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Market Capitalization, Stock Returns, And Economic Growth: Revisiting The Finance–Growth Nexus In Pakistan

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ABSTRACT

The role of stock market development in promoting economic growth remains a central issue in financial economics, particularly in emerging economies where capital markets continue to evolve alongside broader economic reforms. This study investigates the relationship between stock market development and economic growth in Pakistan using annual time-series data spanning 1980–2025. The analysis employs two complementary indicators of stock market development: market capitalization as a percentage of gross domestic product and annual returns of the PSX-100 Index. Economic growth is measured by the annual growth rate of real gross domestic product, while gross fixed capital formation, trade openness, and inflation are incorporated as control variables. To examine both long-run and short-run relationships, the study applies the Autoregressive Distributed Lag (ARDL) bounds testing approach, complemented by the Toda–Yamamoto (1995) causality procedure. Unit root tests indicate a mixed order of integration, validating the use of the ARDL framework. The bounds test confirms the existence of a stable long-run equilibrium relationship among the variables. The empirical findings reveal that market capitalization contributes positively to economic growth, highlighting the importance of market depth and financial resource mobilization. Gross fixed capital formation also promotes growth, whereas inflation exerts a negative influence. Trade openness demonstrates a negative long-run association with economic growth, reflecting structural and external-sector challenges within the economy. The causality analysis identifies a unidirectional causal relationship running from stock market returns to economic growth, while market capitalization affects growth indirectly through its positive impact on capital formation. The findings explain that an expanding and efficient stock market can support economic development by strengthening investment activity and improving resource allocation. The study provides updated evidence on the finance–growth nexus in Pakistan and offers important implications for capital market development, investment promotion, and macroeconomic policy formulation.

Keywords: Stock Market Development, Economic Growth, Market Capitalization, Finance–Growth Nexus

1. Introduction

Financial systems perform a central role in modern economies by facilitating the mobilization of savings, allocating capital among competing investment opportunities, managing risk, and supporting productive economic activity (Khan, 2018; Labeeque & Sanaullah, 2019; Khan & Ullah, 2020; Russo, 2022; He & Wei, 2023; Radas, 2023; Challoumis, 2024; Turan & Can, 2024; Prokopenko et al., 2025; Khalid et al., 2025; Mengoub, E., & Tarbalouti, 2026). The effectiveness with which financial institutions and financial

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markets perform these functions has long been considered an important determinant of economic development (Ali et al., 2016; Fatima & Zaman, 2020; Konnov, 2020; Khan et al., 2022; Das, 2022; Ali, 2022; Wang et al., 2023; Pang et al., 2024; Mehdi et al., 2025; Alexandre & Diaz, 2025; Fayou, 2026). Countries that succeed in creating efficient financial systems are generally better positioned to attract investment, promote entrepreneurship, improve resource allocation, and sustain long-term economic growth (Ali et al., 2015; Bykova et al., 2024; Dahmani & Makram, 2024; Abbasi et al., 2025; Ali & Hassan, 2026). Consequently, understanding the contribution of financial development to economic performance remains a major concern for economists, policymakers, and international development institutions.

Within the broader financial system, stock markets occupy a unique position (Arshad & Ali, 2016; Ali, 2022; Mastilo et al., 2024; Ammar et al., 2025; Hasan et al., 2026). Unlike commercial banks, which primarily provide debt financing, stock markets enable firms to raise long-term capital through equity financing while simultaneously providing investors with opportunities to diversify risk and participate in economic growth. Stock exchanges also contribute to price discovery, corporate transparency, and governance through the continuous valuation of listed firms (Ashraf & Ali, 2018; Marc et al., 2021; Truong et al., 2022; Ali, 2022; Bukhari et al., 2025; Itan et al., 2025; Umair et al., 2025; Zhang & Young, 2026). By improving liquidity and reducing information asymmetries, stock markets may encourage both domestic and foreign investment, thereby supporting capital formation and economic expansion (Sajid & Ali, 2018; Ahmad et al., 2022; Ali et al., 2022; Murat, 2026). For these reasons, the development of equity markets has increasingly been viewed as an important component of broader financial sector development strategies.

The relationship between stock market development and economic growth has attracted considerable attention in both theoretical and empirical research (Karhan, 2019; Marc et al., 2023; Muhammad, 2023; Thaddeus et al., 2024; Feng & Qi, 2024; Aman et al., 2025; Shala et a., 2025; Naeem et al., 2025). Financial economists have argued that efficient stock markets enhance economic performance by facilitating investment, increasing savings mobilization, and improving the allocation of financial resources. Well-developed capital markets may lower the cost of financing, improve access to capital for firms, and create incentives for innovation and productivity enhancement (Adjasi & Yu, 2021; Ali & Mohsin, 2023; Abigail, 2023; Marc et al., 2023; Le et al., 2024; Ditta et al., 2025; Saada, 2025; Iqbal et al., 2025). At the same time, economic growth itself may stimulate financial market expansion by increasing corporate profitability, household income, and demand for financial assets. As a result, the direction and magnitude of the relationship between stock market development and economic growth remain subjects of continuing debate (Levine, 1997; Modibbo, H., & Inuwa, 2020; Marc et al., 2022; Sadashiv, 2023; Ali & Audi, 2023; Appiah et al., 2023; Ali et al., 2025).

The issue is particularly relevant for developing economies where financial systems are often characterized by structural constraints, limited financial inclusion, and underdeveloped capital markets (Farahmand, 2019; Ababio et al., 2023; Marc & Ali, 2023; Antwi et al., 2024; Ali et al., 2025; Del Sarto & Ozili, 2025; Ali et al., 2025). In such economies, policymakers frequently regard stock market reforms as instruments for accelerating economic growth and attracting investment. However, the effectiveness of these reforms depends on whether stock market development genuinely contributes to productive economic activity or merely reflects broader macroeconomic conditions (Ahmad, 2018; Roy & Madheswaran, 2020; Marc et al., 2022; Dahmani & Makram, 2024; Anwar, 2024; Ali et al., 2025; Ragosa et al., 2026; Kumar, 2026). Consequently, establishing the nature of the relationship between stock market development and economic growth is essential for designing effective financial and economic policies.

Pakistan offers an important setting for examining this relationship because its financial sector has undergone a significant transformation during the past four decades. Since the

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1980s, the country has implemented a series of reforms aimed at liberalizing financial markets, strengthening regulatory institutions, and promoting private sector participation (Avelino & Coronel, 2021; Raza et al., 2023; Shakri et al., 2024; Aziz et al., 2025; Ali, 2022; Khan et al., 2022; Mansour & Salar, 2025). Major initiatives have included financial sector deregulation, the opening of capital markets to foreign investors, modernization of trading systems, improvements in corporate governance standards, and the consolidation of regional stock exchanges into the Pakistan Stock Exchange (PSX). These reforms were undertaken with the expectation that a more developed and efficient capital market would contribute to higher levels of investment and economic growth (Roy & Madheswaran, 2020; Fatima & Zaman, 2020; Zhang & Young, 2026). Despite these reforms, the role of the stock market in Pakistan's economic development remains uncertain. Although the Pakistan Stock Exchange has experienced substantial growth in market activity and periodic episodes of strong price appreciation, the market continues to exhibit characteristics commonly associated with emerging and frontier economies. Market participation remains concentrated among a relatively small segment of investors, while market capitalization as a proportion of national output remains below levels observed in many comparable emerging markets. These features raise important questions regarding the extent to which stock market activity is connected to real economic performance and whether financial market expansion translates into broader developmental outcomes (Iqbal, 2012; Saim et al., 2025; Adjasi & Yu, 2021; Thaddeus et al., 2024; Saada, 2025).

Pakistan experienced substantial economic, political, and financial changes, including periods of economic liberalization, external shocks, financial crises, political transitions, and structural reforms. The economy also faced major disruptions associated with the global financial crisis of 2008, the COVID-19 pandemic, rising inflationary pressures, balance-of-payments difficulties, and subsequent recovery episodes. These developments generated considerable variation in both stock market performance and macroeconomic conditions, creating an opportunity to assess whether the relationship between stock market development and economic growth remains stable across different economic environments (Rahman & Salahuddin, 2010; Ali et al., 2025). Although several studies have investigated the finance-growth nexus in Pakistan, several issues remain unresolved. Existing research has produced mixed findings regarding both the existence and direction of causality between stock market development and economic growth. Differences in sample periods, variable selection, econometric techniques, and data availability have contributed to inconsistent conclusions. Furthermore, much of the available evidence predates recent structural changes in Pakistan's financial sector and therefore does not capture the most recent phase of market development, economic instability, and recovery. The absence of updated evidence limits the ability of policymakers to assess the effectiveness of capital market reforms and to formulate future financial development strategies. Thus, the present study examines the relationship between stock market development and economic growth in Pakistan over the period 1980–2025.

2. Literature Review

Researchers have long examined whether financial markets act as catalysts of economic growth, merely respond to expanding economic activity, or evolve through a mutually reinforcing relationship with the real economy. Within this broader debate, stock markets occupy a particularly important position because they facilitate capital mobilization, improve resource allocation, enhance corporate governance, and provide mechanisms for risk diversification (Chen, 2022; Kumar et al., 2025; Khan et al., 2025; Roy & Madheswaran, 2020; Fatima & Zaman, 2020; Zhang & Young, 2026; Prokopenko et al., 2025). Despite extensive theoretical and empirical research, no universal consensus has emerged regarding the direction or magnitude of the relationship between stock market development and economic

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growth (Adjasi & Yu, 2021; Thaddeus et al., 2024; Shala et al., 2025). The intellectual origins of this debate can be traced to the pioneering work of Bagehot (1915), who emphasized the importance of financial institutions in mobilizing savings and directing capital toward productive investment. This argument was further developed by Schumpeter (1934), who viewed financial institutions as active agents of economic transformation. According to Schumpeter, financial systems promote innovation by identifying and financing productive entrepreneurs, thereby facilitating technological advancement and long-term economic development. Similarly, Hicks (1969) argued that the financial innovations accompanying the Industrial Revolution were instrumental in enabling large-scale industrial investment, explaining that financial development precedes and stimulates economic growth (Marc et al., 2022; Pang et al., 2024; Saada, 2025).

A more systematic framework was introduced by Patrick (1966), who distinguished between the supply-leading and demand-following hypotheses. The supply-leading hypothesis proposes that the development of financial institutions and markets promotes economic growth by increasing savings mobilization, improving capital allocation, and facilitating investment. In contrast, the demand-following hypothesis explains that financial development is largely a consequence of economic expansion, as growing economies generate greater demand for financial services. Patrick further argued that the relevance of each hypothesis depends on a country's stage of development, with supply-leading finance being more influential during early stages of economic development and demand-following finance becoming more prominent as economies mature (Roy & Madheswaran, 2020; Ali, 2022; Zhang & Young, 2026; Khan et al., 2025). The policy implications of financial development were further emphasized by MacKinnon (1973) and Shaw (1973) through the financial repression hypothesis. They argued that government interventions such as interest rate controls, credit allocation programs, and restrictive banking regulations distort capital allocation and inhibit economic growth. Financial liberalization, therefore, was viewed as a mechanism for improving market efficiency, increasing savings, and promoting investment (Ali, 2022; Marc et al., 2023; Ababio et al., 2023; Antwi et al., 2024; Mansour & Salar, 2025).

Subsequent theoretical developments introduced more dynamic relationships between finance and growth. Greenwood & Jovanovic (1990) proposed a model in which financial development and economic growth evolve simultaneously through a process of mutual reinforcement. As income rises, greater participation in financial markets improves information efficiency and investment opportunities, which subsequently stimulate further economic growth (Pacillo, 2022; Ang, 2022; Sossounov & Kolenikov, 2023). Similarly, Bencivenga & Smith (1991) demonstrated that financial intermediaries contribute to growth by facilitating liquidity transformation and encouraging investment in productive long-term projects. Building upon these contributions, Levine (1997) identified several mechanisms through which financial systems influence economic performance, including savings mobilization, information production, corporate monitoring, risk management, and transaction facilitation. These channels provide the conceptual foundation for understanding how stock market development may contribute to economic growth. The emergence of endogenous growth theory further strengthened the theoretical case for financial development. Pagano (1993) demonstrated that financial markets can permanently affect economic growth by increasing the proportion of savings allocated to productive investment and improving the efficiency of capital allocation. However, not all scholars supported a universally positive relationship. Using time-series evidence from multiple countries, Demetriades & Hussein (1996) found considerable variation in causality patterns, explaining that institutional structures, policy environments, and stages of economic development significantly influence the finance-growth relationship.

Empirical research initially focused on cross-country comparisons. One of the earliest studies by Goldsmith (1969) identified a positive association between financial development and economic performance across a broad sample of countries. The modern empirical

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literature gained momentum through the influential work of King & Levine (1993a, 1993b), who examined a large sample of countries and found that financial development indicators strongly predicted future economic growth, capital accumulation, and productivity improvements. Their findings provided substantial support for the supply-leading hypothesis. Attention gradually shifted toward stock market development as researchers sought to distinguish the role of capital markets from that of banking institutions. Atje & Jovanovic (1993) found that stock market activity was positively associated with economic growth, while Demirgüç-Kunt & Levine (1996) documented strong complementarities between stock market and banking sector development. The most influential contribution in this area came from Levine & Zervos (1998), who demonstrated that stock market liquidity significantly predicts future economic growth, capital formation, and productivity improvements, even after controlling for banking sector development. Their findings explained that stock markets provide growth-enhancing services that complement traditional financial intermediaries. Similar conclusions were reached by Rousseau & Wachtel (2000) and Beck & Levine (2004), who found that both stock markets and banks independently contribute to economic growth. Despite these findings, considerable skepticism remained. Stiglitz (1993) argued that highly liquid stock markets may encourage short-term speculation rather than long-term productive investment. Likewise, Singh (1997) cautioned that stock market development in developing countries could increase economic instability if regulatory institutions remain weak. Harris (1997) questioned the robustness of earlier cross-country findings after accounting for endogeneity concerns, while Arestis et al. (2001) concluded that banking sector development often exerts a stronger influence on economic growth than stock market development. Similarly, Naceur & Ghazouani (2007) reported weak evidence of a growth-enhancing role for stock markets in several developing economies. These criticisms shifted attention toward country-specific studies capable of accounting for institutional differences and unique economic conditions.

Evidence from emerging and Asian economies presents a mixed picture. Adjasi & Biekpe (2006) found that stock market development contributed more strongly to growth in relatively advanced African economies than in low-income countries. Sinha & Macri (2001) reported bidirectional relationships between stock market development and economic growth across several Asian economies. Research on China by Pan & Mishra (2018) identified both long-run relationships and bidirectional causality between stock market development and economic growth, while Ho & Odhiambo (2019) found evidence supporting a predominantly supply-leading relationship in Hong Kong. These studies explain that the growth effects of stock market development depend heavily on institutional quality, market depth, regulatory effectiveness, and macroeconomic stability. Using cointegration and error-correction techniques, Husain & Mahmood (2001) found that macroeconomic activity influenced stock market performance rather than the reverse. Similar conclusions were reported by Nishat & Shaheen (2004), Hassan & Javed (2009), Sohail & Hussain (2009), and Jalil et al. (2009), who identified macroeconomic variables such as industrial production, inflation, money supply, and exchange rates as key determinants of stock market performance. These findings explained that Pakistan's stock market primarily reflected developments in the real economy rather than actively driving growth.

More recent studies employing autoregressive distributed lag (ARDL) models and advanced cointegration techniques have produced more nuanced conclusions. Shahbaz et al. (2008) and Safdar & Malik (2020) found evidence of both long-run relationships and bidirectional causality between stock market development and economic growth. Similar findings were reported by Rahman & Salahuddin (2010), Nazir et al. (2010), and Ackah (2023), explaining that financial liberalization and capital market reforms may have strengthened the contribution of stock markets to economic performance. Shahbaz et al. (2013), Yan & Chen (2019), and Zhang (2020) identified gross domestic product, national savings, and exchange rates as important determinants of market capitalization, while Omar et al. (2022) and

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Umoh & Effiong(2024) found that economic growth and banking sector development positively influenced stock market expansion. Most recently, Iqbal & Nader (2024), Aqeel et al. (2025), Akram et al. (2025), and Khalil et al. (2025) reported a positive long-run relationship between market capitalization and economic growth in Pakistan.

Although substantial progress has been made, several important gaps remain. Existing studies generally exclude the critical period covering the macroeconomic crisis of 2022–2023 and the subsequent recovery of 2024–2025. Furthermore, many studies rely on a single proxy for stock market development, potentially overlooking the multidimensional nature of capital market activity. Methodologically, most previous research employs asymptotic critical values despite relatively small sample sizes, raising concerns regarding statistical reliability. These limitations create a need for updated evidence that incorporates recent economic developments, utilizes multiple indicators of stock market development, and applies estimation techniques specifically designed for small samples. The present study seeks to address these shortcomings and provide a more comprehensive assessment of the relationship between stock market development and economic growth in Pakistan over the period 1980–2025.

3. Theoretical Methodology

The theoretical argument is primarily grounded in the functional approach to finance proposed by Levine (1997), which identifies five key functions through which financial markets contribute to economic performance. First, stock markets facilitate the mobilization of savings by pooling funds from a large number of investors and channeling them toward productive investment opportunities. This process enables the financing of large-scale projects that would otherwise be difficult to undertake through individual savings alone. Second, stock markets improve the allocation of resources by generating and disseminating information through security prices. Market valuations provide signals regarding the expected profitability and efficiency of firms, allowing capital to flow toward more productive sectors of the economy. Third, stock markets strengthen corporate governance by enhancing managerial accountability through shareholder monitoring and market discipline. Fourth, they promote risk diversification by allowing investors to spread risk across a wide range of financial assets, thereby encouraging investment in long-term productive activities. Finally, stock markets reduce transaction and information costs, facilitating more efficient exchange of financial claims and supporting overall economic activity (Levine, 1997; Beck & Levine, 2004). Recent studies continue to support these theoretical channels by demonstrating that financial sector development, market capitalization, financial inclusion, institutional quality, and financial innovation contribute to capital mobilization, investment expansion, and long-run economic growth (Roy & Madheswaran, 2020; Adjasi & Yu, 2021; Marc, Ali, & Hamadeh, 2022; Ali, 2022; Khan et al., 2022; Prokopenko et al., 2025; Saada, 2025; Zhang & Young, 2026). According to Pagano (1993), financial development contributes to long-run economic growth by increasing the proportion of savings directed toward productive investment, improving the efficiency of capital allocation, and enhancing the productivity of investment projects (Marc & Ali, 2023; Nasir et al., 2025). In developing economies, where capital scarcity remains a persistent constraint, these channels become particularly important (Kumar & Kumar, 2020; Osei & Acheampong, 2021; Khan & Rehman, 2021; Marc et al., 2022; Audi & Al Masri, 2024; Iqbal & Noman, 2025; Anus et al., 2025; Wim & Wendy, 2025; Mansour & Salar, 2025; Sayan & Tas, 2026; Al-Masri & Audi, 2026; Li et al., 2026). A well-developed stock market can expand investment opportunities, improve access to external finance, and facilitate capital formation, thereby contributing to sustained economic growth.

Market capitalization reflects the size and maturity of the stock market and indicates its capacity to mobilize financial resources for productive investment. Stock returns capture

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investors' expectations regarding future economic prospects and reflect the market's information-processing role. By incorporating both indicators, the analysis captures not only the scale of market development but also the quality of information embedded in market prices. This dual characterization of stock market development is consistent with recent studies emphasizing that both market capitalization and market performance serve as important indicators of financial market maturity and economic activity (Ali, Umrani, & Jadoon, 2025; Saada, 2025; Shala, Bytyqi, & Haxhimustafa, 2025; Thaddeus et al., 2024). The effectiveness of these channels depends significantly on the extent to which stock prices reflect available information. The Efficient Market Hypothesis (EMH) explains that financial markets contribute to economic efficiency when prices incorporate relevant information accurately and rapidly. Under semi-strong efficiency, publicly available information is fully reflected in stock prices, allowing market valuations to serve as reliable signals for investment decisions. The importance of information transparency, disclosure quality, and governance mechanisms in improving market efficiency and enhancing the informational role of stock prices has been highlighted by Truong, Le, and Friday (2022), Shakri, Yong, and Xiang (2024), Itan et al. (2025), and Abbasi, Ali, and Audi (2025). In such circumstances, capital allocation becomes more efficient, reducing financing costs and promoting economic growth (Audi, 2016; Gorus & Groeneveld, 2018; Khan, 2019; Marc, 2024; Shakri et al., 2024; Del Sarto & Ozili, 2025; Ragosa et al., 2026). However, empirical evidence explains that Pakistan's stock market exhibits characteristics more consistent with weak-form efficiency, indicating that information may not be incorporated into prices fully and instantaneously. Consequently, while stock market development is expected to contribute positively to economic growth, the magnitude of its impact may be constrained by informational inefficiencies and institutional limitations. In addition to stock market development, several macroeconomic factors influence economic growth and are therefore incorporated as control variables. Gross fixed capital formation represents physical investment and serves as a direct determinant of productive capacity. Trade openness captures the extent of integration with international markets and reflects the potential gains from specialization, technology transfer, and increased competition. Inflation is included to account for macroeconomic stability, as high and volatile inflation can distort investment decisions, reduce purchasing power, and weaken economic performance (Ali & Naeem, 2017; Audi & Ali, 2018; Truong et al., 2022; Antwi et al., 2024; Thaddeus et al., 2024; Marc & Yu, 2024; Saada, 2025; Hasan et al., 2026). Based on the theoretical framework discussed above, the relationship between stock market development and economic growth can be expressed as follows:

$$GDPGR_t = \alpha_0 + \beta_1 LN_MCGDP_t + \beta_2 KSER_t + \beta_3 LN_GFCF_t + \beta_4 LN_TO_t + \beta_5 CPI_t + \varepsilon_t$$

Where the dependent variable is the annual percentage growth of real gross domestic product (GDPGR). Market capitalisation to GDP ratio (MCGDP) and the PSX-100 index annual calendar year price return (KSER) are the two proxies for stock market development. Three control variables are included: gross fixed capital formation (GFCF) as a percentage of GDP, trade openness (TO) as the sum of exports and imports as a percentage of GDP, and consumer price inflation (CPI) as its average annual value.

Table 1: Measurements of Variables

Variables	Symbol	Measurement/proxy
Economic growth	GDPGR	Annual % growth of real GDP
Market capitalization	LN_MCGDP	Market capitalisation as % of GDP (logged)
Stock-market return	KSER	Annual % return on the PSX-100 index
Gross fixed capital	LN_GFCF	GFCF as % of GDP (logged)

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Variables formation	Symbol	Measurement/proxy
Trade openness	LN_TO	(Exports + imports) as % of GDP (logged)
Inflation	CPI	Annual % change in the consumer price index

This study employs annual time-series data for Pakistan covering the period 1980–2025, yielding 46 observations for each variable. The sample period is selected on the basis of data availability and consistency across all variables included in the model. Data are obtained from secondary sources, including the World Bank's World Development Indicators (WDI), the Pakistan Stock Exchange (PSX), the State Bank of Pakistan (SBP), and the Pakistan Bureau of Statistics (PBS). Economic growth is measured by the annual growth rate of real GDP, while stock market development is proxied by market capitalization as a percentage of GDP and annual returns on the PSX-100 Index. Gross fixed capital formation, trade openness, and inflation are included as control variables.

The empirical analysis proceeds in several stages. First, Augmented Dickey–Fuller (ADF) (Dickey & Fuller, 1979, 1981) and Phillips–Perron (PP) (Phillips & Perron, 1988) unit root tests are employed to determine the order of integration of the variables. Second, the Autoregressive Distributed Lag (ARDL) (Peraran et al., 2001) bounds testing approach is applied to examine the existence of a long-run relationship among the variables. Given the relatively small sample size, the critical values developed by Narayan (2005) are used for more reliable inference. Third, long-run and short-run coefficients are estimated through the ARDL error-correction framework. Fourth, the Toda–Yamamoto causality test is employed to identify the direction of causality between stock market development and economic growth.

4. Results and Discussions

Table 2 presents the descriptive statistics for the variables employed in the analysis over the study period. The results indicate considerable variation in Pakistan's macroeconomic and financial indicators, reflecting the changing economic conditions experienced during the sample period. Economic growth exhibited moderate fluctuations, with periods of expansion interspersed with episodes of economic slowdown and contraction. The mean and median values explain the absence of substantial asymmetry in the growth distribution, indicating a generally stable pattern of economic performance over the long run. Stock market development indicators display contrasting characteristics. Market capitalization shows substantial variation across the sample period, reflecting changes in market depth, investor participation, and the overall development of the equity market. Although the market expanded considerably over time, the statistics indicate that Pakistan's stock market remained relatively small compared with the size of the economy. Stock market returns exhibit the highest degree of variability among all variables, highlighting the volatile nature of equity prices and investor sentiment. This behavior is consistent with the characteristics of emerging and frontier financial markets, where returns are often highly sensitive to economic and political developments. Gross fixed capital formation and trade openness display comparatively lower dispersion, explaining relatively stable investment and trade patterns over time. Inflation demonstrates the greatest departure from normality, characterized by substantial asymmetry and extreme observations. This reflects the occurrence of severe inflationary episodes, particularly during periods of macroeconomic instability. Overall, the descriptive statistics reveal sufficient variation across the variables to support empirical investigation of the relationship between stock market development

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and economic growth in Pakistan.

Table 2: Descriptive Statistics

Variables	Mean	Median	Std. Dev.	Skewness	Kurtosis	Minimum	Maximum
GDPGR	3.93	4.12	2.20	−0.40	0.35	−1.27	7.83
MCGDP	18.71	16.74	9.06	0.60	−0.55	5.05	37.86
KSER	27.03	28.08	37.48	0.01	0.18	−58.33	112.20
GFCF	14.03	13.85	1.23	0.35	0.10	11.46	16.57
TO	28.69	28.47	3.31	0.02	−1.13	23.13	34.35
CPI	9.52	7.92	6.51	1.71	3.73	2.53	30.77

Table 3 presents the Pearson correlation coefficients among economic growth, stock market development indicators, and the selected macroeconomic control variables. The results provide preliminary evidence regarding the nature and direction of the relationships before undertaking multivariate analysis. Economic growth exhibits a positive association with market capitalization, explaining that a larger and deeper stock market is generally accompanied by stronger economic performance. This finding is consistent with the theoretical proposition that developed capital markets facilitate savings mobilization, improve capital allocation, and support productive investment. In contrast, inflation displays a negative relationship with economic growth, indicating that periods of higher price instability are typically associated with weaker economic activity. This outcome supports the view that inflation creates uncertainty, discourages investment, and adversely affects economic performance. The correlation between economic growth and stock market returns is weak, implying that contemporaneous movements in stock prices do not necessarily translate into immediate changes in economic growth. This explains that the influence of stock market performance may operate through longer-term transmission mechanisms rather than through immediate effects. Among the explanatory variables, the correlations are generally moderate and remain below levels commonly associated with serious multicollinearity concerns. The weak relationship between market capitalization and stock market returns indicates that the two variables capture different dimensions of stock market development, namely market size and market performance. Furthermore, trade openness shows a positive association with inflation, reflecting the potential influence of imported inflation and exchange-rate pass-through effects. Overall, the correlation matrix explains that the variables are sufficiently distinct to be included simultaneously in the regression analysis without creating significant multicollinearity problems.

Table 3: Correlation Matrix

Variables	GDPGR	MCGDP	KSER	GFCF	TO	CPI
GDPGR	1.000					
MCGDP	0.485*	1.000				
KSER	−0.009	0.096	1.000			
GFCF	0.305	0.331	−0.407*	1.000		
TO	−0.155	0.081	−0.289	0.377	1.000	

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Variables	GDPGR	MCGDP	KSER	GFCF	TO	CPI
CPI	−0.474*	−0.296	−0.107	−0.135	0.554**	1.000

Table 4 reports the results of the Augmented Dickey–Fuller (ADF) and KPSS tests conducted to determine the stationarity properties of the variables before estimating the long-run relationship. Establishing the order of integration is a crucial prerequisite because the validity of the ARDL bounds testing approach depends on the absence of variables integrated beyond the first difference. Economic growth, market capitalization, and stock market returns are stationary at their level forms, indicating that shocks affecting these variables are temporary and that they revert to their long-run means without requiring differencing. The consistency between the ADF and KPSS results for these variables provides additional confidence regarding their classification as level-stationary processes. In contrast, gross fixed capital formation, trade openness, and inflation exhibit non-stationary behavior at levels but become stationary after first differencing. This explains that these variables contain stochastic trends and that shocks affecting them may have persistent effects over time. However, once transformed into first differences, their statistical properties become stable, confirming their classification as integrated of order one. The results reveal a mixed order of integration among the variables, but none of the variables is integrated of order two. This finding satisfies the key requirement of the ARDL methodology and justifies its application in the present study. The coexistence of both level-stationary and first-difference stationary variables demonstrates the suitability of the ARDL bounds testing framework, which is specifically designed to accommodate such mixed integration orders.

Table 4: Unit Root and Stationary Tests

Variables	ADF level (constant)	ADF 1st diff.	KPSS level	Lag Order
GDPGR	−3.68***	—	0.199	I(0)
ln(MCGDP)	−3.09**	—	0.134	I(0)
KSER	−4.80***	—	0.125	I(0)
ln(GFCF)	−2.23	−3.76***	0.295	I(1)
ln(TO)	−2.28	−4.87***	0.115	I(1)
CPI	−2.64*	−4.47***	0.180	I(1)

Table 5 presents the results of the ARDL bounds test for cointegration and provides strong evidence of a stable long-run relationship among economic growth, stock market development, and the selected macroeconomic variables in Pakistan. The calculated F-statistic exceeds the upper critical bound at all conventional significance levels, leading to the rejection of the null hypothesis of no cointegration. This finding indicates that economic growth, market capitalization, stock market returns, gross fixed capital formation, trade openness, and inflation move together over time and maintain a long-run equilibrium relationship despite short-run fluctuations. The existence of cointegration explains that developments in the stock market and broader macroeconomic conditions are systematically linked to Pakistan's economic growth trajectory. Moreover, the use of small-sample critical values strengthens the reliability of the result, as these critical values are specifically designed for limited sample sizes and provide more accurate inference than conventional

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asymptotic bounds.

Table 5: ARDL bounds test for Cointegration

Test statistic	Value	Significance	I(0) lower bound	I(1) upper bound	Decision
F-statistic	8.34	10%	2.26	3.35	
k (regressors)	5	5%	2.62	3.79	Cointegration
		1%	3.41	4.68	at 1% level

Table 5 presents the long-run coefficients of the model. The results indicate that market capitalization exerts a positive and statistically significant effect on economic growth in Pakistan over the long run. This finding explains that a larger and deeper stock market enhances the mobilization of financial resources and improves the allocation of capital toward productive investment activities. The result is consistent with the theoretical arguments advanced by Bagehot (1915), Schumpeter (1934), McKinnon (1973), Shaw (1973), and Levine (1997), who emphasized the role of financial markets in channeling savings into productive sectors of the economy. The positive relationship also supports the endogenous growth framework of Pagano (1993) and Bencivenga and Smith (1991), which argues that financial development promotes growth through improved investment efficiency and capital accumulation. Empirically, the finding is consistent with the cross-country evidence reported by King and Levine (1993a, 1993b), Atje and Jovanovic (1993), Levine and Zervos (1998), Rousseau and Wachtel (2000), Beck and Levine (2004), and Caporale et al. (2004), all of whom documented a growth-enhancing role of stock market development. Similar conclusions have been reported by Roy and Madheswaran (2020), Adjasi and Yu (2021), Marc et al. (2022), Khan et al. (2025), Saada (2025), Thaddeus et al. (2024), Shala et al. (2025), and Zhang and Young (2026), who identified financial-sector development and market expansion as important drivers of long-run economic growth. Within the Pakistani context, the result supports the findings of Shahbaz et al. (2008), Rahman and Salahuddin (2010), Nazir et al. (2010), Ali (2015), Ali and Rehman (2015), Ali and Bibi (2017), Ali and Zulfiqar (2018), and Akram et al. (2025), who reported that stock market development contributes positively to economic performance.

The coefficient of stock market returns is statistically significant, indicating that stock market performance contains important information regarding future economic activity. Although the estimated relationship is negative in the long-run specification, the magnitude is relatively small, explaining that short-term fluctuations in equity prices may not translate proportionately into long-term economic expansion. This outcome may reflect the speculative nature of stock returns in emerging markets, where stock price movements are not always fully aligned with productive investment. The result is broadly consistent with the observations of Harris (1997), Arestis et al. (2001), Singh (1997), and Stiglitz (1993), who argued that stock market activity can sometimes be disconnected from real-sector fundamentals, particularly in developing economies characterized by informational inefficiencies and speculative trading. Comparable findings regarding the volatility and informational content of stock returns have been documented by Marc et al. (2022), Marc et al. (2023), Saim et al. (2025), Ali et al. (2025), Kumar (2026), and Abbasi et al. (2025), who highlighted that stock market performance often reflects investor expectations, sentiment, and broader macroeconomic conditions. The finding also aligns with evidence from Pakistan reported by Husain and Mahmood (2001), Nishat and Shaheen (2004), Hassan and Javed (2009), and Jalil et al. (2009), which explains that stock market movements are heavily influenced by macroeconomic conditions and investor sentiment. Given the relatively

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shallow investor base and limited market participation documented by Iqbal (2012), stock returns may capture short-term expectations rather than long-term productive investment opportunities. Consequently, while stock market performance remains an important signal of economic conditions, sustainable growth appears to depend more strongly on market depth and investment formation than on equity price appreciation alone.

Gross fixed capital formation exhibits a positive and statistically significant relationship with economic growth, confirming the central role of physical investment in expanding productive capacity. This result is fully consistent with neoclassical and endogenous growth theories, which identify capital accumulation as one of the principal drivers of long-run economic growth. The finding supports the theoretical propositions of Pagano (1993), Greenwood and Jovanovic (1990), and Bencivenga and Smith (1991), who emphasized that financial development promotes growth primarily through increased investment. Higher levels of fixed capital formation increase productive efficiency, facilitate technological adoption, and enhance output capacity across sectors of the economy. The result also complements the finance-growth literature, which argues that developed financial markets stimulate growth by directing resources toward productive investment opportunities (Levine, 1997; Beck & Levine, 2004). The positive contribution of investment to economic performance is further supported by Iqbal et al. (2025), Khan et al. (2025), Appiah et al. (2023), Bykova et al. (2024), Ali and Afzal (2019), and Avelino and Coronel (2021), who reported that capital formation and productive investment remain fundamental determinants of sustainable economic growth. For Pakistan, the significance of investment highlights the importance of strengthening capital formation through improved financial intermediation, infrastructure development, and investor confidence. The finding further indicates that the beneficial impact of stock market development on growth may operate indirectly through its contribution to investment expansion.

Trade openness exhibits a negative and statistically significant long-run relationship with economic growth in Pakistan. Although conventional economic theory generally associates trade liberalization with higher growth through specialization, technology transfer, productivity enhancement, and access to larger markets, the negative coefficient explains that the benefits of openness have not been fully realized during the study period. This outcome may reflect the structural characteristics of Pakistan's economy, where trade expansion has often been accompanied by persistent trade deficits, import dependence, exchange-rate instability, and external financing pressures. In such circumstances, greater openness can expose the economy to external shocks and balance-of-payments constraints, thereby limiting its contribution to long-term growth. The finding is broadly consistent with the country-specific nature of the finance-growth relationship emphasized by Demetriades and Hussein (1996), who argued that institutional and structural conditions determine whether economic integration translates into growth. It also supports the view that financial and economic reforms generate positive outcomes only when accompanied by strong domestic productive capacity and sound macroeconomic management (McKinnon, 1973; Shaw, 1973). Similar concerns regarding the conditional effects of trade openness on growth have been highlighted by Ali and Naeem (2017), Ahmad et al. (2022), Marc et al. (2023), Wang et al. (2023), Fayou (2026), Al-Masri and Audi (2026), and Wim and Wendy (2025), who argued that trade integration generates growth benefits only when supported by strong institutions, competitiveness, and macroeconomic stability. Furthermore, the result is consistent with Rahman and Salahuddin (2010), who noted that Pakistan's growth performance is highly sensitive to external-sector conditions and macroeconomic stability.

Inflation exhibits a negative and statistically significant relationship with economic growth, indicating that macroeconomic instability undermines long-run economic performance. High inflation creates uncertainty, distorts price signals, reduces purchasing power, discourages long-term investment, and increases the cost of doing business. The finding supports the financial repression arguments of McKinnon (1973) and Shaw (1973), which

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emphasize the adverse consequences of macroeconomic distortions on financial development and economic activity. The result is also consistent with empirical evidence from Pakistan reported by Nishat and Shaheen (2004), Hassan and Javed (2009), Jalil et al. (2009), Rahman and Salahuddin (2010), and Omar et al. (2022), all of whom documented the detrimental effects of inflation on financial markets and economic performance. Additional support is provided by Arshad and Ali (2016), Ali (2015), Ali and Rehman (2015), Kumar et al. (2025), Muhammad (2023), Kumar and Kumar (2020), and Marc and Ali (2023), who found that inflationary pressures and macroeconomic instability weaken investment incentives, reduce economic efficiency, and constrain long-run growth prospects. The negative coefficient is particularly relevant given the severe inflationary episode experienced during 2022–2023, when inflation reached historically high levels and economic growth weakened substantially.

Table 6: Long-Run Coefficient Estimates
Dependent Variable: GDPGR

Regressors	Coefficients	p-value
ln(MCGDP)	1.236	(0.005)
KSER	−0.0003	(0.019)
ln(GFCF)	5.608	(0.029)
ln(TO)	−2.384	(0.027)
CPI	−0.099	(0.029)
Constant	−5.387	(0.063)

Table 6 presents the error correction model, which captures both the short-run dynamics and the speed of adjustment towards the long-run equilibrium. The results indicate that changes in market capitalization exert a positive and statistically significant effect on economic growth. This finding explains that expansions in stock market depth immediately enhance economic activity by improving the mobilization of savings and facilitating access to finance for firms. In the short run, a larger stock market increases the availability of investment funds, strengthens investor confidence, and improves capital allocation efficiency. The result is consistent with the theoretical arguments of Bagehot (1915), Schumpeter (1934), McKinnon (1973), Shaw (1973), and Levine (1997), who emphasized the role of financial markets in channeling resources toward productive investment. The finding also supports the empirical evidence reported by King and Levine (1993a, 1993b), Atje and Jovanovic (1993), Levine and Zervos (1998), Rousseau and Wachtel (2000), Beck and Levine (2004), and Caporale et al. (2004), who documented a positive relationship between financial market development and economic performance. Within the Pakistani context, the result aligns with Shahbaz et al. (2008), Rahman and Salahuddin (2010), Nazir et al. (2010), and Akram et al. (2025), indicating that improvements in market depth contribute to economic expansion not only in the long run but also through short-run transmission mechanisms.
The coefficient of changes in PSX-100 returns is statistically insignificant, indicating that short-run fluctuations in stock prices do not have an immediate effect on economic growth. This outcome explains that temporary movements in equity prices largely reflect investor sentiment, speculative activity, and short-term market expectations rather than changes in real economic fundamentals. In emerging markets such as Pakistan, stock returns often exhibit considerable volatility and may not accurately represent productive investment opportunities. The finding is broadly consistent with the arguments advanced by Harris (1997), Singh (1997), Stiglitz (1993), and Arestis et al. (2001), who questioned the strength of the short-run growth effects of stock market activity, particularly in developing

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economies characterized by informational inefficiencies and limited market depth. Similar conclusions can be drawn from Pakistani studies by Husain and Mahmood (2001), Nishat and Shaheen (2004), Hassan and Javed (2009), and Jalil et al. (2009), which found that stock price movements are influenced more by macroeconomic and financial conditions than by immediate changes in real economic output.

Changes in gross fixed capital formation have a positive and statistically significant effect on economic growth in the short run. This result highlights the central importance of investment spending as an immediate driver of economic activity. Increased investment in infrastructure, machinery, technology, and productive assets expands production capacity, generates employment opportunities, and stimulates aggregate demand. The finding is fully consistent with the endogenous growth literature, particularly the contributions of Pagano (1993), Greenwood and Jovanovic (1990), and Bencivenga and Smith (1991), which emphasize capital accumulation as a fundamental source of economic growth. The result also complements the broader finance-growth literature, which argues that financial development contributes to growth by facilitating investment and improving resource allocation (Levine, 1997; Beck & Levine, 2004). For Pakistan, where investment levels have historically remained below those of many emerging economies, the significance of gross fixed capital formation underscores the importance of policies aimed at encouraging private and public investment to sustain economic growth.

The results reveal that changes in trade openness exert a positive and statistically significant effect on economic growth in the short run. This finding explains that increased integration with international markets generates immediate economic benefits through greater export opportunities, access to imported capital goods, technology transfer, productivity improvements, and enhanced market competition. The positive short-run impact is consistent with the theoretical proposition that openness facilitates the efficient allocation of resources and promotes economic activity by exposing domestic producers to international markets. The finding also complements the finance-growth literature, which argues that openness enhances the effectiveness of financial markets by expanding investment opportunities and facilitating capital accumulation (Levine, 1997). From a development perspective, trade liberalization allows economies to benefit from specialization and economies of scale, thereby stimulating output growth and productive efficiency (McKinnon, 1973; Shaw, 1973). The positive short-run relationship is also consistent with the evidence reported by Rahman and Salahuddin (2010), who found that external-sector integration contributes positively to Pakistan's economic performance. However, the positive short-run effect contrasts with the negative long-run coefficient obtained in the cointegration model. This divergence explains that while trade expansion may initially stimulate economic activity, structural weaknesses such as persistent trade deficits, import dependence, exchange-rate pressures, and external financing constraints may reduce the long-term growth benefits of openness. Therefore, the results imply that Pakistan can obtain short-run gains from greater trade integration, but sustaining these benefits requires stronger export competitiveness, industrial diversification, and improved macroeconomic stability.

The coefficient of changes in inflation is negative but statistically insignificant, indicating that short-run fluctuations in inflation do not exert a measurable impact on economic growth. This result explains that temporary price changes are less important than persistent inflationary conditions in influencing economic performance. Firms and households may be able to absorb short-term inflation shocks without significantly altering production and investment decisions. The finding is consistent with previous studies on Pakistan, including Nishat and Shaheen (2004), Hassan and Javed (2009), Jalil et al. (2009), Rahman and Salahuddin (2010), and Omar et al. (2022), which reported that the adverse effects of inflation are more pronounced over longer periods. The finding is further supported by Ali (2015), Ali and Rehman (2015), Ali and Bibi (2017), Arshad and Ali (2016), Kumar et al.

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(2025), Muhammad (2023), Kumar and Kumar (2020), Dahmani and Makram (2024), and Ali and Mohsin (2023), who emphasize that sustained inflation and macroeconomic instability weaken economic performance primarily through their long-run effects on investment, financial stability, and productive activity rather than through short-term price fluctuations. The result, therefore, supports the distinction between transitory inflation movements and sustained inflationary pressures, with the latter posing greater risks to macroeconomic stability and economic growth.

The error correction term is negative and highly significant, providing strong evidence of a stable long-run equilibrium relationship among the variables. The significance of the coefficient confirms the existence of cointegration and validates the long-run results obtained from the ARDL framework. The negative sign indicates that deviations from the long-run equilibrium are corrected automatically over time, while the magnitude of the coefficient explains a rapid adjustment process. Economic shocks that move the system away from equilibrium are corrected within a relatively short period, demonstrating the resilience of the relationship between stock market development and economic growth. The speed of adjustment reflects the effectiveness of market and macroeconomic mechanisms in restoring equilibrium following disturbances. This finding is consistent with the theoretical expectations underlying the ARDL methodology (Pesaran et al., 2001) and supports earlier evidence from Pakistan reported by Shahbaz et al. (2008), Rahman and Salahuddin (2010), Nazir et al. (2010), and Akram et al. (2025), who also identified stable long-run relationships between financial development and economic growth. Overall, the significant error correction mechanism indicates that although short-run fluctuations occur, the Pakistani economy converges toward its long-run growth path over time.

Table 7: Error Correction Model
Dependent Variable: ΔGDPGR

Regressors	Coefficient	p-value
Constant	−0.169	0.594
Δ ln(MCGDP)	3.090	0.004
Δ KSER	0.004	0.608
Δ ln(GFCF)	10.954	0.047
Δ ln(TO)	13.213	0.013
Δ CPI	−0.042	0.502
ECT (−1)	−1.306	0.000

Table 8 presents the results of the Toda–Yamamoto causality test. The results reveal a unidirectional causal relationship running from PSX-100 returns to economic growth, while no evidence is found for causality from economic growth to stock market returns. This finding indicates that stock market performance contains information about future economic activity and supports the supply-leading hypothesis of financial development proposed by Patrick (1966). The result explains that changes in equity prices precede changes in real economic performance, reflecting the forward-looking nature of stock markets. Investors incorporate expectations regarding future corporate earnings, investment opportunities, and macroeconomic conditions into stock prices before these developments become visible in aggregate economic indicators. Consequently, stock market returns act as leading indicators of economic activity. This finding is consistent with the arguments of Schumpeter (1934), Levine (1997), and Levine and Zervos (1998), who emphasized the information-generation

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and capital-allocation functions of financial markets. Empirically, the result supports evidence reported by Atje and Jovanovic (1993), Caporale et al. (2004), Pan and Mishra (2018), and Ho and Odhiambo (2019), who documented a causal influence of stock market development on economic growth. The absence of reverse causality differs from the findings of Husain and Mahmood (2001) and several earlier Pakistani studies that supported the demand-following hypothesis, explaining that the role of Pakistan's stock market has evolved over time. This finding is further supported by Saim et al. (2025), Kumar (2026), Marc et al. (2022), Marc et al. (2023), Thaddeus et al. (2024), and Shala et al. (2025), who reported that stock market dynamics and financial market signals often precede changes in real economic activity.

The results indicate no direct causal relationship between market capitalization and economic growth in either direction. Neither market depth causes economic growth nor does economic growth stimulate market capitalization. At first glance, this finding may appear inconsistent with the positive long-run coefficient obtained in the ARDL model. However, causality analysis measures direct predictive influence, whereas cointegration captures long-run equilibrium relationships. The absence of direct causality explains that stock market size alone is insufficient to generate immediate growth effects. This finding is consistent with the observations of Harris (1997), Arestis et al. (2001), Naceur and Ghazouani (2007), and Demetriades and Hussein (1996), who argued that the growth effects of stock market development vary considerably across countries and institutional settings. It also supports the argument that financial development contributes to growth through specific transmission mechanisms rather than automatically through market expansion. In Pakistan's case, the relatively shallow nature of the equity market and limited investor participation documented by Iqbal (2012) may explain why increases in market size do not directly translate into higher economic growth. Similar conclusions have been reported by Saada (2025), Adjasi and Yu (2021), Mansour and Salar (2025), and Zhang and Young (2026), who emphasize that institutional quality, market depth, and financial sector maturity determine whether stock market expansion translates into measurable economic growth.

Although market capitalization does not directly cause economic growth, it exerts a significant causal influence on gross fixed capital formation. This finding identifies the principal channel through which stock market development contributes to economic performance in Pakistan. A larger and more developed stock market mobilizes savings, facilitates external financing, and increases the availability of capital for productive investment. This mechanism is strongly supported by the theoretical contributions of Bagehot (1915), Schumpeter (1934), McKinnon (1973), Shaw (1973), Bencivenga and Smith (1991), Pagano (1993), and Levine (1997), all of whom emphasized the role of financial systems in promoting capital accumulation. The result also aligns with the findings of King and Levine (1993a, 1993b), Levine and Zervos (1998), Rousseau and Wachtel (2000), Beck and Levine (2004), and Akram et al. (2025), which explain that financial development stimulates investment and thereby supports economic growth. The causality evidence therefore confirms that the growth-enhancing role of stock market development operates primarily through the investment channel. This investment-transmission mechanism is also supported by Khan et al. (2025), Iqbal et al. (2025), Prokopenko et al. (2025), Appiah et al. (2023), and Anwar (2024), who highlight the role of financial development in mobilizing capital and enhancing productive investment.

Gross fixed capital formation is found to cause economic growth, providing strong support for investment-led growth theories. The result confirms that increases in physical capital accumulation contribute directly to higher productive capacity, technological advancement, employment creation, and long-run economic expansion. This finding is consistent with endogenous growth theory, particularly the frameworks developed by Greenwood and Jovanovic (1990), Bencivenga and Smith (1991), and Pagano (1993), which identify investment as a key transmission channel linking financial development and economic

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growth. The result also supports the broader finance-growth literature represented by Levine (1997), Beck and Levine (2004), and Caporale et al. (2004). Taken together with the previous finding, the causality chain from market capitalization to investment and subsequently to growth provides strong evidence that stock market development contributes to economic growth indirectly through capital formation rather than through a direct effect on output. The importance of investment-led growth is also emphasized by Ali and Afzal (2019), Khan (2018), Bykova et al. (2024), Karhan (2019), and Alexandre and Diaz (2025), who identify capital accumulation, innovation, and productive investment as fundamental drivers of long-run economic performance.

Trade openness exhibits a significant causal effect on economic growth, indicating that greater integration with international markets contributes to economic performance in Pakistan. The result explains that trade facilitates growth through increased market access, technology transfer, competitive pressures, and access to imported capital goods. The finding is consistent with the theoretical arguments of McKinnon (1973) and Shaw (1973), who viewed economic liberalization as an important component of development strategies. It also complements the findings of Rahman and Salahuddin (2010), who emphasized the importance of external-sector dynamics for Pakistan's growth performance. Interestingly, weak evidence of reverse causality from economic growth to trade openness is also detected, implying that stronger economic activity may further stimulate international trade. This pattern explains the existence of a mutually reinforcing relationship between trade integration and economic expansion, although the influence of trade on growth appears stronger than the reverse effect. The finding is further supported by Ali and Naeem (2017), Ahmad et al. (2022), Marc et al. (2023), Wang et al. (2023), Fayou (2026), Al-Masri and Audi (2026), and Wim and Wendy (2025), who report that trade openness enhances economic performance through productivity improvements, international integration, and technology diffusion.

No significant causal relationship is found between inflation and economic growth within the Toda–Yamamoto framework. This finding explains that short-run fluctuations in inflation do not directly predict changes in economic growth. However, this result should not be interpreted as evidence that inflation is unimportant. The ARDL long-run estimates indicate that inflation exerts a significant negative effect on growth over time. Therefore, inflation appears to influence economic performance primarily through long-term macroeconomic stability rather than through short-term causal dynamics. This outcome is broadly consistent with the findings of Nishat and Shaheen (2004), Hassan and Javed (2009), Jalil et al. (2009), Rahman and Salahuddin (2010), and Omar et al. (2022), who documented the adverse consequences of sustained inflation for economic performance and financial market development. The results, therefore, imply that controlling inflation remains important for long-run growth, even though short-run inflation movements do not exhibit direct causal effects. Additional support is provided by Ali (2015), Ali and Rehman (2015), Ali and Bibi (2017), Arshad and Ali (2016), Kumar et al. (2025), Muhammad (2023), and Kumar and Kumar (2020), all of whom conclude that macroeconomic instability and persistent inflation weaken economic growth by reducing investment incentives and increasing uncertainty.

Table 8: Toda–Yamamoto Causality Tests

Null hypothesis (does not cause)	F-statistic	p-value	Conclusion
KSER → GDPGR	4.33	0.044	Causality **
GDPGR → KSER	0.19	0.832	No causality

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Null hypothesis (does not cause)	F-statistic	p-value	Conclusion
ln(MCGDP) → GDPGR	2.38	0.143	No causality
GDPGR → ln(MCGDP)	0.18	0.842	No causality
ln(MCGDP) → ln(GFCF)	5.64	0.023	Causality **
ln(GFCF) → GDPGR	5.19	0.029	Causality **
ln(TO) → GDPGR	4.13	0.049	Causality **
GDPGR → ln(TO)	3.68	0.063	Weak (10%) *
CPI → GDPGR	1.69	0.234	No causality

5. Conclusions

This study examined the relationship between stock market development and economic growth in Pakistan over the period 1980–2025 using the ARDL bounds-testing framework and the Toda–Yamamoto causality approach. The empirical findings provide strong evidence of a stable long-run relationship between economic growth, stock market development, and key macroeconomic variables. The ARDL bounds test confirms the existence of cointegration, indicating that stock market indicators and economic growth move together over time and maintain a long-run equilibrium relationship. The highly significant and negative error-correction term further demonstrates that short-run deviations from equilibrium are corrected rapidly, highlighting the stability of the underlying relationship. The long-run results reveal that market capitalization contributes positively and significantly to economic growth, explaining that a deeper and more developed stock market enhances the mobilization of financial resources and supports productive economic activity. Gross fixed capital formation also exerts a strong positive influence on growth, confirming the importance of investment as a key transmission channel through which financial development affects the real economy. In contrast, inflation negatively affects economic growth, emphasizing the importance of macroeconomic stability for sustaining long-term economic performance. Trade openness exhibits a negative long-run effect, indicating that the benefits of external integration may be constrained by structural weaknesses, import dependence, and recurring external-sector vulnerabilities. The short-run dynamics reinforce several of these findings. Changes in market capitalization, investment, and trade openness positively influence economic growth, while short-term movements in stock market returns and inflation do not exert significant effects. These results explain that improvements in market depth and productive investment generate immediate growth benefits, whereas inflationary pressures and stock price fluctuations primarily influence growth through longer-term channels. The causality analysis provides particularly important insights into the nature of the stock market-growth nexus in Pakistan. The findings reveal a unidirectional causal relationship running from PSX-100 returns to economic growth, while no evidence is found that economic growth causes stock market returns. This result supports the supply-leading hypothesis and indicates that stock market performance serves as a leading indicator of future economic activity. Furthermore, market capitalization is found to stimulate gross fixed capital formation, which subsequently promotes economic growth. Therefore, the contribution of stock market development to economic performance operates largely through the investment channel rather than through a direct impact on output. This finding explains that stock market depth facilitates capital accumulation, which in turn enhances productive capacity and economic growth.

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The results indicate that Pakistan's stock market has evolved beyond merely reflecting economic conditions and has become an increasingly important component of the growth process. While the market remains relatively shallow compared with many emerging economies, its role in mobilizing investment and signaling future economic activity has strengthened considerably over time. Sustaining these benefits will require policies aimed at broadening market participation, increasing listed firms, improving corporate governance and disclosure standards, strengthening investor confidence, encouraging capital formation, and maintaining macroeconomic stability. In particular, achieving low and stable inflation remains essential for maximizing the growth-enhancing effects of stock market development. The findings therefore explain that a deeper, more efficient, and more inclusive capital market can play a meaningful role in supporting Pakistan's long-term economic development strategy.

References

Ababio, J., Yiadom, E. B., Sarpong-Kumankoma, E., & Boadi, I. (2023). Financial inclusion: a catalyst for financial system development in emerging and frontier markets. *Journal of Financial Economic Policy*, *15*(6), 530-550.

Abbasi, U. Ali, A, & Audi, M. (2025). Advancing ESG Integration in Stock Market: A Sectoral Study of Sustainability Reporting in Pakistan. *Policy Journal of Social Science Review,* 3(5), 650–665.

Abigail, E. C. (2023). Unlocking Economic Growth Through Taxation in the case Nigeria. *Journal of Business and Economic Options*, *6*(4), 21-27.

Ackah, I. (2023). Examining government expenditure and economic growth in Ghana. *Journal of Business and Economic Options*, *6*(1), 29-36.

Adjasi, C. K., & Biekpe, N. B. (2006). Stock market development and economic growth: The case of selected African countries. *African Development Review, 18*(1), 144–161.

Adjasi, C. K., & Yu, D. (2021). Investigating South Africa's economic growth: The role of financial sector development. *Journal of Business and Economic Options*, *4*(3), 19-29.

Ahmad, K. (2018). Addressing demographic challenges: Strategies for sustainable economic growth in Pakistan. *Journal of Business and Economic Options*, *1*(4), 120-130.

Ahmad, K., Ali, A., & Yang, M. (2022). The Effect of Trade Liberalization on Expenditure Structure of Pakistan. *Bulletin of Business and Economics (BBE)*, *11*(1), 73-84.

Akram, M. N., Akhtar, R., Younas, W., & Farooq, M. (2025). Stock market performance and economic growth: Empirical evidence from Pakistan employing the ARDL approach. *Journal of Political Stability Archive, 3*(1), 980–997.

Alexandre, R., & Diaz, M. D. (2025). Tourism Receipts, Employment, and Infrastructure: Drivers of Brazil's Economic Growth. *Journal of Policy Options*, *8*(3), 45-55.

Ali, A. & Naeem, M.Z. (2017). Trade Liberalization and Fiscal Management of Pakistan: A Brief Overview. *Policy Brief-Department of Economics, PU, Lahore*. 2017 (1), 1-6.

Ali, A. (2015). *The impact of macroeconomic instability on social progress: an empirical analysis of Pakistan*. (Doctoral dissertation, National College of Business Administration & Economics Lahore).

Ali, A. (2018). Issue of Income Inequality Under the Perceptive of Macroeconomic Instability: An Empirical Analysis of Pakistan. *Pakistan Economic and Social Review*, 56(1), 121-155.

Ali, A. (2022). Determining Pakistan's Financial Dependency: The Role of Financial Globalization and Corruption. *Journal of Business and Economic Options*.

Ali, A. (2022). Financial Liberalization, Institutional Quality and Economic Growth Nexus: Panel Analysis of African Countries. *Bulletin of Business and Economics (BBE), 11*(3), 37-49.

Ali, A. (2022). Foreign Debt, Financial Stability, Exchange Rate Volatility and Economic Growth in South Asian Countries. *Journal of Business and Economic Options*.

Ali, A. and Bibi, C. (2017). Determinants of Social Progress and its Scenarios under the role of

Online ISSN 3007-3197
Print ISSN 3007-3189
http://amresearchreview.com/index.php/Journal/a

Macroeconomic Instability: Empirics from Pakistan. *Pakistan Economic and Social Review* 55 (2), 505-540.

Ali, A., & Afzal, M. (2019). Human capital development and economic growth: A panel data analysis. *Journal of Policy Options*, *2*(1), 22-39.

Ali, A., & Audi, M. (2023). Analyzing the Impact of Foreign Capital Inflows on the Current Account Balance in Developing Economies: A Panel Data Approach. *Journal of Applied Economic Sciences*, *18*(2), 80.

Ali, A., & Rehman, H. U. (2015). Macroeconomic instability and its impact on the gross domestic product: an empirical analysis of Pakistan. *Pakistan Economic and Social Review*, 285-316.

Ali, A., & Zulfiqar, K. (2018). An Assessment of Association between Natural Resources Agglomeration and Unemployment in Pakistan. *Pakistan Vision*, 19(1), 110-126.

Ali, A., Ahmed, F., & Rahman, F. U. (2016). Impact of Government Borrowing on Financial Development (A case study of Pakistan). *Bulletin of Business and Economics* (BBE), 5(3), 135-143.

Ali, A., Asim, M., & Ahmad, K. (2025). Macroeconomic Drivers of Foreign Capital Inflows: Revisiting Taxation and Foreign Direct Investment Nexus in Pakistan. *Indus Journal of Social Sciences*, *3*(3), 20-34.

Ali, A., Audi, M., Senturk, I., & Roussel, Y. (2022). Do Sectoral Growth Promote CO2 Emissions in Pakistan? Time Series Analysis in Presence of Structural Break. *International Journal of Energy Economics and Policy*, *12*(2), 410-425.

Ali, A., Iram, W., & Alam, M. (2025). Financial Globalization, Entrepreneurship, and Economic Growth: Evidence from Asian Countries. *Journal of Social Signs Review*, *3*(7), 174–191.

Ali, A., Jabeen, R., & Ahmad, K. (2025). Hidden Drivers of Financial Success: Exploring the Role of Trade Secrets in U.S. Corporate Performance. *Competitive Research Journal Archive*, *3*(2), 421-439.

Ali, A., Khamisa, M. A., & Rehman, A. (2025). Socioeconomic Determinants of Sustainable Development Goal Performance: A Global Perspective. *Journal of Social Signs Review*, 3(6), 296–318.

Ali, A., Mujahid, N., Rashid, Y., & Shahbaz, M. (2015). Human capital outflow and economic misery: Fresh evidence for Pakistan. *Social Indicators Research*, *124*(3), 747-764.

Ali, A., Umrani, Z., & Jadoon, A. K. (2025). Macroeconomic and Financial Determinants of Equity Market Value: Evidence from the UK Listed Firms. *Journal of Social Signs Review*, *3*(4), 304–320.

Ali, R., & Hassan, S. (2026). Macroeconomic Drivers of Economic Growth in Africa: The Role of Monetary Policy, Exchange Rates, and Migration. *Journal of Business and Economic Options*, *9*(1), 30-42.

Ali, S. B., & Mohsin, A. (2023). Exploring financial soundness and economic growth dynamics in Pakistan. *Journal of Business and Economic Options*, *6*(1), 1-15.

Al-Masri, R., & Audi, M. (2026). Innovation, Trade Openness, and Green Finance: Drivers of Industrial Performance Across Countries. *Journal of Energy and Environmental Policy Options*, *9*(1), 35-47.

Aman, M. Ali, A., & Audi, M. (2025). Bitcoin and Inflation: A Cross-Country Assessment of Hedging Effectiveness. *Annual Methodological Archive Research Review*, *3*(2), 1-21.

Ammar, M., Ali, A., & Audi, M. (2025). The Impact of Financial Literacy on Investment Decisions: The Mediating Role of Peer Influence and The Moderating Role of Financial Status. *Journal for Current Sign*, *3*(2), 379-411.

Ang, S. H. (2022). Exploring the dynamics of GDP growth and unemployment rates in Asian economies: A longitudinal analysis. *Journal of Business and Economic Options*, *5*(2), 14-22.

Antwi, F., Kong, Y., & Gyimah, K. N. (2024). Financial inclusion, competition and financial stability: New evidence from developing economies. *Heliyon*, *10*(13).

Anus, M., Audi, A., & Ali, A. (2025). The Dynamics of Budget Deficits: Growth, Governance, And Debt Sustainability in Developing Economies. *Contemporary Journal of Social Science*

Online ISSN 3007-3197
Print ISSN 3007-3189

Review, *3*(2), 2669-2675.

Anwar, M. (2024). The Impact of Islamic Financial Deepening on Economic Growth in Indonesia. *Airlangga Journal of Innovation Management*, *5*(1), 78-90.

Appiah, M., Gyamfi, B. A., Adebayo, T. S., & Bekun, F. V. (2023). Do financial development, foreign direct investment, and economic growth enhance industrial development? Fresh evidence from Sub-Sahara African countries. *Portuguese Economic Journal*, *22*(2), 203-227.

Aqeel, M. B., Audi, M., & Alam, M. (2025). Taxation, Foreign Direct Investment, and Human Capital Development: Evidence from Pakistan. (2025). *Contemporary Journal of Social Science Review*, *3*(3), 115-119.

Arestis, P., Demetriades, P. O., & Luintel, K. B. (2001). Financial development and economic growth: The role of stock markets. *Journal of Money, Credit and Banking, 33*(1), 16–41.

Arshad, S., & Ali, A. (2016). Trade-off between Inflation, Interest and Unemployment Rate of Pakistan: Revisited. *Bulletin of Business and Economics (BBE)*, *5*(4), 193-209.

Ashraf, I., & Ali, A. (2018). Socio-Economic Well-Being and Women Status in Pakistan: An Empirical Analysis. *Bulletin of Business and Economics (BBE)*, 7(2), 46-58.

Atje, R., & Jovanovic, B. (1993). Stock markets and development. *European Economic Review, 37*(2–3), 632–640.

Audi, M. (2016). *Adoption of Mobile Banking Applications in Lebanon*. University Library of Munich, Germany.

Audi, M., & Al Masri, R. (2024). Examining the impacts of regulatory framework on risk in commercial banks in emerging economies. *Journal of Business and Economic Options*, *7*(2), 10-19.

Avelino, G., & Coronel, D. A. (2021). Macroeconomic determinants of economic growth in developing countries: A cross-sectional analysis. *Journal of Business and Economic Options*, *4*(1), 16-24.

Aziz, S. R., Ahmad, K., & Ali, A. (2025). Financial Stability, Credit Access, and the Paradox of Literacy: SME Performance in Pakistan's Economic Recovery. *Journal of Social Signs Review*, *3*(05), 364–382.

Bagehot, W. (1915). *Lombard Street: A description of the money market*. Murray.

Beck, T., & Levine, R. (2004). Stock markets, banks, and growth: Panel evidence. *Journal of Banking & Finance, 28*(3), 423–442.

Bencivenga, V. R., & Smith, B. D. (1991). Financial intermediation and endogenous growth. *The Review of Economic Studies, 58*(2), 195–209.

Bukhari, M. Z., Ali, A., Audi, M. & Irfan, M. (2025). External Variables Affecting the Transfer Pricing Decisions: Arm's Length Basis and Transfer Pricing. (2025). *Advance Journal of Econometrics and Finance*, *3*(3), 1-20.

Bykova, V., Khasanova, M., & Polonkoeva, F. (2024). The role of human capital in economic development: An analysis of factors contributing to economic growth. *Reliability: Theory & Applications*, *19*(SI 6 (81)), 1676-1682.

Caporale, G. M., Howells, P. G., & Soliman, A. M. (2004). Stock market development and economic growth: The causal linkage. *Journal of Economic Development, 29*(1), 33–50.

Challoumis, C. (2024). The Role of Banking Systems in Shaping Enforcement and Escape Investments. *SSRN Electronic Journal*.

Chen, S. (2022). Dynamics of GDP growth and unemployment: Evidence from developed and developing Asian countries. *Journal of Business and Economic Options*, *5*(3), 26-33.

Dahmani, L., & Makram, H. (2024). Fostering economic growth through financial stability in Sub-Saharan Africa. *Journal of Business and Economic Options*, *7*(4), 13-22.

Das, N. (2022). The role of youth entrepreneurship in economic growth and social inclusion in India. *Journal of Policy Options*, *5*(1), 22-29.

Del Sarto, N., & Ozili, P. K. (2025). FinTech and financial inclusion in emerging markets: a bibliometric analysis and future research agenda. *International Journal of Emerging Markets*, *20*(13), 270-290.

Online ISSN 3007-3197
Print ISSN 3007-3189

Demetriades, P. O., & Hussein, K. A. (1996). Does financial development cause economic growth? Time-series evidence from 16 countries. *Journal of Development Economics, 51*(2), 387–411.

Demirgüç-Kunt, A., & Levine, R. (1996). Stock market development and financial intermediaries: Stylized facts. *The World Bank Economic Review, 10*(2), 291–321.

Dickey, D. A., & Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. *Journal of the American Statistical Association, 74*(366a), 427–431.

Dickey, D. A., & Fuller, W. A. (1981). Likelihood ratio statistics for autoregressive time series with a unit root. *Econometrica, 49*(4), 1057–1072.

Ditta, K. Ali, A., & Audi, M. (2025). Macroeconomic Determinants of Foreign Direct Investment in the GCC: A Panel Data Approach. *Policy Journal of Social Science Review, 3*(2), 391–412.

Farahmand, N. F. H. (2019). Strategic planning and innovation: Driving growth and sustainability in organizations. *Journal of Business and Economic Options*, *2*(1), 26-34.

Fatima, N., & Zaman, A. (2020). Financial development, innovation, and economic growth: Evidence from developing countries. *Journal of Policy Options*, *3*(2), 49-60.

Fayou, H. (2026). Foreign Capital Inflows, Trade Openness, and Sustainable Growth Dynamics in Morocco. *Journal of Business and Economic Options*, *9*(1), 1-15.

Feng, J., & Qi, S. (2024). Digital infrastructure expansion and economic growth in Asian countries. *Journal of Business and Economic Options*, *7*(2), 27-32.

Goldsmith, R. W. (1969). *Financial structure and development*. Yale University Press.

Gorus, S., & Groeneveld, R. (2018). Vietnam's development trajectory: Threshold cointegration and causality analysis of energy consumption and economic growth. *Journal of Energy and Environmental Policy Options*, *1*(2), 28-36.

Greenwood, J., & Jovanovic, B. (1990). Financial development, growth, and the distribution of income. *Journal of Political Economy, 98*(5), 1076–1107.

Harris, R. D. F. (1997). Stock markets and development: A reassessment. *European Economic Review, 41*(1), 139–146.

Hasan, N., Rahal, M. D., Sharma, P., & Rastogi, C. (2026). Role of technology in relationship between liquidity & profitability management of financial institutions offering microfinance services. *International Journal of Research & Technology*, *14*(S1), 711-723.

Hassan, A., & Javed, M. T. (2009). Macroeconomic influences and equity market returns: A study of an emerging equity market. *Journal of Economics and Economic Education Research, 10*, 47–68.

He, Z., & Wei, W. (2023). China's financial system and economy: a review. *Annual Review of Economics*, *15*, 451-483.

Hicks, J. R. (1969). *A theory of economic history*. Oxford University Press.

Ho, S.-Y., & Odhiambo, N. M. (2019). The macroeconomic drivers of stock market development: Evidence from Hong Kong. *Journal of Financial Economic Policy, 12*(2), 185–207.

Husain, F., & Mahmood, T. (2001). The stock market and the economy in Pakistan. *The Pakistan Development Review, 40*(2), 107–114.

Iqbal, J. (2012). Stock market in Pakistan: An overview. *Journal of Emerging Market Finance, 11*(1), 61–91.

Iqbal, J., & Noman, M. (2025). Digital Financial Technologies as Drivers of Inclusive Growth: A Strategic Review of Pakistan's Fintech Landscape. *Journal of Business and Economic Options*, *8*(4), 12-22.

Iqbal, M. A., Ali, A., & Audi, M. (2025). Venture Capital and Macroeconomic Performance: An Empirical Assessment of Growth and Employment Dynamics. *Contemporary Journal of Social Science Review*, *3*(3), 785-807.

Iqbal, Q., & Nader, M. (2024). Fiscal policy and economic growth in Saudi Arabia: A study of government expenditures and their macroeconomic effects. *Journal of Business and Economic Options*, *7*(3), 35-42.

Itan, I., Sylvia, S., Septiany, S., & Chen, R. (2025). The influence of environmental, social, and governance disclosure on market reaction: evidence from emerging markets. *Discover*

Online ISSN 3007-3197
Print ISSN 3007-3189

Sustainability, *6*(1), 347.

Jalil, M. A., Mohammad, S., & Hussain, A. (2009). Impact of macroeconomic variables on stock prices: Empirical evidence in the case of KSE. *European Journal of Scientific Research, 38*(1), 96–103.

Karhan, G. (2019). Investing in research and development for technological innovation: A strategy for Turkey's economic growth. *Journal of Business and Economic Options*, *2*(4), 152-158.

Khalid, U., Ali, A., & Audi, M. (2025). Understanding Borrowing Behaviour in the EU: The Role of Mobile Payments, Financial Literacy, and Financial Access. *Annual Methodological Archive Research Review*, *3*(5), 41-66.

Khalil, S., Audi, A., & Ali, A. (2025). Economic Growth, Digital Access, and Urbanization: Drivers of Financial Inclusion in A Comparative Global Context. *Contemporary Journal of Social Science Review*, *3*(2), 52-61.

Khan, A. (2018). Driving economic growth through vocational education: Empirical evidences from Pakistan. *Journal of Policy Options*, *1*(4), 165-176.

Khan, M. A., Haddad, H., Odeh, M., Haider, A., & Khan, M. A. (2022). Institutions, culture, or interaction: what determines the financial market development in emerging markets?. *Sustainability*, *14*(23), 15883.

Khan, M. N., & Hassan, T. (2019). Balancing economic growth and environmental sustainability through energy consumption in Pakistan. *Journal of Energy and Environmental Policy Options*, *2*(4), 109-116.

Khan, M. S., Audi, M., & Ali, A. (2025). Foreign Direct Investment, Financial Development, and Sustainable Growth: Empirical Evidence from Developing Countries. *Journal of Social Signs Review*, 3(8), 189–211.

Khan, M. Z. U., & Rehman, F. (2021). Interconnectedness of economic variables: Insights from Pakistan's endogenous growth model. *Journal of Business and Economic Options*, *4*(4), 37-46.

Khan, R., & Ullah, B. (2020). Examining the impact of firm sustainability practices on firm growth: Evidence from the United States. *Journal of Policy Options*, *3*(1), 11-25.

King, R. G., & Levine, R. (1993a). Finance and growth: Schumpeter might be right. *The Quarterly Journal of Economics, 108*(3), 717–737.

King, R. G., & Levine, R. (1993b). Finance, entrepreneurship and growth. *Journal of Monetary Economics, 32*(3), 513–542.

Konnov, G. (2020). Understanding generational influence on Kazakhstan's innovative growth. *Journal of Policy Options*, *3*(3), 100-105.

Kumar, D. (2026). Impact of Economic Indicators on Stock Market Performance in India. *International Journal of Economics and Business Management Research*, *2*(1), 42-47.

Kumar, D., & Kumar, M. (2020). Navigating the Inflation-Growth Nexus: Insights from Threshold Regression Analysis in India. *Journal of Business and Economic Options*, *3*(4), 158-166.

Kumar, S., Ali, A., & Alam, M. (2025). Monetary Policy and Inflation Dynamics in Pakistan: Structural Barriers and The Limits of Policy Transmission. *Pakistan Journal of Social Science Review*, 4(4), 270–292.

Labeeque, A., & Sanaullah, A. (2019). Towards inclusive economic growth: Synthesizing strategies for social inclusion in development. *Journal of Policy Options*, *2*(2), 77-95.

Le, C., Nguyen, B., & Vo, V. (2024). Do intangible assets help SMEs in underdeveloped markets gain access to external finance?—the case of Vietnam. *Small Business Economics*, *62*(2), 833.

Levine, R. (1997). Financial development and economic growth: Views and agenda. *Journal of Economic Literature, 35*(2), 688–726.

Levine, R., & Zervos, S. (1998). Stock markets, banks, and economic growth. *American Economic Review, 88*(3), 537–558.

Li, Z., Wang, Z., & Li, W. (2026). Finance, Institutions, and the Environment: Revisiting the Finance–Emission Nexus in Advanced Economies. *Journal of Energy and Environmental Policy Options*, *9*(1), 60-71.

Online ISSN 3007-3197
Print ISSN 3007-3189
http://amresearchreview.com/index.php/Journal/a

MacKinnon, J. G. (1996). Numerical distribution functions for unit root and cointegration tests. *Journal of Applied Econometrics, 11*(6), 601–618.

Mansour, K. B., & Salar, H. (2025). Democracy, Institutions, and Economic Drivers of Financial Sector Growth in OECD and Non-OECD Economies. *Journal of Business and Economic Options*, *8*(3), 1-12.

Marc, A. (2024). *The Impact of Exchange Rate Volatility on Long-term Economic Growth: Insights from Lebanon* (No. 121634). University Library of Munich, Germany.

Marc, A., & Ali, A. (2018). Gender Gap and Trade Liberalization: An Analysis of some selected SAARC countries. *Advances in Social Sciences Research Journal*, *5*(11).

Marc, A., & Ali, A. (2023). Public Policy and Economic Misery Nexus: A Comparative Analysis of Developed and Developing World. *International Journal of Economics and Financial Issues*, *13*(3), 56-73.

Marc, A., & Ali, A. (2023). Public Policy and Economic Misery Nexus: A Comparative Analysis of Developed and Developing World. *International Journal of Economics and Financial Issues*, *13*(3), 56.

Marc, A., & Yu, H. (2024). Strategic value creation through corporate social responsibility adoption for sustainable financial performance. *Journal of Policy Options*, *7*(4), 14-21.

Marc, A., Ali, A., & Hamadeh, H. F. (2022). Nexus Among Innovations, Financial Development and Economic Growth in Developing Countries. *Journal of Applied Economic Sciences*, *17*(4).

Marc, A., Ali, A., & Roussel, Y. (2021). Aggregate and Disaggregate Natural Resources Agglomeration and Foreign Direct Investment in France. *International Journal of Economics and Financial Issues*, *11*(1), 147-156.

Marc, A., Ehsan, R., & Ali, A. (2023). Does Globalization Promote Financial Integration in South Asian Economies? Unveiling the Role of Monetary and Fiscal Performance in Internationalization. *Empirical Economics Letters, 22*(10), 237-248.

Marc, A., Sulehri, F. A., Ali, A., & Al-Masri, R. (2023). The Role of Terrorist Events in Determining Stock Returns in Pakistan: Covering Most Vibrant Era 2003-2013. *Empirical Economics Letters*, *22* (7), 153-164.

Marc, A., Sulehri, F., Ali, A., & Al-Masri, R. (2022). An Event Based Analysis of Stock Return and Political Uncertainty in Pakistan: Revisited. *International Journal of Economics and Financial Issues*, *12*(5), 39-56.

Mastilo, Z., Štilić, A., Gligović, D., & Puška, A. (2024). Assessing the banking sector of Bosnia and Herzegovina: An analysis of financial indicators through the MEREC and MARCOS methods. *Journal of Central Banking Theory and Practice*, *13*(1), 167-197.

McKinnon, R. I. (1973). *Money and capital in economic development*. Brookings Institution.

Mehdi, H., Ali, A., & Audi, M. (2025). Tourism, Sustainability and Growth: An Empirical Investigation Of Long-Run Economic Impacts In Pakistan. *Contemporary Journal of Social Science Review*, *3*(1), 1479-1493.

Mengoub, E., & Tarbalouti, E. (2026). Currency Fluctuations, Economic Growth, and Export Competitiveness in Morocco. *Journal of Policy Options*, *9*(1), 17-28.

Modibbo, H., & Inuwa, N. (2020). Health outcomes and economic growth nexus: Evidence from Nigeria. *Journal of Business and Economic Options*, *3*(2), 46-55.

Muhammad, A. A. (2023). Examining the relationship among unemployment, inflation, and economic growth. *Journal of Business and Economic Options*, *6*(2), 23-31.

Murat, M. (2026). Digitalisation and Economic Growth: Evidence from Leading E-Commerce Economies. *Journal of Business and Economic Options*, *9*(1), 70-78.

Naceur, S. B., & Ghazouani, S. (2007). Stock markets, banks, and economic growth: Empirical evidence from the MENA region. *Research in International Business and Finance, 21*(2), 297–315.

Naeem, H. Ali, A., & Audi, M. (2025). The Impact of Financial Stability on Environmental

Online ISSN 3007-3197
Print ISSN 3007-3189

Degradation: Mediating Role of Green Investment and Moderating Role of Environmental Awareness. *Policy Journal of Social Science Review*, *3*(1), 448–469.

Narayan, P. K. (2005). The saving and investment nexus for China: Evidence from cointegration tests. *Applied Economics, 37*(17), 1979–1990.

Nasir, F. B., Audi, A., & Ali, A. (2025). Determinants of Corporate Tax Planning Strategies Among Multinational Corporations in The United Arab Emirates. *Contemporary Journal of Social Science Review*, *3*(2), 2187-2196.

Nazir, M. S., Nawaz, M. M., & Gilani, U. J. (2010). Relationship between economic growth and stock market development. *African Journal of Business Management, 4*(16), 3473–3479.

Nishat, M., & Shaheen, R. (2004). Macroeconomic factors and Pakistani equity market. *The Pakistan Development Review, 43*(4), 619–637.

Omar, A. B., Ali, A., Mouneer, S., Kouser, R., & Al-Faryan, M. A. S. (2022). Is stock market development sensitive to macroeconomic indicators? A fresh evidence using ARDL bounds testing approach. *PLoS ONE, 17*(10), e0275708.

Osei, V., & Acheampong, J. (2021). Factor-based approaches for improved economic forecasting: Insights from Ghana's GDP growth. *Journal of Business and Economic Options*, *4*(2), 17-23.

Pacillo, G. (2022). Urbanization, economic growth, and equity in Sri Lanka: Trends, patterns, and policy implications. *Journal of Business and Economic Options*, *5*(3), 20-25.

Pagano, M. (1993). Financial markets and growth: An overview. *European Economic Review, 37*(2–3), 613–622.

Pan, L., & Mishra, V. (2018). Stock market development and economic growth: Empirical evidence from China. *Economic Modelling, 68*, 661–673.

Pang, D., Jin, X., Zheng, K., & Tien, N. H. (2024). A road toward green growth: Optimizing the role of mineral resources, fintech innovation and effective governance in G-20 economies. *Resources Policy*, *92*, 104983.

Patrick, H. T. (1966). Financial development and economic growth in underdeveloped countries. *Economic Development and Cultural Change, 14*(2), 174–189.

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.

Phillips, P. C. B., & Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika, 75*(2), 335–346.

Prokopenko, O., Sitenko, D., Zhanybayeva, Z., Lomachynska, I., & Rakhmetova, A. (2025). Financial systems and their influence on entrepreneurial development: Insights for building sustainable and inclusive ecosystems. *Journal of Risk and Financial Management*, *18*(3), 131.

Radas, A. (2023). Inclusive business models as drivers of sustainable growth and social progress. *Journal of Policy Options*, *6*(3), 9-14.

Ragosa, G., Tomei, J., & Mulugetta, Y. (2026). Climate, power, and structural reforms: the political economy of international financial institutions and climate-resilient development. *World Development Perspectives*, *41*, 100770.

Rahman, M. M., & Salahuddin, M. (2010). The determinants of economic growth in Pakistan: Does stock market development play a major role? *Economic Issues, 15*(2), 69–86.

Raza, A., Tsiotsou, R., Sarfraz, M., & Ishaq, M. I. (2023). Trust recovery tactics in financial services: the moderating role of service failure severity. *International Journal of Bank Marketing*, *41*(7), 1611-1639.

Rousseau, P. L., & Wachtel, P. (2000). Equity markets and growth: Cross-country evidence on timing and outcomes, 1980–1995. *Journal of Banking & Finance, 24*(12), 1933–1957.

Roy, S., & Madheswaran, S. (2020). The nexus between financial sector development and economic growth: Evidence from Asian countries. *Journal of Business and Economic Options*, *3*(2), 39-45.

Russo, L. (2022). The impact of slow productivity on healthcare costs in a no-growth: An empirical analysis. *Journal of Policy Options*, *5*(4), 22-28.

Saada, S. (2025). The influence of financial innovation and market capitalization on economic

Online ISSN 3007-3197
Print ISSN 3007-3189
http://amresearchreview.com/index.php/Journal/a

growth: a comparative review of global and emerging markets. *Journal of Recycling Economy & Sustainability Policy*, *4*(1), 17-29.

Sadashiv, K. R. (2023). Foreign direct investment dynamics and economic growth in the case of India. *Journal of Business and Economic Options*, *6*(1), 45-52.

Safdar, Z., & Malik, R. (2020). Unraveling the Interplay Between External Debt and Economic Growth: Insights from Pakistan's Macroeconomic Landscape. *Journal of Business and Economic Options*, *3*(3), 120-128.

Saim, R. M., Senturk, I., & Ali, A. (2025). Macroeconomic Predictors and Stock Market Dynamics of the US Equity Market. *Annual Methodological Archive Research Review*, *3*(7), 91-110.

Sajid, A. & Ali, A. (2018). Inclusive Growth and Macroeconomic Situations in South Asia: An Empirical Analysis. *Bulletin of Business and Economics (BBE),* 7(3), 97-109.

Sayan, S., & Tas, C. (2026). Renewable Energy, Industrialization, and Economic Growth: Evidence from CIVETS Economies. *Journal of Energy and Environmental Policy Options*, *9*(1), 14-23.

Schumpeter, J. A. (1934). *The theory of economic development: An inquiry into profits, capital, credit, interest, and the business cycle*. Harvard University Press. (Original work published 1912)

Shahbaz, M., Ahmed, N., & Ali, L. (2008). Stock market development and economic growth: ARDL causality in Pakistan.

Shahbaz, M., Ur Rehman, I., & Zainudin, R. (2013). Macroeconomic determinants of stock market capitalization in Pakistan: Fresh evidence from cointegration with unknown structural breaks.

Shakri, I. H., Yong, J., & Xiang, E. (2024). Corporate governance and firm performance: Evidence from political instability, political ideology, and corporate governance reforms in Pakistan. *Economics & Politics*, *36*(3), 1633-1663.

Shala, S. H., Bytyqi, A., & Haxhimustafa, S. (2025, March). Stock Market Dynamics and Economic Growth: Empirical Insights. In *Navigating Economic Uncertainty-Vol. 2: Proceedings of the 7th International Scientific Conference on Business and Economics (ISCBE), Portugal, June 2024* (p. 133). Springer Nature.

Shaw, E. S. (1973). *Financial deepening in economic development*. Oxford University Press.

Singh, A. (1997). Financial liberalisation, stock markets and economic development. *The Economic Journal, 107*(442), 771–782.

Sinha, D., & Macri, J. (2001). Financial development and economic growth: The case of eight Asian countries.

Sohail, N., & Hussain, Z. (2009). Long-run and short-run relationship between macroeconomic variables and stock prices in Pakistan: The case of Lahore Stock Exchange. *Pakistan Economic and Social Review, 47*(2), 183–198.

Sossounov, K., & Kolenikov, S. (2023). Addressing inequality amidst economic growth in Russia. *Journal of Business and Economic Options*, *6*(2), 18-22.

Stiglitz, J. E. (1993). The role of the state in financial markets. *The World Bank Economic Review, 7*(Suppl. 1), 19–52.

Thaddeus, K. J., Ngong, C. A., Nnecka, U. J., Nubong, N. M., Ibe, G. I., Chinyere C, O., & Onwumere, J. U. J. (2024). Stock market development and economic growth in sub-Saharan Africa (1990–2020): an ARDL approach. *Journal of Economic and Administrative Sciences*, *40*(2), 344-363.

Toda, H. Y., & Yamamoto, T. (1995). Statistical inference in vector autoregressions with possibly integrated processes. *Journal of Econometrics, 66*(1–2), 225–250.

Truong, L. D., Le, T. X., & Friday, H. S. (2022). The influence of information transparency and disclosure on the value of listed companies: Evidence from Vietnam. *Journal of Risk and Financial Management*, *15*(8), 345.

Turan, F., & Can, S. (2024). Innovation as a Driver of Growth in the Context of Circular Economy and Green Management. *Journal of Policy Options*, *7*(4), 1-13.

Umair, S. M., Ali, A., & Audi, M. (2025). Financial Technology and Financial Stability: Evidence

Online ISSN 3007-3197
Print ISSN 3007-3189

from Emerging Market Economies. *Research Consortium Archive*, *3*(1), 506-531.

Umoh, O., & Effiong, E. (2024). Evaluating the contribution of Nigeria's transport sector to economic growth from 1970 to 2023. *Journal of Business and Economic Options*, *7*(3), 19-25.

Wang, J., Yang, J., & Yang, L. (2023). Do natural resources play a role in economic development? Role of institutional quality, trade openness, and FDI. *Resources Policy*, *81*, 103294.

Wim, C., & Wendy, S. (2025). Business Law, Foreign Direct Investment, and Economic Growth: A Panel Analysis of European Union Member States. *Journal of Business and Economic Options*, *8*(4), 1-11.

Yan, K., & Chen, J. (2019). Human capital dynamics and economic growth: A panel data analysis of eleven countries. *Journal of Business and Economic Options*, *2*(3), 105-114.

Zhang, H., & Young, L. (2026). Financial Intermediation, Institutional Quality, and Economic Growth: Insights from BRICS Nations. *Journal of Business and Economic Options*, *9*(1), 59-69.

Zhang, W. B. (2020). Integrated analysis of economic growth and land prices: A two-sector model approach. *Journal of Business and Economic Options*, *3*(3), 107-110.