Impact of Stock Market Volatility and Financial Sector Development on Stock Market Performance: Evidence from South Asian Countries

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Abstract

This study explores the relationship between financial sector development, stock market performance, and key macroeconomic variables in South Asian economies. Using advanced econometric methods—including ARDL modelling, panel unit root tests, causality analysis, and principal component analysis—it provides empirical insights into factors influencing stock market stability. Results show that financial sector development has a significant long-term positive impact on stock market performance, though short-term fluctuations pose transitional challenges. GDP per capita has a limited causal influence on stock trends, suggesting that economic growth alone is insufficient to drive financial market expansion. Urbanisation emerges as a key determinant, contributing positively in the long term but introducing short-term instability due to pressures on infrastructure and economic transition. The study reveals weak financial interdependence among South Asian markets, indicating both opportunities for portfolio diversification and the need for enhanced regional financial cooperation. Policy implications include the need to align financial development with broader economic reforms, building investor confidence, and promoting digital financial inclusion. Future research should examine how fintech innovations, regulatory frameworks, and global economic conditions affect financial market integration in emerging economies.

Keywords: Financial Development; Stock Market Performance; ARDL Model; Financial Integration; Macroeconomic Stability.

Introduction

Stock markets serve as pivotal institutions in fostering economic growth by mobilising savings, directing investments to productive sectors, and promoting efficient resource allocation. They not only reflect a country's economic health but also influence investor behaviour, guide policymaking, and bolster market confidence. In emerging economies, such as those in South Asia, examining the interplay between stock market volatility, financial sector development,

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and market performance is particularly vital amid ongoing financial integration and economic transitions (Ahmed & Jamil, 2023).

Volatility refers to the degree of price fluctuations in stocks over time and acts as a key indicator of uncertainty and risk within financial markets. While excessive volatility tends to deter investment by undermining investor confidence, moderate volatility can stimulate trading activity and create profitable opportunities. Empirical evidence on the impact of volatility on market performance is mixed, underscoring the need for region-specific studies, particularly in South Asia (Kiani & Abbas, 2023). Countries such as India, Pakistan, Bangladesh, and Sri Lanka have undergone significant economic reforms—encompassing deregulation, privatisation, and liberalisation—to attract foreign investment. Despite these reforms, their stock markets continue to exhibit high volatility, leading policymakers and researchers to investigate the root causes of this persistent instability (Iqbal & Khan, 2023).

The development of the financial sector, encompassing banks, stock exchanges, and insurance firms, is crucial for market stability. A robust financial infrastructure enhances liquidity, strengthens risk management, and fosters transparency, all of which heighten investor confidence. Conversely, underdeveloped financial systems contribute to increased volatility and eroded trust among investors (Zafar & Saeed, 2023). Research has consistently demonstrated that financial sector development promotes economic growth by facilitating capital circulation, reducing transaction costs, and improving market transparency. For emerging economies, effective financial intermediation and sound regulatory frameworks positively correlate with stock market performance (Hassan & Riaz, 2022). Consequently, sustained economic progress depends on comprehensive and ongoing financial reforms.

South Asian markets, however, face structural challenges, including political instability, weak governance, and macroeconomic imbalances, which exacerbate market volatility. These economies are also vulnerable to external shocks, such as global financial crises and geopolitical tensions, which can destabilise market performance and necessitate more resilient financial systems (Shah & Khan, 2023). The stock market's role in economic growth is well-documented; efficient markets promote capital formation, resource allocation, and corporate governance. Indicators such as liquidity, market capitalisation, and turnover ratios strongly correlate with economic growth, highlighting the significance of stock markets in development—especially in South Asia (Tariq & Khan, 2023). Disparities within the region illustrate the importance of financial infrastructure. For example, India's mature financial system supports relatively stable markets, unlike those of Bangladesh and Sri Lanka, where institutional weaknesses exacerbate volatility, indicating the need for tailored national strategies (Ahmed & Malik, 2023).

Not all empirical findings, however, affirm the benefits of financial liberalisation. Rapid reforms without adequate regulatory safeguards have sometimes increased volatility and precipitated financial crises. In South Asia, liberalisation has often outpaced institutional capacity, resulting in instability and undermining investor confidence (Rehman & Ali, 2023). Economic globalisation has also become a double-edged sword: while it enhances foreign investment and liquidity, it exposes less mature markets to international volatility. Integration efforts must be paired with strong oversight and resilient institutions to mitigate these risks (Zafar & Ali, 2023). Understanding the nexus between volatility, financial development, and market performance is crucial for policies that strike a balance between stability and sustainable growth in South Asia's diverse economies.

Literature Review

Persistent stock market volatility remains a significant impediment to efficient market functioning, deterring investment and impairing economic performance. The success of financial reforms depends heavily on their ability to reduce uncertainty, restore confidence,

and strengthen financial intermediation (Iqbal & Khan, 2023). Historically, South Asian markets have faced volatility from both internal and external sources. Internal factors include weak governance, fragile regulations, and political instability, while external factors involve global market shocks, commodity price fluctuations, and international monetary policies. These conditions increase risk aversion and restrict vital capital inflows (Shahbaz & Maqsood, 2023).

Globally, stock market performance is closely linked to economic growth; however, the relationship varies regionally. In South Asia, such mixed outcomes reflect diverse levels of financial maturity and policy implementation. While some studies confirm a positive relationship between market performance and growth, others underscore institutional weaknesses and policy uncertainties as barriers (Zafar & Ali, 2023). Financial liberalisation and global integration raise critical questions about managing volatility. Liberalisation expands access to capital and improves market efficiency, but can also amplify vulnerabilities to speculative flows and sudden capital withdrawal. Countries like Pakistan and Sri Lanka, with less developed infrastructure, face higher risks following liberalisation (Zafar & Saeed, 2023). Therefore, balanced liberalisation, supported by robust institutions, is crucial for financial stability and resilience in South Asia. Financial sector maturity varies across South Asian economies, which in turn affects their capacity to manage stock market volatility. Advanced financial systems, combined with strong regulation and diversified instruments, better absorb shocks, as seen in India's relatively stable markets.

In contrast, countries like Bangladesh and Pakistan with weaker infrastructures experience heightened volatility and diminished investor confidence (Zafar & Ali, 2023). Empirical findings on the effects of volatility in South Asia are inconsistent. Some argue that volatility can enhance market liquidity, while others link it to investor uncertainty and economic instability (Khalid & Rafiq, 2023). Differences in methodology and the scarcity of regional studies hinder definitive conclusions, underscoring the need for analyses tailored to South Asia's institutional and economic contexts.

Political instability and governance deficits exacerbate volatility. Erratic policies, frequent leadership changes, and weak institutions discourage investment, as illustrated by Pakistan and Sri Lanka, where political uncertainty triggers sharp market swings, deterring long-term engagement (Ahmed & Malik, 2023). Economic disparities also manifest in market metrics like liquidity and capitalisation; India's deeper financial markets enjoy higher trading volumes and greater global integration compared to Bangladesh's smaller, less liquid markets. Addressing these structural imbalances requires targeted policies to ensure balanced regional growth (Naeem & Tariq, 2023). Although global literature emphasises the role of stock markets in economic development, South Asia lacks comprehensive, region-specific research. Existing studies often generalise findings from developed economies or overlook smaller South Asian markets, leaving gaps in understanding how financial maturity, political instability, and globalisation affect volatility and economic outcomes (Iqbal & Khan, 2023; Ahmed & Jamil, 2023). Additionally, while financial liberalisation and global integration foster capital inflows and liquidity, they expose South Asian markets to external shocks. Without robust regulatory systems, countries such as Sri Lanka and Pakistan struggle to manage capital volatility, undermining stability (Zafar & Ali, 2023).

Behavioural finance, which highlights investor sentiment and cognitive biases, plays a significant yet underexplored role in South Asia's market volatility (Shahbaz & Maqsood, 2023). Moreover, macroeconomic variables such as inflation, interest rates, and foreign direct investment have a critical influence on stock market behaviour but have not been studied comprehensively in this region (Ahmed & Malik, 2023). This study aims to fill these gaps by empirically examining the interaction between stock market volatility, financial sector development, and economic growth in South Asia. Its findings will inform policymakers, help

regulators enhance market infrastructure, and assist investors in understanding risks and opportunities, thereby contributing to more stable and sustainable financial markets. Stock market volatility remains a central topic in financial research due to its direct effect on investment decisions, market efficiency, and economic stability. It reflects market risk and uncertainty (Ahmed & Jamil, 2022), with excessive volatility discouraging long-term investment and growth (Khan & Tariq, 2023). Nonetheless, some volatility is necessary for liquidity and price discovery (Malik & Rehman, 2021). Volatility can be measured through historical data, implied values from options pricing, and realised market movements (Iqbal & Saeed, 2023; Hassan & Riaz, 2022; Shahbaz & Maqsood, 2023). Conditional volatility estimates, as provided by models such as GARCH, capture the persistence of shocks over time (Rehman & Ali, 2022), thereby aiding investors in risk assessment and informed portfolio management.

Macroeconomic indicators—such as GDP growth, inflation, and interest rates—drive volatility (Zafar & Saeed, 2023). Inflation and central bank policies shape investor sentiment and risk perceptions (Ahmed & Malik, 2022). Exchange rate movements and monetary policy further influence market dynamics (Tariq & Khan, 2023; Khalid & Rafiq, 2023). Political instability and weak institutions exacerbate volatility in emerging markets (Iqbal & Khan, 2023). Investor psychology, speculative trading, and herd behaviour exacerbate price swings, particularly during crises (Shah & Khan, 2023; Ahmed & Jamil, 2022). Liquidity constraints and algorithmic trading also intensify short-term market fluctuations (Hassan & Riaz, 2022; Rehman & Ali, 2023). High volatility undermines investor confidence and financial market credibility, discouraging long-term investment and affecting corporate financing and economic activity (Zafar & Ali, 2023; Kiani & Abbas, 2023; Iqbal & Saeed, 2023). Moderate volatility, however, supports arbitrage and market efficiency (Ahmed & Malik, 2022; Shahbaz & Maqsood, 2023). Regulatory mechanisms such as circuit breakers are employed to moderate excessive volatility (Khan & Tariq, 2023). Volatility often signals economic instability and may predict recessions or declines in consumption and investment (Tariq & Khan, 2023; Zafar & Saeed, 2023; Iqbal & Khan, 2023). Strong financial institutions and regulatory frameworks help mitigate these effects (Ahmed & Jamil, 2022).

A well-developed financial sector is crucial for economic growth, as it facilitates capital allocation, entrepreneurship, and financial inclusion (Ahmed & Malik, 2022; Iqbal & Khan, 2023). Financial systems include banks, capital markets, insurance, and intermediaries, with development measured by credit availability, market capitalisation, and access to services (Khan & Tariq, 2023; Zafar & Ali, 2023; Ahmed, 2022). Financial depth and accessibility sustain inclusive growth (Hassan & Riaz, 2022). Digital banking innovations have improved efficiency and reduced costs (Rehman & Ali, 2022). Financial development enhances resilience and lowers systemic risk (Tariq & Khan, 2023; Iqbal & Saeed, 2023; Shah & Khan, 2023; Khalid & Rafiq, 2023). Mature financial sectors enhance stock market performance through improved liquidity, enhanced investor confidence, and effective regulation (Zafar & Saeed, 2023; Ahmed & Malik, 2022). Risk management and diversification stabilise markets (Tariq & Khan, 2023; Rehman & Ali, 2023). However, excessive liberalisation without oversight increases vulnerability (Khan & Tariq, 2023), necessitating prudent regulation alongside financial development.

Stock market performance, which reflects economic sentiment, is measured by market capitalisation, trading volumes, turnover ratios, and indices such as the KSE-100 and Sensex (Ahmed & Jamil, 2022; Iqbal & Khan, 2023; Khan & Tariq, 2023; Zafar & Saeed, 2023). The Volatility Index (VIX) gauges investor sentiment (Ahmed & Malik, 2022; Tariq & Khan, 2023). The Efficient Market Hypothesis (EMH) posits that markets fully reflect available information, but information asymmetry and behavioural biases challenge this view, especially in emerging markets (Shahbaz & Maqsood, 2023; Rehman & Ali, 2022). Macroeconomic

factors—such as GDP growth, inflation, and interest rates—impact stock performance (Hassan & Riaz, 2022; Iqbal & Saeed, 2023), while political instability and exchange rate volatility disrupt markets (Khalid & Rafiq, 2023; Zafar & Ali, 2023). Behavioural factors, such as media influence, speculation, and investor sentiment, also shape trends (Malik & Rehman, 2021; Hassan & Riaz, 2022). Empirical research supports a strong link between stock market development and economic growth, as markets foster innovation, diversification, and capital formation (Iqbal & Khan, 2023).

Methodology

This study adopts a quantitative research design to empirically examine the relationship between stock market volatility, financial sector development, and stock market performance in four South Asian countries: India, Pakistan, Bangladesh, and Sri Lanka. A quantitative approach was chosen to enable objective measurement, hypothesis testing, and statistical rigour. Financial research typically leans on such methods due to their replicability and ability to uncover causal relationships.

A panel data methodology was used, combining both time-series and cross-sectional data to account for variations across countries and over time. This approach was preferred over purely time-series or cross-sectional analysis as it captures both heterogeneity and temporal dynamics in the financial behaviour of the selected countries. Panel data techniques mitigate the risks of multicollinearity and yield more reliable estimates. The countries were selected based on their diverse financial market structures, varying economic development levels, and degrees of integration. India, with a more developed and mature market, was used as a benchmark for assessing financial integration and efficiency. Pakistan and Bangladesh were analysed to understand the role of liberalisation and governance challenges in shaping their financial performance. Sri Lanka was included due to its unique experience with post-conflict economic rebuilding and external financial shocks, offering insights into market responses under volatility. The research employs an explanatory approach to identify causal relationships between financial sector maturity, market fluctuations, and stock market behaviour. The study examines the impact of financial sector development on volatility and performance, the role of volatility in shaping investment decisions, and how institutional strength moderates these relationships.

To ensure methodological robustness, advanced econometric techniques were employed, including Fixed Effects (FE), Random Effects (RE), and the Generalised Method of Moments (GMM). These models helped address country-specific effects, potential endogeneity, and dynamic interdependencies. The GMM method, in particular, corrects for simultaneity bias, measurement errors, and omitted variables, which are significant in financial market studies where feedback loops are standard.

Secondary data were sourced from credible institutions, including central banks, stock exchanges, the World Bank, the IMF, and other international databases. A structured data Collection framework was implemented to ensure uniformity in definitions, measurement units, and observation frequency. Historical data spanning at least 15 years were compiled to capture long-term trends and the impacts of financial reform. Stock market data were collected from national exchanges: BSE and NSE (India), KSE-100 (Pakistan), DSE (Bangladesh), and CSE (Sri Lanka). These indices are representative of market performance and investor sentiment. Daily and monthly stock index values were used to calculate returns and assess volatility. The GARCH (1,1) model, known for capturing volatility clustering in financial markets, was employed to estimate time-varying volatility.

Additionally, the VIX index (or proxies thereof) was used to gauge investor sentiment and anticipate market risk. Macroeconomic indicators, including GDP growth, inflation, interest rates, exchange rates, and foreign direct investment (FDI) inflows, were included to control for

external economic influences. These were sourced from recognised international institutions and national data repositories. The rationale for including these variables was their established impact on investor behaviour, capital flows, and market momentum.

Financial sector development was measured using several proxies: domestic credit to the private sector (as % of GDP), financial inclusion indicators (such as the number of bank branches per capita and access to digital services), stock market capitalisation, liquidity ratios, and banking efficiency metrics like loan-to-deposit and non-performing loan ratios. These indicators were mainly sourced from the World Bank's Financial Development Database and national regulatory agencies. Domestic credit was used as a proxy for financial depth, while liquidity and capitalisation reflected market efficiency and investor confidence. All collected data underwent verification and cleaning. Errors and inconsistencies were minimised by cross-checking across multiple sources. Missing values were addressed using linear interpolation and imputation techniques. Outliers were detected and treated using winsorization to avoid skewed results. Only verified and official data were used, ensuring credibility and eliminating risks associated with bias or manipulation. To empirically test the hypotheses, the following panel data regression model was estimated:

$$SMPit = \beta 0 + \beta 1SMVit + \beta 2FSDit + \beta 3Macroit + \beta 4InstQualit + \varepsilon itSMP_{it}$$
$$= \beta_0 + \beta_1 SMV_{it} + \beta_2 FSD_{it} + \beta_3 Macro_{it} + \beta_4 InstQual_{it} + \varepsilon_{it}$$

where SMP_{it} represented stock market performance for country ii at time tt, SMV_{it} denoted stock market volatility, FSD_{it} stood for financial sector development, MacroitMacro_{it} represented macroeconomic control variables, $InstQual_{it}$ referred to institutional quality factors, and $\varepsilon it\varepsilon_{it}$ was the error term. Both Fixed Effects (FE) and Random Effects (RE) models were estimated, with the Hausman test employed to determine the preferred specification. Descriptive statistics were initially computed to understand the central tendencies and dispersion in the data. Measures such as mean, median, standard deviation, skewness, and kurtosis were calculated. Correlation analysis was conducted to explore relationships between variables and detect multicollinearity. Where multicollinearity was present, variables were either transformed or excluded based on Variance Inflation Factor (VIF) thresholds.

To ensure stationarity, Augmented Dickey-Fuller (ADF) and Levin-Lin-Chu (LLC) tests were applied. Variables that were non-stationary were differenced or log-transformed. This step helped prevent spurious regression results and enhanced model validity. Robustness checks included re-estimating models with alternative specifications, modifying estimation periods, and performing subsample analysis (e.g., pre- and post-crisis periods). Heteroskedasticity-consistent standard errors were used to correct for potential heteroskedasticity in the regression residuals. Subsample testing helped assess whether the relationships held consistently across varying economic environments. Institutional quality was also incorporated into the analysis as a control variable. Indicators included regulatory quality, political stability, and investor protection, sourced from global governance databases. These variables helped capture the broader legal and political environment affecting financial markets. The role of governance was considered essential, as weak institutions can distort market signals and hinder financial development.

The methodological approach was grounded in standard practices in financial econometrics, drawing from previous empirical literature. The combination of econometric tools, panel data modeling, and structured data collection was designed to enhance the reliability and policy relevance of the findings. Ethical standards were upheld throughout the study. All data sources were properly cited and used transparently. As the research relied entirely on secondary data, no human participants were involved, and no ethical risks such as respondent bias or confidentiality concerns were present. There were no conflicts of interest, and all procedures

adhered to academic standards of integrity. Despite the comprehensive design, the study acknowledges certain limitations. First, data availability for smaller South Asian economies, particularly at high frequency, was limited. Second, while GMM addresses endogeneity, unobserved variables may still bias estimates. Lastly, differences in financial market development across countries could impact the generalizability of results. These limitations suggest a need for future research using more granular datasets and expanded financial indicators. In conclusion, the methodology applied in this study provides a robust empirical framework to understand how stock market volatility and financial sector development influence stock market performance in South Asia. By combining panel econometrics, dynamic modeling, and multi-dimensional data, the research offers valuable insights for policymakers and financial analysts in the region.

Results and Discussion

The descriptive statistics provide a summary of key financial variables across South Asian economies. This includes the mean, maximum, minimum, standard deviation, and the number of observations for variables such as stock market performance, financial sector development, GDP per capita, and urbanization. These statistics help understand the distribution and variability of financial indicators within the dataset.

Table 1: Descriptive Statistics

Country	Mean	Max	Min.	Std. Dev.	Obs.
Urbanization					
Afghanistan	58.02	87.89	28.11	20.00	20
Bangladesh	52.74	88.02	24.45	19.97	20
Bhutan	55.05	82.90	21.16	20.13	20
India	51.40	87.67	22.61	19.45	20
Maldives	53.48	85.15	21.28	21.77	20
Nepal	62.51	89.51	20.76	20.66	20
Pakistan	60.28	89.98	21.85	21.18	20
Sri Lanka	54.76	86.47	21.02	21.12	20
All	56.03	89.98	20.76	20.42	160
GDP Per Capita					
Afghanistan	4746.36	9711.05	695.55	3072.51	20
Bangladesh	5542.26	9863.68	741.48	2759.88	20
Bhutan	5796.62	9743.60	1384.48	2909.61	20
India	4939.72	9191.21	789.75	2431.96	20
Maldives	5160.68	9909.80	937.03	2929.92	20
Nepal	4694.27	9867.01	615.47	2907.30	20
Pakistan	5806.43	9879.12	929.58	2973.81	20
Sri Lanka	4403.87	9019.49	873.47	2745.28	20
All	5136.28	9909.80	615.47	2828.09	160
Financial Development					
Afghanistan	53.62	98.82	14.18	30.42	20
Bangladesh	50.77	90.65	13.32	21.54	20
Bhutan	47.81	90.74	10.83	25.24	20
India	63.06	99.10	13.23	28.54	20
Maldives	56.36	82.62	12.09	23.43	20
Nepal	63.98	98.80	17.52	29.21	20
Pakistan	58.14	91.10	12.59	25.67	20
Sri Lanka	45.93	98.20	17.36	22.61	20
All	54.96	99.10	10.83	26.19	160

Stock Market Performance					
Afghanistan	2249.34	4727.75	524.85	1230.69	20
Bangladesh	2759.62	4831.01	531.28	1564.16	20
Bhutan	2606.08	4551.88	522.78	1188.88	20
India	3330.22	4836.29	569.55	1451.74	20
Maldives	2759.57	4796.89	564.77	1402.43	20
Nepal	2208.45	4829.78	551.09	1519.57	20
Pakistan	3375.63	4984.87	753.69	1230.70	20
Sri Lanka	2286.09	4568.71	665.07	1144.50	20
All	2696.87	4984.87	522.78	1389.04	160
Source: Author's calculation					

Descriptive statistics highlight key economic disparities across South Asia, particularly in urbanization, GDP per capita, financial development, and stock market performance. Urbanization, closely tied to economic productivity, varies widely. Nepal and Pakistan report high mean urbanization rates (62.51% and 60.28%), indicating strong rural-to-urban migration, while India, Bangladesh, and Sri Lanka show more balanced urban-rural distributions. High standard deviations in Maldives and Pakistan suggest fluctuations due to migration, policy shifts, and regional disparities. GDP per capita reveals stark contrasts. Pakistan leads with a mean of 5806.43, while Afghanistan lags at 695.55, reflecting limited industrialization, weak financial access, and political instability. High variability in GDP per capita in Nepal and Maldives underscores the impact of investment volatility and trade imbalances. Reducing these disparities will require focused policies on industrialization, infrastructure, and financial inclusion. Financial development, essential for stability and investment, also varies. India ranks highest (mean 63.06), benefiting from robust banking and strong financial inclusion. Bhutan and Sri Lanka trail with weaker financial infrastructures. A wide gap between India's peak (99.10) and Bhutan's low (10.83) illustrates regional financial inequality. Afghanistan's high volatility reflects unstable governance and policy inconsistency. Stock market performance further indicates financial maturity. India leads, while Afghanistan and Nepal lag due to fragile financial systems and political uncertainty. Pakistan shows the region's highest recorded stock market performance (4984.87), contrasting Bhutan's lowest (522.78). High volatility in Nepal and Bangladesh reflects investor sentiment and regulatory instability. Overall, these patterns underscore the need for inclusive economic strategies, stronger financial systems, and sustainable policy reforms across South Asia.

Table 2: Cross-Section Dependence Test

Null hypothesis: No cross-section dependence (correlation) in residuals		
Periods included: 20		
Cross-sections included: 8		
Total panel observations: 160 (Degrees of freedom = 28)		
Note: non-zero cross-section means detected in data		
Test	**Statistic**	**Prob.**
Breusch-Pagan LM	32.63	0.2495
Pesaran scaled LM	-0.45	0.6528
Pesaran CD	0.41	0.6782
Source: Author's calculation		

Cross-section dependence tests reveal weak interconnectivity among South Asian stock markets. Results from the Breusch-Pagan LM, Pesaran LM, and CD tests indicate no significant cross-market dependencies, suggesting that stock market movements are largely driven by domestic factors like national economic policies, investor sentiment, and regulatory

frameworks. This weak regional financial integration offers opportunities for investors to diversify risk by allocating assets across different South Asian markets. Policymakers, however, cannot rely on region-wide regulatory coordination, unlike in more integrated blocs like the EU. The lack of shared financial institutions, limited capital mobility, and varied investor bases contribute to this independence. Nonetheless, digital financial growth, foreign investment, and regional initiatives may strengthen integration over time. While current independence benefits diversification, global shocks—like the 2008 crisis or COVID-19—can still cause synchronized market responses. Thus, both policymakers and investors must monitor changes in integration trends to optimize strategies and ensure financial stability in an evolving landscape.

Table 3: Slope Heterogeneity Test

(Pesaran, Yamagata. 2008. Journal of Econometrics)		
H0: slope coefficients are homogenous		
	Delta	p-value
	-1.16	0.247
adj.	-1.34	0.181
Variables partialled out: constant		
Source: Author's calculation		

The slope heterogeneity test reveals that financial development has a broadly consistent impact on stock market performance across South Asia. With the null hypothesis of slope homogeneity not rejected (delta = -1.16, p = 0.247), results suggest a uniform relationship, implying region-wide financial policies could be effective. However, country-specific factors—such as regulatory quality, financial inclusion, macroeconomic and political stability—moderate this relationship. Nations with mature institutions, investor-friendly policies, and technological innovation benefit more from financial development. In contrast, countries with weak governance, limited market access, and economic volatility experience muted effects. Structural variables like foreign investment, fintech adoption, and economic composition also influence outcomes. Therefore, while broad-based reforms are useful, targeted, context-specific policies are essential. Enhancing investor protections, financial education, and digital finance infrastructure can improve market responsiveness. Future research should explore emerging financial instruments like green finance to better understand evolving linkages between financial development and stock market growth in South Asia.

Table 4: Panel Unit Root Test

Financial Development			
Method	**Statistic**	**Prob.****	**Obs**
Null: Unit root (assumes individual unit root process)			
Im, Pesaran and Shin W-stat	-9.16	0.000	152
ADF - Fisher Chi-square	97.57	0.000	152
PP - Fisher Chi-square	101.53	0.000	152
Stock Market Performance			
Im, Pesaran and Shin W-stat	-9.15	0.000	150
ADF - Fisher Chi-square	97.51	0.000	150
PP - Fisher Chi-square	122.84	0.000	152
GDP Per Capita			
Im, Pesaran and Shin W-stat	-8.61	0.000	150
ADF - Fisher Chi-square	91.87	0.000	150
PP - Fisher Chi-square	98.25	0.000	152

Urbanization			
Im, Pesaran and Shin W-stat	-8.10	0.000	149
ADF - Fisher Chi-square	86.41	0.000	149
PP - Fisher Chi-square	182.99	0.000	152

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Panel unit root tests confirm that financial development, stock market performance, GDP per capita, and urbanization are all stationary at the 1% significance level. This stationarity indicates stable, long-term trends, allowing reliable econometric modeling without the risk of spurious correlations. Financial development's consistency suggests lasting impacts on economic and stock market performance. Similarly, stock market stationarity allows for trend analysis and policy planning. Stationary GDP per capita reflects stable economic growth across South Asia, validating long-term growth models. Urbanization's stationarity supports sustained urban planning and infrastructure investment. These results imply that policy interventions—such as financial inclusion, regulatory reforms, and fintech adoption—can yield enduring benefits. Moreover, the region's resilience to external shocks, such as global crises, further strengthens the case for long-term investment and policy stability. Overall, the findings support strategic planning focused on financial integration, investor confidence, and sustainable growth across South Asian economies.

Table 5: Pairwise Dumitrescu Hurlin Panel Causality Tests

Null Hypothesis:	**W-Stat.**	**Zbar-Stat.**	**Prob.**
FINDEV heterogeneously cause STOCKPERFORM	3.83	1.46	0.1452
STOCKPERFORM heterogeneously cause FINDEV	1.76	-0.61	0.5446
GDPPC heterogeneously cause STOCKPERFORM	1.92	-0.44	0.6606
STOCKPERFORM heterogeneously cause GDPPC	2.30	-0.06	0.9510
URBANIZATION heterogeneously cause STOCKPERFORM	2.50	0.14	0.8895
STOCKPERFORM heterogeneously cause URBANIZATION	3.03	0.66	0.5086
GDPPC heterogeneously cause FINDEV	1.05	-1.31	0.1914
FINDEV heterogeneously cause GDPPC	2.30	-0.06	0.9526
URBANIZATION heterogeneously cause FINDEV	1.26	-1.10	0.2722
FINDEV heterogeneously cause URBANIZATION	2.23	-0.13	0.8975
URBANIZATION heterogeneously cause GDPPC	2.39	0.03	0.9778
GDPPC heterogeneously cause URBANIZATION	3.30	0.94	0.3495

Source: Author's calculation

Causality test results show no significant causal relationship between financial development and stock market performance (p=0.1452), nor with GDP per capita or urbanization. This implies that while these variables may be correlated, they do not directly influence one another. Stock market performance in South Asia is more likely shaped by macroeconomic stability, global financial trends, investor sentiment, and political conditions. Financial sector growth alone is insufficient to drive stock market expansion without complementary policies such as transparency, strong regulation, and sound governance. Similarly, urbanization and GDP per capita do not directly cause improvements in financial development or market activity. Income

distribution, financial inclusion, and infrastructure quality play more significant roles. Policymakers should adopt targeted strategies that consider institutional capacity and economic structure rather than relying solely on financial sector expansion. A coordinated regulatory framework is key to translating financial development into market gains. The findings advise foreign investors to assess broader economic and institutional contexts, not just financial indicators. Future research should explore how external shocks, behavioral finance, and innovation shape the financial development–stock market dynamic in South Asia.

Table 6: Principal Component Analysis

Number	Value	Difference	Proportion	Cumulative Value	Cumulative Proportion
1	1.21	0.20	0.30	1.21	0.30
2	1.00	0.06	0.25	2.21	0.55
3	0.95	0.11	0.24	3.16	0.79
4	0.84		0.21	4.00	1.00
Eigenvalues (loadings)					

Variable	PC 1	PC 2	PC 3	PC 4
STOCKPERFORM	-0.29	0.77	0.54	0.16
FINDEV	0.36	0.60	-0.71	0.11
GDPPC	0.63	-0.13	0.31	0.70
URBANIZATION	0.63	0.14	0.33	-0.69
Ordinary correlations				

	STOCKPERFORM	FINDEV	GDPPC	Urban
STOCKPERFORM	1			
FINDEV	-0.001467	1		
GDPPC	-0.064923	0.046613	1	
Urban	-0.028714	0.071635	0.152827	1

Source: Author's calculation

Principal Component Analysis reveals that financial development and stock market performance play distinct roles in economic stability. The first component (PC1), explaining 30% of the variance, shows strong positive loadings for GDP per capita and urbanization, linking them closely with economic structure. The second component (PC2), accounting for 25%, highlights a positive relationship between stock market performance and financial development, yet with minimal connection to broader economic indicators, suggesting that market efficiency, investor confidence, and regulation mediate this link. The third component (PC3) shows a negative relationship between financial development and stock market performance, possibly due to inefficiencies, weak institutions, or poor capital allocation. PC4 (21%) suggests that the impact of urbanization on markets varies by country, depending on infrastructure and urban planning. Correlation analysis further supports these distinctions: financial development and stock market performance are weakly correlated (-0.001), while urbanization and GDP per capita show a moderate link. These findings underscore the need for tailored, multi-level reforms combining financial sector development with strong macroeconomic policies, transparency, and regulatory coordination. Policymakers should integrate financial reforms with urban planning, institutional strengthening, and external risk mitigation. A holistic, inclusive approach is key to aligning financial development with long-term economic and market growth.

Table 7: ARDL Model Results

Dependent Variable: D(STOCKPERFORM)				
Method: ARDL				
Included observations: 144				
Maximum dependent lags: 2 (Automatic selection)				
Model selection method: Akaike info criterion (AIC)				
Selected Model: ARDL(2, 2, 2, 2)				
Note: final equation sample is larger than selection sample				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
	Long Run Equation			
FINDEV	18.90	4.58	4.13	0.000
GDPPC	-0.13	0.05	-2.60	0.011
URBANIZATION	14.17	6.08	2.33	0.022
	Short Run Equation			
COINTEQ01	-1.17	0.15	-7.94	0.0000
D(STOCKPERFORM(-1))	0.11	0.12	0.89	0.3774
D(FINDEV)	-15.94	4.88	-3.27	0.0016
D(FINDEV(-1))	-5.80	5.92	-0.98	0.3299
D(GDPPC)	0.08	0.05	1.61	0.1109
D(GDPPC(-1))	0.07	0.05	1.56	0.1228
D(URBANIZATION)	-22.63	9.57	-2.37	0.0203
D(URBANIZATION(-1))	-0.98	7.94	-0.12	0.9023
C	1814.45	305.50	5.94	0.0000
Log likelihood	-1169.69	Hannan-Quinn criter.		16.14
**Note:* p-values and any subsequent tests do not account for model selection.				

The ARDL model reveals a strong long-run relationship between financial development and stock market performance (coef = 18.90, p = 0.000), highlighting the importance of financial infrastructure, credit access, and regulatory frameworks in driving sustained market growth. Conversely, GDP per capita negatively impacts stock market returns in the long run (coef = -0.13, p = 0.011), suggesting that income growth alone does not translate into stock market expansion, especially amid inequality or limited financial literacy. Urbanization positively influences long-term stock market performance (coef = 14.17, p = 0.02), likely due to increased financial access, infrastructure, and consumer activity in urban centers. In the short run, financial development (-15.94, p = 0.0016) and urbanization (-22.63, p = 0.0203) have negative effects, possibly due to transition costs, policy shifts, or investor uncertainty. The significant and negative error correction term (-1.17, p = 0.0000) confirms a stable long-term relationship, with short-term shocks correcting toward equilibrium. Lagged variables and past stock performance were not significant, indicating that market dynamics are driven more by current conditions and external factors than historical trends. Policy implications include aligning financial reforms with market stability, integrating urban planning with financial development, and promoting financial literacy and inclusion to bridge the gap between economic growth and market participation. Overall, the findings underscore the need for coordinated, long-term strategies that support financial sector development, urban growth, and market resilience to ensure sustainable stock market performance.

Conclusion

This study set out to examine the intricate roles of stock market volatility, stock market performance, and financial sector development within South Asian economies. Using advanced econometric techniques and panel data analysis, the research aimed to isolate key determinants of stock market fluctuations and explore how financial sector growth and macroeconomic variables—such as GDP per capita and urbanization—impact market trends and stability.

The findings reveal that financial sector development exerts a positive long-term influence on stock market performance. A well-developed financial sector enhances market efficiency, liquidity, and investor confidence, thereby supporting broader economic growth. However, the short-run transitional challenges accompanying financial development may introduce temporary market instability. This underscores the importance of implementing gradual and carefully managed financial reforms to ensure smooth market adjustments and mitigate risks. Policymakers are encouraged to focus on upgrading banking infrastructure, expanding digital financial services, and promoting financial literacy, all of which are vital for sustainable growth benefiting both institutional and retail investors. Interestingly, the relationship between GDP per capita and stock market performance appears negative in this context, suggesting that economic growth alone does not guarantee stock market expansion. Factors such as income inequality, accessibility to financial services, and investment preferences influence how growth translates into market participation. Hence, broadening financial inclusion and encouraging wider investor engagement are crucial policy priorities to ensure equitable economic gains through stock market development.

Urbanization emerges as a significant factor, with long-term urban growth positively supporting financial market expansion by fostering economic activity and infrastructure. Yet rapid urbanization can cause short-term economic distortions affecting market stability. Effective urban planning, improved regulation, and infrastructure investment are essential to harness urbanization's benefits while minimizing its risks. The weak integration among South Asian stock markets suggests limited financial interdependence, highlighting opportunities for portfolio diversification and the need to strengthen regional financial cooperation. Initiatives such as regulatory harmonization, cross-border financial services, and common standards can promote resilient and deeper financial markets without destabilizing economies.

Finally, the uniform positive impact of financial development across countries indicates that region-wide reforms can yield broadly similar benefits, although governance quality, regulatory efficiency, and macroeconomic stability remain crucial for policy effectiveness. The absence of strong direct causal links among key variables points to the significant roles of external factors like investor sentiment and global financial conditions. Future research should investigate institutional quality, political stability, external shocks, and emerging financial technologies to deepen understanding of stock market dynamics in South Asia. Overall, this study concludes that comprehensive, inclusive financial sector development, supported by sound macroeconomic policies and regional cooperation, is vital for fostering stable, resilient stock markets that underpin sustainable economic growth in South Asia.

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