberalization and stock market returns of firms globally arrive at inconclusive results. These indecisive results emerge out of a range of factors, which include the approaches used to operationalise the study variables, the variables and control variables selected, the econometric models adopted, and divergences that obtain at contextualization. These factors in turn create conceptual gaps, methodological gaps and contextual gaps across the range of these studies. For instance, some studies focused on two variables, while conceptually, the link between financial liberalization and stock market returns could not possibly be direct without being explained by other variables. Moreover, many studies on relationship between financial liberalization and stock market returns have been undertaken in European and Asian countries. This jurisdiction exhibits contextual differences with EAC in terms of technological sophistry, social security culture, the age / level of development of stock market, regulatory environment, and the level of economic development. These dissimilarities give rise to contextual gaps that would make findings in those jurisdictions not directly fit into the EAC setting.

Cheng and Wang (2022) analyzed the impact of market liquidity on stock market returns in emerging Asian markets. The study used panel data from 2005 to 2020 and employed fixed-effects regression models. The findings indicated that market liquidity, measured by trading volume and bid-ask spreads, significantly enhances stock market returns; however, the study exhibits This study highlights the critical role of liquidity in emerging

markets but presents a contextual gap as it focuses on Asian markets rather than the EAC region. The current study has considered an intervening variable and a moderating variable to define the process, direction, and strength of the link between market liquidity on stock market returns in EAC region.

Lee and Park (2020) investigated the effects of market liquidity on stock market performance in Latin American countries. Using panel cointegration techniques, the study found a significant long-term relationship between liquidity measures (trading volume and turnover ratio) and stock market returns. This study provides evidence of the critical role of liquidity in enhancing market performance but focuses on Latin American markets, which differ economically and structurally from the EAC markets, thus presenting a geographical and contextual gap.

Saliya (2020) conducted a study on stock market development and market liquidity in Fiji. A mixed-method approach was employed: autoregressive distributed lag (ARDL) testing framework was used to estimate the influence of the structural determinants in Fiji while descriptive and narrative analysis was used to explain the status. The study findings partially confirmed the findings of previous studies. The findings that economic growth promotes stock market development which is consistent with previous findings. Many determinants, which have been shown to have significant impact on stock market development in other studies, did not show any significant impact in the Fijian context, particularly the stock market liquidity showed no correlation to stock market development. The study presents a conceptual gap as it did not consider financial liberalization and its effect on stock market returns and how market liquidity affects the relationship.

Local studies on corporate governance and efficiency of firms show no unanimity either as of the kind of the relationship existing between the two variables or even the inherent impact of regulation and risk management. Mwangi and Ochieng (2021) examined the relationship between market liquidity and stock market returns in Sub-Saharan Africa. The study utilized a panel data set from 2010 to 2020, applying dynamic panel data models to control for endogeneity. The results demonstrated that market liquidity positively impacts stock market returns across the sampled countries. This study reinforces the importance of liquidity but does not specifically address the unique conditions of the EAC markets, thereby presenting a regional gap that the current study aims to fill. Rono (2018) sought to investigate the influence of stock market liquidity on returns at NSE. The predictor variable was stock market liquidity as measured by monthly stock trading volumes. The study employed a correlational research design and multiple linear regression model was adopted to analyze the relationship between these variables. The results revealed that stock market liquidity has a strong and significant correlation with stock market returns at the NSE. The study presents a conceptual gap as it did not consider financial liberalization and its effect on stock market returns and how market liquidity affects the relationship. Kahuthu (2017) sought to investigate if stock market liquidity has any influence on stock returns of companies listed at NSE from 2017 - 2016. The study used descriptive research design. The findings showed that market depth was insignificant to stock returns whereas the market width was significant to the stock returns. Moreover, majority of market participants alleged that market width and depth were both significant to stock return. In addition, liquidity was significant to stock returns. The study presents a conceptual gap as it did not consider financial liberalization, and its effect on stock market returns and how market liquidity affects the relationship.

II. Literature Review

Theoretical Foundation

This study on stock market returns draws from key theoretical frameworks. The Theory of Financial Liberalization explores how deregulation impacts market efficiency. The Neoclassical Theory emphasizes capital accumulation's role in growth, while the Efficient Market Hypothesis (EMH) posits that stock prices reflect all available information. Behavioral Finance Theory examines psychological factors influencing investor behavior, and the General Theory of Employment, Interest, and Money addresses the macroeconomic effects of interest rates and policies on financial markets.

The financial liberalization concept is often used to describe an atomized financial system, with no financial repression. It results from adopting appropriate policies, such as comparing real rates of returns to real finance stock. In contrast, shallow systems result from the challenges faced in the relative financing process. It contends that an improved monetary system has the potential to create opportunities for institutions to make profits and from bill dealers to industrial banks and insurance firms. Financial depth positively influences growth through the improvement potential of investments. This link further confirms the positive role that financial liberalization has on stock market returns

Neoclassical theory states that through financial liberalization, developing nations can improve growth and savings, and cause a reduction on overdependence on foreign capital. The theorists behind financial liberalization make an argument that it should improve savings and investment in developing nations thereby resulting in higher growth. However, Keynesian economists argue that positive impacts of liberalization on savings and investment are doubtful. It is illustrated that liberalization of foreign capital and banks has the effect of enhancing the functioning of the local financial system. Thus, international financial integration as a form of

liberalization can stimulate the operations of local financial systems, which encourage improvements in the allocation of resources and accelerates growth in the economy.

Behavioural finance theory outlines the behaviours and biases preventing human beings from being rational. The effect of these biases are that they cause people to hold stereotypes, and engage in decision-making which is founded on a whimsical starting point, and make an evaluation of the probability that an event will occur that is based on similar events. Behavioural finance presupposes that heuristic errors and biases, emotions, frame dependence, and social influence affect the prices of stock and thereby these prices may not show the true intrinsic value.

Efficient Market Hypothesis advanced the view that the trading value for stocks is usually its fair value and consequently, it is not possible for purchase of undervalued stocks by investors or inflate prices of stocks in sale arrangements. Based on the above, expert market timing or stock selection would not result into outperforming the market at large hence the investor's only way of obtaining returns which are higher is by chance or by buying investments that are riskier

Empirical Review

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III. Research Methodology

This study employed a descriptive longitudinal research design. Descriptive design was used to describe variables of the study and to establish the interrelationships among the study variables. The longitudinal research design was adopted because the study variables namely the financial liberalization, market liquidity, macro-

economic factors and stock market returns change over time. This design, therefore, allowed for the collection of data on the same study variables repeatedly over a long period of time in order to establish the trend and relationship. Descriptive longitudinal design was also chosen because it gives the researcher more data points which reduces collinearity and increases the degree of freedom among the explanatory variables (Hsiao, 2007). The target population of the study consisted of the six member countries in the East African Community (EAC): Kenya, Uganda, Tanzania, Rwanda, Burundi, and South Sudan. However, the study focused on the four countries with active stock exchanges during the study period from 2002 to 2021: Kenya, Uganda, Tanzania, and Rwanda.

The study utilized Secondary Panel data on the variables namely; financial liberalization, market liquidity, macro-economic factors and stock market returns among the EAC member states for the period between 2002 and 2021. Annual data on gross domestic product, foreign assets, foreign liabilities, long term asset returns, short term asset returns, yield to maturity, trading volume, change in price, broad money and all share index were collected from the respective countries national research and statistics bureaus as well as securities exchanges. Regression analysis was used to find the connection between the study variables.

Baron and Kenny four step procedure

Hierarchical Regression Analysis

Step 1: $Y = f(X_1)$ is similar to test of H_1

Step 2: $X_2 = f(X_1)$

Step 3: $Y = f(X_3)$

$$Y_j = f(X_3) = a + \beta_1 X_{31} + \beta_2 X_{32} + \beta_3 X_{33} + \beta_4 X_{34} + \varepsilon$$

Step 4: $Y = f(X_1, X_3)$

Where:

Y = output

X_1 = Financial liberalization

X_2 = Market Liquidity element

The null hypothesis (H_0) was rejected if the p-value obtained from the joint effect model (considering all three variables together) was less than 0.05. This indicates that the combination of financial liberalization, market liquidity and macroeconomic factors have no significant effect on the significantly affects the stock market returns of EAC member countries.

IV. Findings And Discussion

The objective of this study was to analyze the effect of market liquidity on the relationship between financial liberalization and stock market returns among EAC member countries. The study aimed to understand whether market liquidity mediates the impact of financial liberalization on stock market performance. The study utilized Baron and Kenny's (1986) four-step approach for testing mediation effects. In Step 1, the Fixed-Effects regression model assesses the direct association between foreign assets and stock market returns. As presented in Table 1, the coefficient for foreign assets is 0.436952 with a standard error of 0.044363 and a highly significant P-value of 0.000. This indicates a strong positive relationship between foreign assets and stock market returns, suggesting that an increase in foreign assets significantly enhances stock market performance. The R-squared value of 0.5988 indicates that approximately 59.88% of the variation in stock market returns can be explained by foreign assets. The highly significant F-statistic (Prob > F = 0.0000) confirms the overall model fit.

Table 1: Foreign Assets and Stock Market Returns

Stock market returns	Coef.	Std. Err.	P>t
Foreign assets	0.436952*	0.044363	0.000
_cons	-0.22079	0.642749	0.732
R-squared	0.5988		
F(1, 68)	97.01		
Prob > F	0.0000		

* p<0.05

Step 2 investigates the relationship between the independent variable (foreign assets) and the mediator variable (market liquidity). Table 2 shows that the coefficient for foreign assets is 0.212816 with a standard error of 0.016042 and a highly significant P-value of 0.0000. This result indicates that foreign assets positively influence market liquidity, with higher foreign assets leading to improved liquidity in the market. The R-squared value of 0.7303 suggests that 73.03% of the variation in market liquidity can be explained by foreign assets, and the highly significant F-statistic (Prob > F = 0.000) confirms the model's robustness.

Table 2: Foreign Assets and Market Liquidity

Market liquidity	Coef.	Std. Err.	P>t
Foreign assets	0.212816*	0.016042	0.0000
_cons	0.638709*	0.232421	0.0008
R-squared	0.7303		
F(1, 68)	176.00		
Prob > F	0.000		

* p<0.05

In Step 3, the regression analysis evaluates the association between the mediator (market liquidity) and the dependent variable (stock market returns). Table 3 reveals that the coefficient for market liquidity is 1.788725 with a standard error of 0.172839 and a highly significant P-value of 0.000. This indicates a strong positive relationship between market liquidity and stock market returns, suggesting that increased market liquidity significantly boosts stock market performance. The R-squared value of 0.6223 indicates that 62.23% of the variation in stock market returns is explained by market liquidity, and the highly significant F-statistic (Prob > F = 0.000) confirms the model's validity.

Table 3: Market Liquidity and Stock Market Returns

Stock market returns	Coef.	Std. Err.	P>t
Market liquidity	1.788725*	0.172839	0.000
_cons	-0.54872	0.643401	0.397
R-squared	0.6223		
F(1, 68)	107.10		
Prob > F	0.000		

* p<0.05

In Step 4, the analysis examines the combined effect of foreign assets and market liquidity on stock market returns. Table 5.8 shows that the coefficient for foreign assets is 0.208677 with a standard error of 0.079347 and a significant P-value of 0.011. Additionally, the coefficient for market liquidity is 1.072641 with a standard error of 0.31862 and a highly significant P-value of 0.001. This indicates that both foreign assets and market liquidity positively and significantly affect stock market returns. The R-squared value of 0.6592 suggests that 65.92% of the variation in stock market returns is explained by these two variables, and the highly significant F-statistic (Prob > F = 0.0000) confirms the model's overall fit.

Table 4: Foreign Assets, Market Liquidity and Stock Market Returns

Stock market returns	Coef.	Std. Err.	P>t
Foreign assets	0.208677*	0.079347	0.011
Market liquidity	1.072641*	0.31862	0.001
_cons	-0.90589	0.630771	0.156
R-squared	0.6592		
F(2, 64)	61.88		
Prob > F	0.0000		

* p<0.05

Based on the results from all four steps of the mediation analysis, we can conclude that market liquidity has a significant mediating effect on the relationship between foreign assets and stock market returns. Given that foreign assets significantly impact stock market returns both directly (Step 1) and through market liquidity (Steps 2, 3, and 4), the null hypothesis H_{01a} , which states that market depth has no significant intervening effect on the relationship between country foreign assets and stock market returns, is rejected.

To determine whether market liquidity mediates on the relation between foreign liabilities and stock market returns, the four-step approach provided by Baron and Kenny (1986) for investigating mediation effects was employed. In Step 1, the Fixed-Effects regression model assesses the direct association between foreign liabilities and stock market returns. As shown in Table 5, the coefficient for foreign liabilities is 0.04792 with a standard error of 0.01806 and a significant P-value of 0.008. This indicates a positive relationship between foreign liabilities and stock market returns, suggesting that an increase in foreign liabilities significantly enhances stock market performance. The R-squared value of 0.1184 indicates that approximately 11.84% of the variation in stock market returns can be explained by foreign liabilities. The significant F-statistic (Prob > F = 0.008) confirms the overall model fit.

Table 5: Foreign Liabilities and Stock Market Returns

Stock market returns	Coef.	Std. Err.	P>t
Foreign liabilities	0.04792*	0.01806	0.008

_cons	6.63361*	0.49468	0.000
R-squared	0.1184		
F(1, 68)	7.04		
Prob > F	0.008		

* p<0.05

Step 2 investigates the relationship between the independent variable (foreign liabilities) and the mediator variable (market liquidity). Table 6 shows that the coefficient for foreign liabilities is 0.11147 with a standard error of 0.007974 and a highly significant P-value of 0.000. This result indicates that foreign liabilities positively influence market liquidity, with higher foreign liabilities leading to improved liquidity in the market. The R-squared value of 0.355 suggests that 35.5% of the variation in market liquidity can be explained by foreign liabilities, and the highly significant F-statistic (Prob > F = 0.000) confirms the model's robustness.

Table 6: Foreign Liabilities and Market Liquidity

Market liquidity	Coef.	Std. Err.	P>t
Foreign liabilities	0.11147*	0.007974	0.000
_cons	3.744371*	0.257367	0.000
R-squared	0.355		
F(1, 68)	19.5		
Prob > F	0.000		

* p<0.05

In Step 3, the regression analysis evaluates the association between the mediator (market liquidity) and the dependent variable (stock market returns). Table 7 reveals that the coefficient for market liquidity is 1.788725 with a standard error of 0.172839 and a highly significant P-value of 0.000. This indicates a strong positive relationship between market liquidity and stock market returns, suggesting that increased market liquidity significantly boosts stock market performance. The R-squared value of 0.6223 indicates that 62.23% of the variation in stock market returns is explained by market liquidity, and the highly significant F-statistic (Prob > F = 0.000) confirms the model's validity.

Table 7: Market Liquidity and Stock Market Returns

Stock market returns	Coef.	Std. Err.	P>t
Market liquidity	1.788725*	0.172839	0.000
_cons	-0.54872	0.643401	0.397
R-squared	0.6223		
F(1, 68)	107.1		
Prob > F	0.000		

* p<0.05

In Step 4, the analysis examines the combined effect of foreign liabilities and market liquidity on stock market returns. Table 8 shows that the coefficient for foreign liabilities is 0.03191 with a standard error of 0.010823 and a significant P-value of 0.004. Additionally, the coefficient for market liquidity is 1.705182 with a standard error of 0.165879 and a highly significant P-value of 0.000. This indicates that both foreign liabilities and market liquidity positively and significantly affect stock market returns. The R-squared value of 0.6675 suggests that 66.75% of the variation in stock market returns is explained by these two variables, and the highly significant F-statistic (Prob > F = 0.0000) confirms the model's overall fit.

Table 8: Foreign Liabilities, Market Liquidity and Stock Market Returns

Stock market returns	Coef.	Std. Err.	P>t
Foreign liabilities	0.03191*	0.010823	0.004
Market liquidity	1.705182*	0.165879	0.000
_cons	0.214285	0.661179	0.747
R-squared	0.6675		
F(2, 67)	64.23		
Prob > F	0.0000		

* p<0.05

Based on the results from all four steps of the mediation analysis, we can conclude that market liquidity has a significant mediating effect on the relationship between foreign liabilities and stock market returns. Given that foreign liabilities significantly impact stock market returns both directly (Step 1) and through market liquidity (Steps 2, 3, and 4), the null hypothesis H_{01b} , which states that market width has no significant intervening effect on the relationship between country foreign liabilities and stock market returns, is rejected. The significant combined effect of foreign liabilities and market liquidity on stock market returns highlights the critical role of

market liquidity in enhancing the positive impact of financial liberalization on stock market performance in the EAC region.

V. Conclusions And Recommendations

The study concludes market liquidity emerges as a pivotal factor in amplifying the benefits of financial liberalization. The mediation analysis clearly shows that higher market liquidity significantly boosts the positive effects of foreign assets and liabilities on stock market returns. This finding highlights the importance of creating and maintaining liquid financial markets where trading is efficient, and investors can transact with ease. Enhanced market liquidity not only attracts more investors but also contributes to a more dynamic and resilient financial market structure.

To improve market liquidity, policymakers and market regulators should focus on developing infrastructure that supports efficient trading systems. This includes investing in advanced technology for trading platforms, reducing transaction costs, and ensuring transparency in market operations. Additionally, introducing more financial instruments and encouraging a broader investor base can enhance liquidity. These measures will not only make the markets more attractive to investors but also ensure smoother and more efficient market operations, thereby maximizing the benefits of financial liberalization.

Policymakers and regulators should regularly assess the effectiveness of financial liberalization policies and market liquidity enhancements. By doing so, they can make timely adjustments to address emerging challenges and capitalize on new opportunities. This proactive approach will help maintain a dynamic and resilient financial environment that supports long-term economic development and robust stock market performance in the EAC region

Areas For Further Research

Future research should consider expanding the scope of the study to include a broader range of countries, both within and outside the EAC region. By incorporating diverse economic contexts, researchers can gain a more comprehensive understanding of how financial liberalization, market liquidity, and macroeconomic factors interact across different settings. Comparative studies between regions can provide valuable insights into the unique and common drivers of stock market performance globally. Additionally, further research could benefit from the use of primary data collection methods, such as surveys and interviews with key market participants and policymakers. This approach would provide deeper insights into the aspects of financial liberalization and market liquidity that secondary data may not capture. Primary data can also offer real-time information, improving the relevance and applicability of the findings to current economic conditions

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