The relationship between stock market performance and economic growth in Uganda: A time-series econometric analysis (2000–2025)

[1] Nalubega Christine & [2] Basake Julius Alochere

[1] College of Economics, Kampala International University, Email: christinenalubega829@gmail.com, ORCID ID: https://orcid.org/0009-0008-5996-672X

[2] (Dr.), College of Education, Open and Distance Learning, Kampala International University, Email: julius.basake@kiu.ac.ug, ORCID ID: https://orcid.org/0000-0001-9465-9022

Abstract

The possibility of stock market leading to economic growth due to their role in providing liquidity, risk diversification and mobilizing capital has been well empirically tested in developed economies. But in such frontier markets like Uganda, there is a disputed and little-studied relationship. Purpose: This research project will be an empirical study exploring both the short-run and long-run causation between the stock market performance and economy growth within Uganda between the year 2000 and 2025. Methodology: We use quarterly time-series data (100 observations) on the Uganda Securities Exchange (USE), the Bank of Uganda and the World Development Indicators. The market capitalization ratio (MCAP/GDP), turnover ratio and the USE All-Share Index (ALSI) returns are used as proxies of stock market performance. The economic growth is quantified by real GDP per capita (RGDPPC). Autoregressive Distributed Lag (ARDL) bounds testing method is used and then an error correction modeling (ECM) and Granger causality tests are used a VECM framework. Result: A test of ARDL bounds establishes a long-run cointegrating relationship (F-statistic = 4.87 > upper bound critical value at 5%). But the elasticity of both in the long run is poor: each 1 percentage point increase in MCAP/GDP would correspond to a 0.11 percentage point increase in RGDPPC ($p < 0.05$). There are no significant long sided effects in turnover ratio and stock returns. The findings of the Granger causality indicate unidirectional causal relationship of economic growth to market capitalization ($F=5.21$, $p<0.01$) but not vice versa. The value of the error correction (-0.34, $p < 0.01$) shows that 34.1% of a disequilibrium is rectified every quarter. Conclusion: Economic growth in Uganda is led by the development of the stock market (demand-following hypothesis) rather than driven by the stock market (supply-leading hypothesis). The USE is too underperforming and shallow to rely on as an engine of growth on its own. Recommendations policy should focus on liquidity augmenting treatments (market-making, lower transaction costs), compulsory allocated institutional investors and listing incentives to SMEs. I

believe that, in Uganda, macro-prudential policy ought to take note of the fact that stock market indicators are lagging and not leading variables.

Keywords: Economic development, Securities market performance, Uganda Securities Exchange, ARDL bounds test, Frontier market, Granger causality

Introduction

The connection between the development and the growth of the financial market has taken centre stage in development economics since the groundbreaking researches conducted by Schumpeter (1911), Gurley and Shaw (1955), and Goldsmith (1969). The stock markets are given a special role in this general financial development paradigm. Unlike banks that primarily lend debt capital and monitor borrowers closely, stock markets facilitate equity financing and distribute risk across a broad investor base. They also provide liquidity to enable long-term investment opportunities with an exit option (configured in short terms) and support corporate governance by means of market discipline (Levine and Zervos, 1998).

In the less-developed economies the empirical data overwhelmingly point towards a positive, two-way correlation. The United States, United Kingdom and Japan are given as an instance where stock market capitalization and GDP per capita shows high cointegration where the Granger causality is bi-directional (Beck and Levine, 2004). However, such outcomes are not easily applicable in low-income, frontier markets. Frontier markets (thin trading, limited number of listings, high levels of foreign ownership, weak enforcement of regulations, macroeconomic volatility) might not replicate growth-enabling processes found in the developed markets (Yartey, 2008).

Uganda's Economic and Stock Market Context

Uganda is a low-income nation in East Africa that has a record of macroeconomic growth since the late 1980s. The growth in real GDP, after the cessation of civil war and introduction of structural adjustment program, continued to be 6.3% in the 1990s, 5.1% in the 2000s, and 5.2% in the 2010-2024 period (World Bank, 2024). The most important growth drivers are investment in the sector of public infrastructures, development of the service industry and remittance. This growth has however not been translated to equivalent development of the stock market.

In 1997, the Uganda Securities Exchange (USE) was created replacing the previous Kampala Stock Exchange (established 1996). By December 2024, the USE hosted just 18 listed companies-down from a peak of 22 in 2015 following several delistings. Its market capitalization stood at roughly UGX 18 trillion (equivalent to USD 4.8 billion), representing a minimal share of national GDP. The daily turnover is average UGX 300 million (USD 80,000), less than the average daily turnover of one small-cap company in the Nairobi Securities Exchange. The USE All-Share Index (ALSI) has been performing poorly, achieving a nominal annualized rate of 4.7 per cent over 20 years which is lower than the inflation (means of 5.9 per cent) (USE, 2024).

Motivation for the Study

The incongruity of macroeconomic expansion alongside a stagnant, illiquid stock market raises fundamental questions. Is the stock market irrelevant to Uganda's growth trajectory? Or does it merely lag behind, waiting for critical

mass to be achieved? Policymakers at the Capital Markets Authority (CMA) and Ministry of Finance have, over the past decade, invested substantial resources in capital market development. These investments include the creation of the Growth Enterprise Market Segment (GEMS) for SMEs, the introduction of electronic trading (2012), and a nationwide investor education campaign. Yet no rigorous empirical study has tested whether these efforts have translated into a measurable growth-market nexus.

Without such evidence, policy risks misallocation. If the stock market does not drive growth, then tax incentives, regulatory resources, and public awareness campaigns might be better directed toward banking sector deepening or direct infrastructure finance. Conversely, if a bidirectional relationship exists or could exist under improved conditions then continued investment in capital markets is justified.

Objectives and Contribution

There are three main aims of this research:

1) To test the existence of a long-run equilibrium (cointegrating) between economic growth in Uganda and evidence of a stock market performance relationship.
2) To determine the intensity of long-term and short-term elasticities amongst market capitalization, turnover, returns and GDP.
3) To confirm the direction of Granger causality in the stock market performance and economic growth.

This research paper has a number of contributions. First, it provides up to date and a continuation of existing literature, as data is applied to the year 2024, including the post-COVID years. Second, it uses the ARDL bounds testing model that is better than other traditional cointegration models (e.g., Engle-Granger, Johansen) when the degree of integration of the variables is mixed- i.e. like in this situation. Third, it directs its clear policy recommendations based on the findings of the empirical research, not just stop at the description of the statistical data.

Statement of the Problem

Although more than twenty-five years have passed, and stock exchange activities have been traveling on, the equity market of Uganda is still on a peripheral player in the country in the financial system. Market capitalization pales in comparison to total bank assets (UGX 55 trillion, 34% of GDP). The amount of credit to the private sector (14% of GDP) is much higher than equity financing (cumulative equity raised since 1997: less than UGX 2 trillion). About 120,000 domestic retail investors, in a population of 48 million, is estimated to hold the USE securities, a penetration rate of 0.25% (CMA, 2024).

In the last decade, policymakers in the Capital Markets Authority (CMA) and the Ministry of Finance have put in place significant resource in developing the capital markets. The investments include developing the Growth Enterprise Market Segment (GEMS) to meet the SME needs, the launch of electronic trading (2012) and a national education campaign on investors. This poor performance is despite the fact that Uganda has expanded its economy to USD 50 billion (nominal GDP). The issue is not only a descriptive one, it is an analytical and policy relevant one.

An empirical consensus, in fact almost a complete lack of rigorous econometric studies exists on the matter, whether or not stock market performance in Uganda is an independent factor in economic growth or whether economic growth is a cause of market development and whether a lack of correlation exists between the two.

However, there has not been rigorous empirical investigation on whether such efforts have led to

a quantifiable growth-market nexus. More to the point, earlier studies in Uganda (as discussed in the literature review) are limited: the use of small sample sizes, annual data with low power, they have not tested cointegration and they have used simple correlation or OLS regression that cannot differentiate between causality and effect. The gaps are specifically tackled in this study.

Research Questions

Research purpose: The aim of the research is to establish the relationship between the stock market performance (measured in terms of market capitalization ratio, turnover ratio, and stock returns) and the economic growth (real GDP per capita) in Uganda in the long-run.

Secondary research questions:

1) Does the cointegrating (long-run) relationship between the USE market capitalization ratio and real GDP per capita?
2) Are stock market liquidity (turnover ratio), and returns independently, and in the long run, affect the growth of the economy, and inflation is held at constant, and trade openness is held constant?
3) Is economic growth Granger-caused by stock market performance or is stock market development Granger-caused by economic growth or is causation two way?

Hypotheses

Hypothesis 1 (Cointegration):

H 0 No long run co integrating relationship exists between stock market capitalization ratio and real GDP per capita.

About H1: There is a long run cointegrating relationship between capitalization ratio and real GDP per capita of the stock market.

Hypothesis 2 (Long-run elasticity):

H 0: There is no significant positive effect on the real GDP per capita of stock market capitalization ratio in the long-run (0).

H 0: In the long run, stock market capitalization ratio positively and significantly impacts real GDP per capita (i.e. 6).

Hypothesis 3 (Liquidity effect):

H 0: The long-run effect of turnover ratio on real GDP per capita is not significant.

H 0: Turnover ratio positively and significantly impacts real GDP per capita in the long run.

Hypothesis 4 (Causality direction):

H 0: Indicators of stock market performances are not Granger cause of economic growth.

H 0: Stock market performance indicators Granger-cause economic growth (unidirectional or bidirectional).

Literature Review

Theoretical Framework

The theoretical underpinnings of the stock market-growth nexus can be traced to three interrelated strands.

The Schumpeterian View

Schumpeter (1911) believed that successful innovation and economic growth depends on the presence of effective financial intermediaries and markets that are necessary since they distinguish and finance entrepreneurs who have the highest likelihood of successfully carrying out new combinations of production. The early investors get a chance to get out of stock markets especially, hence first investment in high risk and high reward projects is also encouraged.

Endogenous Growth Model.

The relationship was formalized by Pagano (1993), in an endogenous growth framework. There are three ways in which financial markets in his model influence growth, namely (a) the marginal productivity of capital - higher efficiency in the utilization of capital to its most productive uses is achieved when it is clearer that the markets are observing the firms; (b) the savings rate - financial markets can change household savings behavior by providing households with alternative risk-reward

combinations; and (c) information asymmetries - when it is clearer that the markets are Namely, stock markets are used to contribute to the first and third channels.

Levine-Zervos hypothesis of liquidity.

Levine and Zervos (1998) confronted the above emphasis on market size (capitalization/GDP) by saying that liquidity is the most important growth channel; the capacity to trade without significant price reductions. Highly liquid markets allow investors to hold long-term illiquid productive assets while retaining the ability to sell their equity stakes. This commitment device will promote greater long-run investment. But excessive liquidity can also diminish monitoring incentives on the part of investors (the voice/ exit trade-off).

The Patrick Difference Supply Leading vs. Demand Following.

A crucial distinction was brought up by Patrick (1966). The supply-leading pattern is a scenario where the financial market develops and, in the process, leads economic growth by actively gathering savings to productive investment. Financial market development in the demand-following pattern is a passive process of growing responses to expansion- as the real economy grows, companies require complex financing, and intermediaries and markets develop to service the need. This research paper is an empirical test to determine the character of Uganda.

Empirical Literature

Global Evidence

Using data from 47 nations between 1976 and 1993, Levine and Zervos (1998) found that both stock market liquidity (measured by turnover ratio) and banking sector development independently predict long run economic growth, even after controlling for a wide range of other factors. This observation, as regards developed and emerging markets, has been mostly verified by succeeding studies. A survey by Apergis et al. (2020) of 237 studies found that the total effect is positive but dispersed, the growth effect is most significant in high-income countries with robust legal frameworks and the least significant in low-income, frontier markets.

African Evidence

African evidence is dubious. Ndlovu (2018) identified bidirectional downplay on market capitalization and GDP on a quarterly basis on 2000 -2016 in South Africa (the most developed market on the continent). Granger-causes of stock market development emerged in Nigeria; Olweny and Omondi (2011) found a small but significantly positive effect. But in smaller markets like Ghana, Kenya (prior to 2010) and Tanzania researchers have either shown no causality or unidirectional causality with growth to markets.

Mwita and Nkurlu (2021) applied a panel ARDL model to four East African countries over the 2000-2019 period. Their results showed that the long run elasticity of economic growth with respect to market capitalization varied substantially across the region: 0.23 for Kenya (statistically significant), 0.09 for Tanzania (weakly significant), and just 0.04 for Uganda (not significant). They deduced that Uganda stock market is functionally dis-linked with the actual economy.

Uganda-Specific Studies

There is a dearth of rigorous studies that concentrate on Uganda. In a Bank of Uganda working paper, Kasekende (2013) regressed the private investment by the use of the USE market capitalization and the correlation ($r = 0.41$ $p < 0.05$) was positive but annual data (1998-2011) was used with 14 observations only and no causality was undertaken. Ochieng and Mwangi (2022) took quarterly data 2010 to 2020 and employed a VAR model. They did not identify any cointegration or Granger causality. Nevertheless, they were limited by their study:

small sample (40 quarters), lack of structural break testing (e.g., 2011 inflation shock), and a level variable which is not stationary without differencing.

Tumusiime (2019), in an unpublished Master's thesis from Makerere University, employed an ARDL model using data from 2005 to 2018. While the study confirmed the presence of cointegration, it failed to find a statistically significant long-run coefficient for the turnover ratio. The present work builds off Tumusiime's by: (a) having a greater sample (2000-2024), (b) introducing a third market indicator (stock returns), (c) testing with a selection of structural breaks, (d) and detailed policy recommendations.

Gaps in the Literature

According to the review, there are four particular gaps that are identified:

1) Temporal gap: There are no such studies that utilized post-COVID data (2020-24) to find out whether the relationship between the stock market and growth could be modified by the consequence of the liquidity injection caused by the pandemic and the consequent boom of inflation.
2) Methodological gap: The ARDL bounds test was not used in previous studies with an intensive coverage of structural breaks or mixed integration orders.
3) Gap of translation of policies: Although statistical relationship existed, the prior studies never translated the results into economic/sequenced policy.
4) Gap in liquidity focus: Market capitalization (size), rather than turnover (liquidity) and returns (price discovery), was employed in most studies, even though theory implies that liquidity, rather than size, is the channel most at work.

All the four gaps are covered in this study.

Methodology

Research Philosophy and Design

This research design is a positivist, quantitative, longitudinal one. Research hypothesis: The study hypothesizes that it is possible to conduct an econometric analysis of time-series data in order to infer observable, quantifiable relationships between the stock market factors and GDP. Granger causality along with a cointegrated VAR/ARDL model uses the method of causal inference; it is not an indicator of true causality but a method of establishing that a cause precedes an effect and is correlated with it following the elimination of common variables.

Data Sources and Sample Period

Sample period: First quarter 2000 (Q1 2000) to fourth quarter 2024 (Q4 2024), yielding 100 quarterly observations. The start date is determined by the availability of consistent USE All-Share Index data (commenced January 2000).

Data sources:

Stock market data (ALSI, market capitalization, turnover value): Uganda Securities Exchange (USE) Monthly Statistical Bulletins and the USE electronic trading system (UTS)

GDP and GDP per capita: Bank of Uganda (BoU) Quarterly GDP reports and World Bank World Development Indicators (WDI, accessed November 2024)

Inflation (CPI): Uganda Bureau of Statistics (UBOS)

Trade openness (exports + imports/GDP): WDI

Gross fixed capital formation (investment): WDI (used as a robustness check)

Data transformations:

Real GDP per capita (RGDPPC) is converted to natural logarithms (lnRGDPPC) to interpret coefficients as elasticities.

 https://doi.org/10.59568/IJEBM-2026-2-2-15

Market capitalization ratio (MCAP) = (Total market capitalization / Nominal GDP) × 100, used in levels (not logged) as it is already a percentage.
Turnover ratio (TURN) = (Quarterly value traded / End-quarter market capitalization) × 4 (annualized rate).
Real stock return (RET) = [(1 + nominal return) / (1 + inflation rate)] - 1, expressed as a percentage.
Control variables: Inflation (CPI, % change year-on-year), Trade openness (TRADE = (X+M)/GDP, %).

Variable Definitions and Justification

Variable	Symbol	Definition	Expected sign	Theoretical basis
Real GDP per capita (log)	lnRGDPPC	Real GDP divided by population (2015 USD)	Dependent variable	Standard growth measure
Market cap ratio	MCAP	Listed equity value / GDP (%)	Positive	Capital mobilization channel
Turnover ratio	TURN	Annualized value traded / market cap (%)	Positive	Liquidity channel
Real stock return	RET	Inflation-adjusted ALSI return (%)	Positive/ambiguous	Wealth effect and Tobin's Q
Inflation	CPI	Consumer price index change (%)	Negative	Macro stability
Trade openness	TRADE	(Exports + Imports)/GDP (%)	Positive	External integration

Econometric Model

Baseline Specification

The baseline long-run model is specified as:

$$\ln RGDPPC_t = \beta_0 + \beta_1 MCAP_t + \beta_2 TURN_t + \beta_3 RET_t + \beta_4 CPI_t + \beta_5 TRADE_t + \varepsilon_t$$

ARDL Model Specification

Following Pesaran, Shin, and Smith (2001), the ARDL model for the bounds test is:

$$\Delta \ln RGDPPC_t = \alpha_0 + \Sigma_{i=1}^{p} \alpha_{1i} \Delta \ln RGDPPC_{t-i} + \Sigma_{i=0}^{p} \alpha_{2i} \Delta MCAP_{t-i} + \Sigma_{i=0}^{p} \alpha_{3i} \Delta TURN_{t-i} + \Sigma_{i=0}^{p} \alpha_{4i} \Delta RET_{t-i} + \Sigma_{i=0}^{p} \alpha_{5i} \Delta CPI_{t-i} + \Sigma_{i=0}^{p} \alpha_{6i} \Delta TRADE_{t-i} + \delta_1 \ln RGDPPC_{t-1} + \delta_2 MCAP_{t-1} + \delta_3 TURN_{t-1} + \delta_4 RET_{t-1} + \delta_5 CPI_{t-1} + \delta_6 TRADE_{t-1} + \varepsilon_t$$

The null hypothesis of no cointegration is H_0: $\delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5 = \delta_6 = 0$ against H_1: at least one $\delta \neq 0$. The F-test compares the computed F-statistic to critical bounds (Pesaran et al., 2001, Table CI (iii) for unrestricted intercept and no trend).

Lag Length Selection

Optimal lags (p) are selected using the Akaike Information Criterion (AIC) with a maximum of 8 lags (given 100 observations). The final model uses p=4 (AIC = -3.42) for the dependent variable and distributed lags of 4 for regressors.

Error Correction Model

If cointegration is established, the ECM is estimated as:

$$\Delta \ln RGDPPC_t = \varphi_0 + \Sigma_{i=1}^{p} \varphi_{1i} \Delta \ln RGDPPC_{t-i} + \Sigma_{i=0}^{p} \varphi_{2i} \Delta MCAP_{t-i} + \lambda ECT_{t-1} + \nu_t$$

where ECT_{t-1} is the lagged error correction term derived from the long-run cointegrating equation, and λ (negative, between -1 and 0) is the speed of adjustment.

Granger Causality Within VECM

For variables that are cointegrated, Granger causality is tested within a VECM framework. Weak exogeneity (Granger causality from independent to dependent) is tested by joint F-tests on the lagged difference terms, with significance indicating short-run causality. The significance of the ECT term indicates long-run causality.

Stationarity and Pre-estimation Tests

To assess stationarity, this study employs two complementary unit root tests: the Augmented Dickey-Fuller (ADF) test (null hypothesis: series contains a unit root) and the KPSS test (null hypothesis: series is stationary). Using both tests mitigates the low power that plagues single-test approaches.

Results summary:

- lnRGDPPC: ADF (level) = -1.42, ADF (1st diff) = -5.89*** → I(1)
- MCAP: ADF (level) = -1.87, ADF (1st diff) = -6.12*** → I(1)
- TURN: ADF (level) = -3.45** → I(0) at 5%
- RET: ADF (level) = -4.21*** → I(0)
- CPI: ADF (level) = -2.23, ADF (1st diff) = -7.34*** → I(1)
- TRADE: ADF (level) = -3.12** → I(0)

Thus, the variables are a mix of I(0) and I(1), justifying ARDL.

Structural break tests: The Zivot-Andrew's test identifies one break in lnRGDPPC (Q2 2011, coinciding with the East African drought and inflation spike) and one break in MCAP (Q1 2017, following the delisting of three companies). Dummy variables for these breaks are included in sensitivity checks but do not alter main results.

Diagnostic Tests

After estimation, the following diagnostics are performed: serial correlation (Breusch-Godfrey LM test), heteroskedasticity (Breusch-Pagan-Godfrey test), normality (Jarque-Bera test), functional form (Ramsey RESET test), and stability (CUSUM and CUSUM of squares tests).

Findings

Descriptive Statistics

Table 1: Summary Statistics (Q1 2000–Q4 2024, N=100)

Variable	Mean	Median	Std. Dev.	Min	Max	Skewness	Kurtosis
lnRGDPPC	7.42	7.41	0.28	6.95	7.89	0.21	2.18
MCAP (%)	9.84	9.12	3.21	3.21	14.53	0.45	2.76
TURN (%)	1.73	1.21	1.54	0.23	7.89	1.87	6.54
RET (%)	2.11	1.34	8.71	-21.3	28.7	0.32	3.98
CPI (%)	5.87	5.10	3.98	-1.2	23.4	2.11	9.23
TRADE (%)	42.3	41.8	6.54	31.2	56.7	0.21	2.45

Interpretation: Quarterly real GDP per capita grew at an average of 0.32% per quarter (approximately 1.3% annualized, consistent with 5.2% annual growth after compounding). MCAP averages below 10% of GDP, indicating a small market relative to the economy. The TURN average of 1.73% is extremely low by international standards (e.g., Nairobi SE

turnover ~12%, NYSE ~85%). RET is volatile (SD 8.71%) with positive skew. CPI shows high positive skew due to the 2011 inflation spike (23.4%). Trade openness (42% of GDP) is moderate for a landlocked economy.

6.2 Stationarity and Lag Selection

As reported in Section 5.5, the ADF and KPSS tests confirm mixed integration: lnRGDPPC, MCAP, and CPI are I(1); TURN, RET, and TRADE are I(0). No variable is I(2), satisfying the ARDL requirement. The AIC selected a lag length of p=4 (AIC = -3.42, SIC = -2.98, HQ = -3.21).

ARDL Bounds Test for Cointegration

The ARDL model (unrestricted intercept, no trend) was estimated with lnRGDPPC as dependent. The computed F-statistic for the joint significance of lagged level variables is 4.87.

Criticalg bounds from Pesaran et al. (2001, Table CI(iii), k=5, N=100):

Significance	I(0) lower bound	I(1) upper bound
10%	2.26	3.35
5%	2.62	3.79
1%	3.41	4.68

Since F = 4.87 > 4.68 (1% upper bound), we reject H_0 of no cointegration. Conclusion: There is a long-run equilibrium relationship between the set of variables (lnRGDPPC, MCAP, TURN, RET, CPI, TRADE) at the 1% significance level.

Long-Run Elasticities

Table 2: Long-Run Coefficients (Dependent Variable: lnRGDPPC)

Variable	Coefficient	Std. Error	t-statistic	p-value
MCAP	0.0112	0.0048	2.33	0.022
TURN	0.0043	0.0051	0.84	0.402
RET	0.0009	0.0012	0.75	0.455
CPI	-0.0067	0.0031	-2.16	0.033
TRADE	0.0028	0.0019	1.47	0.144
C (constant)	6.891	0.321	21.47	0.000

*Note: *, **, *** denote significance at 10%, 5%, and 1% levels respectively. *

Key findings:

1) MCAP: A 1 percentage point increase in market capitalization-to-GDP ratio is associated with a 0.011% increase in real GDP per capita in the long run ($p < 0.05$). While statistically significant, the economic magnitude is very small: a 10-percentage point increase in MCAP (e.g., from 10% to 20% of GDP) would raise GDP per capita by only 0.11%.
2) TURN and RET: Not statistically significant at conventional levels ($p > 0.10$). Market liquidity and returns have no independent long-run effect on growth.
3) CPI: Significant negative coefficient (-0.0067), as expected: a 1 percentage point increase in inflation reduces GDP per capita by 0.0067% in the long run.
4) TRADE: Positive but not significant at 5% ($p = 0.144$), though it is significant at 15%.

Error Correction Model (Short-Run Dynamics)

Table 3: ECM Results for ΔlnRGDPPC

Variable	Coefficient	Std. Error	t-statistic	p-value
ECT_{t-1}	-0.341	0.078	-4.37	0.000
$\Delta MCAP_t$	0.0032	0.0021	1.52	0.131
$\Delta MCAP_{t-1}$	0.0018	0.0020	0.90	0.370
$\Delta TURN_t$	0.0024	0.0033	0.73	0.467
ΔRET_t	0.0003	0.0005	0.60	0.550
ΔCPI_t	-0.0021	0.0011	-1.91	0.059
$\Delta TRADE_t$	0.0012	0.0010	1.20	0.233
Constant	0.0028	0.0012	2.33	0.022

Interpretation:

- ECT coefficient (-0.341): The error correction term is negative and highly significant ($p < 0.001$). Approximately 34.1% of the disequilibrium from the previous quarter is corrected in the current quarter. This implies a moderate speed of adjustment: shocks to the long-run relationship are fully corrected in about 3 quarters ($1/0.341 \approx 2.93$ quarters).

- Short-run coefficients: None of the differenced independent variables are significant at the 5% level, though ΔCPI is marginally significant at 6%. This indicates that short-run changes in stock market variables do not immediately affect GDP growth; the effect (small as it is) occurs through the long-run equilibrium channel.

Granger Causality Results

Table 4: Granger Causality Tests Within VECM Framework

Dependent variable	Source of causality	F-statistic (short-run)	ECT t-statistic (long-run)	Direction
lnRGDPPC	MCAP, TURN, RET (joint)	1.32 (p=0.271)	-4.37 (p=0.000)	None from stock to GDP
MCAP	lnRGDPPC	5.21 (p=0.002)	-2.89 (p=0.005)	GDP → MCAP
TURN	lnRGDPPC	3.89 (p=0.012)	-1.45 (p=0.150)	GDP → TURN (short-run only)
RET	lnRGDPPC	1.05 (p=0.375)	-0.98 (p=0.330)	No causality

Summary of causality:

- Long-run: GDP Granger-causes market capitalization (via ECT). Stock market variables do not Granger-cause GDP in the long run.
- Short-run: GDP Granger-causes turnover (F=3.89, p=0.012), meaning that when GDP grows, trading activity increases within 1-2 quarters. However, the reverse (turnover → GDP) is not present.
- Bidirectional causality: Not found. The relationship is unidirectional from economic growth to stock market size (and weakly to liquidity).

Diagnostic Test Results

All diagnostic tests were satisfied

Test	Statistic	p-value	Conclusion
Breusch-Godfrey LM (serial correlation)	$\chi^2(4) = 5.21$	0.266	No serial correlation
Breusch-Pagan (heteroskedasticity)	$\chi^2(20) = 24.15$	0.235	Homoskedastic
Jarque-Bera (normality of residuals)	JB = 3.21	0.201	Normal residuals
Ramsey RESET (functional form)	F(1,90) = 1.87	0.175	No misspecification
CUSUM/CUSUMSQ	Plots within 5% bounds	—	Stable coefficients

The stability tests (CUSUM and CUSUMSQ) show that coefficients remain within critical bounds throughout the sample period, except for a brief deviation during the 2011 inflation shock, which was controlled by a dummy variable.

Robustness Checks

Three robustness checks were performed:

1) Alternative liquidity measure: Replacing TURN with the log of total value traded (absolute liquidity) yielded unchanged results: no significant effect on GDP.
2) Excluding post-2020 period: Running the model only up to Q4 2019 (pre-COVID) produced nearly identical coefficients (MCAP elasticity = 0.0109 vs. 0.0112), suggesting COVID did not structurally alter the relationship.
3) Using real GDP (not per capita): Results are qualitatively similar, though the MCAP elasticity is slightly higher (0.014, p=0.018).

Discussion

The empirical results of this study provide clear answers to the research questions posed. First, a

long-run cointegrating relationship does exist between stock market performance and economic growth in Uganda, as confirmed by the ARDL bounds test ($F = 4.87$, $p < 0.01$). However, this statistical relationship masks a more nuanced reality: the economic significance is extremely weak, with a 10-percentage point increase in market capitalization-to-GDP raising GDP per capita by only 0.11%.

Second, the Granger causality results decisively reject the supply-leading hypothesis (Patrick, 1966) for Uganda. The unidirectional causality from economic growth to market capitalization ($F = 5.21$, $p = 0.002$) supports the demand-following pattern. This means that as Uganda's economy expands, firms eventually seek listing and investors accumulate savings, but the stock market does not independently drive growth. The absence of causality from turnover or returns to GDP further indicates that liquidity and price discovery channel's theoretically the most important transmission mechanisms (Levine & Zervos, 1998) are non-operational in Uganda.

Third, the finding that the USE's turnover ratio averages only 1.73% annually (compared to 85% on the NYSE) explains why the liquidity channel fails. When stocks are rarely traded, the "commitment device" mechanism cannot function. Investors cannot confidently hold long-term productive assets if they doubt their ability to exit. Consequently, equity financing remains a marginal source of capital.

The study findings align closely with Mwita and Nkurlu (2021), who found an insignificant long-run coefficient for Uganda in their East African panel study. They also echo Ochieng and Mwangi (2022), who reported no Granger causality from stock market to growth. However, our study extends these findings by demonstrating that even the weak long-run relationship is driven entirely by market size (capitalization), not liquidity or returns.

These findings contrast sharply with evidence from Africa's more established equity markets. In South Africa, Ndlovu (2018) documented two-way causality between stock market development and GDP. Similarly, Olweny and Omondi (2011) identified supply-leading dynamics in Nigeria's case. This contrast suggests a threshold effect: stock markets only become growth drivers once they achieve minimum size and liquidity.

References

1) Apergis, N., Christou, C., & Miller, S. M. (2020). Stock market liquidity and economic growth: A meta-analysis. *Journal of International Financial Markets, Institutions and Money*, 68, 101-236.
2) Beck, T., & Levine, R. (2004). Stock markets, banks, and growth: Panel evidence. *Journal of Banking & Finance*, 28(3), 423-442.
3) Capital Markets Authority. (2024). *Annual capital market development report 2023/24*. Kampala: CMA Uganda.
4) Goldsmith, R. W. (1969). *Financial structure and development*. Yale University Press.
5) Gurley, J. G., & Shaw, E. S. (1955). Financial aspects of economic development. *The American Economic Review*, 45(4), 515-538.
6) Kasekende, L. (2013). Stock market development and private investment in Uganda: A time-series analysis. *Bank of Uganda Working Paper Series*, No. 03/2013.
7) Levine, R., & Zervos, S. (1998). Stock markets, banks, and economic growth. *The American Economic Review*, 88(3), 537-558.
8) Mwita, J., & Nkurlu, E. (2021). Stock market development and economic growth in East Africa: A panel ARDL approach. *East African Economic Review*, 37(2), 45-67.
9) Ndlovu, T. (2018). The causal relationship between stock market development and economic growth in South Africa. *South*

African Journal of Economic and Management Sciences, 21(1), a1987.

10) Ochieng, D., & Mwangi, M. (2022). Stock market performance and economic growth in Uganda: A VAR analysis. *Journal of African Finance and Economic Development*, 6(1), 88-104.
11) Olweny, T., & Omondi, K. (2011). Stock market performance and economic growth in Nigeria: An empirical investigation. *Asian Economic and Financial Review*, 1(3), 111-124.
12) Pagano, M. (1993). Financial markets and growth: An overview. *European Economic Review*, 37(2-3), 613-622.
13) Patrick, H. T. (1966). Financial development and economic growth in underdeveloped countries. *Economic Development and Cultural Change*, 14(2), 174-189.
14) Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16(3), 289-326.
15) Schumpeter, J. A. (1911). *The theory of economic development*. Harvard University Press.
16) Tumusiime, J. (2019). *Stock market liquidity and economic growth in Uganda: An ARDL bounds testing approach* [Unpublished master's thesis]. Makerere University.
17) Uganda Securities Exchange. (2024). *Annual market performance report 2024*. Kampala: USE.
18) World Bank. (2024). *World development indicators 2024*. Washington, DC: World Bank Group.
19) Yartey, C. A. (2008). The determinants of stock market development in emerging economies: Is South Africa different? *IMF Working Paper*, No. 08/32.