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# STOCK MARKET DEVELOPMENT AND ECONOMIC GROWTH IN PAKISTAN: EVIDENCE FROM ARDL AND CAUSALITY ANALYSIS

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## ABSTRACT

This paper deals with a very important issue of the impact of the development of the stock market on the economic growth in Pakistan, especially during the periods of volatility and macroeconomic instability. The central goal is to test the association between indicators of the stock market and the real GDP empirically, and to establish the causality directions. To measure the impact of the previously mentioned innovations, the study must rely on a quantitative approach based on quarterly data on time series in 2002-2022 and the Autoregressive Distributed lag (ARDL) model, unit root tests, and the Granger causality analysis. The findings show that there is a significant long-run relationship, with the result of the F-statistic of 5.11 being greater than the upper bound and the adjusted R 2 of 92.6, which is high, indicating substantial model fit. The convergence rate of the error correction term is 20.98 percent every quarter. The results validate the existence of bidirectional relationships between GDP and market capitalization, inflation, and industrial output, but they have unidirectional relationships between FDI and GDP. The research comes to the conclusion that the development of the stock market has a significant contribution to economic development. It suggests that the financial regulations should be strengthened, the markets should be more stable, and investor confidence should be encouraged in order to facilitate sustainable economic development.

**Keywords:** Stock Market Development, Economic Growth, ARDL Model, Granger Causality, Pakistan Stock Exchange.

## INTRODUCTION

Capital markets have a central role to play in enhancing economic growth as they mobilize savings and help in investment and the efficient distribution of financial resources. Pakistan Stock Exchange is one of them, which plays a pivotal role in connecting investors and companies in need of funds, therefore helping in economic growth. A properly operating stock market offers various opportunities for liquidity and diversification of risks, but it also serves as an indicator of the economic performance (Levine, 2021; Nguyen & Pham, 2022). In an emerging economy like the Republic of Pakistan, the stock market takes an even more significant role because of the dearth of other sources of finance and structural economic issues.

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The stock market-growth nexus is theoretically based on the models of the Efficient Market Hypothesis and the q theory of Tobin. According to these theories, the prices of stocks contain information available and determine investment decisions, thus affecting the actual economic activity (Fama, 1970; Tobin, 1969). Empirical evidence has become more and more focused on the two-way connection between financial market development and economic growth, which suggests that stock markets may trigger economic growth, but at the same time, economic growth may boost the performance of the market (Boubakari & Jin, 2020; Rafay et al., 2023).

In the Pakistani setting, it has been observed that the stock market has been highly volatile because of unstable macroeconomy, political instabilities, and external shocks. Inflation, exchange rates, foreign direct investment, and industrial output are examples of variables that have a considerable impact on the stock market and, consequently, the economic growth (Khalid & Khan, 2017; Ghani et al., 2022; Demir et al., 2022; Asteriou & Pilbeam, 2021). The Pakistan Stock Exchange has been resilient in spite of these challenges, and it is still crucial as a platform of capital formation and investment. Nevertheless, over-volatility may erode investor confidence, raise the cost of capital and make sustainability growth difficult.

Recent studies have given significant focus to the significance of knowing both the short and long-run relationship between stock market variables and macroeconomic variables through the application of advanced econometric models and methods such as the Autoregressive Distributed Lag (ARDL) model (Pesaran et al., 2001; Nkoro & Uko, 2016; Shahbaz et al., 2021). The methods enable the researcher to address the complexity of financial-real sector interactions, especially in emerging markets where structural intervention and alteration of policies are the norm.

In addition, globalization and financial integration led to the vulnerability of domestic markets to international shocks, which is why it is necessary to study the role of external elements, including oil prices and global financial uncertainty (Asteriou & Pilbeam, 2021; Bouri et al., 2021; Mensi et al., 2022; Apergis & Payne, 2020). To the policymakers, understanding these relationships clearly would be important in formulating effective financial regulations and macroeconomic policy formulations that would lead to stability and growth.

Thus, this research will add to the current literature by giving empirical data on the correlation between the development of the stock market and the growth of an economy in Pakistan. It pays attention to determining causal connections and determining the contribution of major macroeconomic variables to the establishment of this connection. It is assumed that the findings will be of some benefit to the policymakers, investors, and researchers who may seek to improve the effectiveness and stability of the financial system and achieve sustainable economic growth.

## Problem Statement

Although the role of capital markets in the process of economic development is acknowledged, the correlation between the performance of the stock market and the economic growth in Pakistan has not been studied properly yet. The Pakistani Stock Exchange has been highly volatile due to macroeconomic instability, political instability and external shocks, which have cast doubt on its efficiency as a contributor

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to sustainable growth. Although there have been studies that indicate a positive and mutually directional relationship, there are other studies that indicate weak or inconsistent linkages, especially in emerging economies. Such a difference in opinion poses difficulties to policymakers when formulating the right financial and economic policies. In addition, the lack of empirical studies that facilitate both short-run and long-run dynamics in the recent data deprives us of a thorough understanding of the problem. Thus, the systematic investigation of the causal nature of stock market development and economic growth in Pakistan is necessary to offer evidence-based policy advice.

### Objectives of the Study

- To investigate the effects of the development of the stock market on the economic growth in Pakistan.
- To examine the short-run and long-run association between the measures of the stock market and real GDP.
- To examine the causation between the variables of the stock market and economic growth.
- To determine how significant the key macroeconomic variables (inflation, FDI, trade, and industrial output) are in determining this relationship.
- To make policy suggestions on the way to make financial markets more stable and achieve sustainable economic development.

## LITERATURE REVIEW

The connection between the growth of the stock market and the growth of the economy has been one of the key concerns in the field of financial economics, especially within the emerging economies (Sadorsky, 2021; Ho & Iyke, 2020; Phan et al., 2021). Capital markets ensure that resources are allocated efficiently, liquidity is improved, and capital is formed, thus leading to economic growth (Levine, 2021). In this respect, the stock markets will serve as intermediaries between the excess units and those faced with deficit units, and thus, optimal utilization of financial resources is enhanced. Empirical and theoretical sources give inconsistent information on the direction and strength of the relationship.

Early contributions in the field of theory put a stress on the importance of financial development in developing the economy. Levine and Zervos (1998) reasoned that future economic growth is largely predicted by the stock market liquidity and the development of banking. In the same way, Boubakari and Jin (2020) concluded that the factors of capitalization and turnover ratio of stock markets have a positive impact on GDP growth in emerging economies. These results indicate that properly established stock markets improve the efficiency of investments and facilitate economic growth in the long term.

The relationship is not always that easy, however. Other studies indicate the probability of reverse causality, where the stock market is propelled by the growth of

the economy. To give an example, the mutual causality between financial development and economic growth in Asian states shows the existence of a feedback mechanism (Pradhan et al., 2017; Lawal et al., 2020; Appiah-Otoo, 2021). This means that the more economies develop, the more they provide a good environment for the development of financial markets such as stock exchanges.

The literature on the topic of Pakistan presents varied and contradictory results. Iqbal et al. (2018) established that stock market indicators were positively related to economic growth in the long run, which indicated that capital market development is an important aspect of economic performance. On the same note, Rafay et al. (2023) discovered that market capitalization and liquidity indicators play a key role in determining the GDP growth in emerging economies such as Pakistan. These papers highlight the need to strengthen the financial institutions to promote sustainable development.

On the other hand, other studies claim that the stock market in developing countries tends to be inefficient and volatile, and this could undermine their role in economic growth. According to Khalid and Khan (2017), macroeconomic instability, specifically inflation and changes in interest rates, has a negative impact on the performance of stock markets in Pakistan. The volatility of the market is discouraging to investors because it makes them lack long-term investment, and thus, the market has a limited growth potential.

The influence of macroeconomic variables on the determination of the nexus between the stock market and growth has also been popularly studied. One of them, inflation, is typically observed to be negatively related to the performance of the stock market, as it leads to a loss of purchasing power and rises in uncertainty (Asteriou & Pilbeam, 2021). In the same way, fluctuation in exchange rates may have an impact on the inflow and outflow of foreign investment and market stability, especially in open economies. Research conducted by Ghani et al. (2022) underscores the fact that economic policy unpredictability and global shocks play an important role in determining stock market volatility in Pakistan.

Another important variable that affects economic growth, as well as the development of a stock market, is the Foreign Direct Investment (FDI). FDI leads to capital formation, transfer of technology and creation of jobs, hence improving the productivity of the economy. There is empirical evidence indicating that FDI is positively correlated with economic growth, but the causality direction in different countries could be different (Shahbaz et al., 2021). In Pakistan, Granger-causality has identified FDI to have a great impact on GDP, meaning that it drives the economy.

Net exports are also important to economic growth as well as trade openness. The open economies are likely to enjoy greater market access, diffusion of technology and efficient competition. Nevertheless, the role of trade on stock markets is not clear since some studies show that it has a positive impact, and others indicate no significant relationships (Asteriou & Pilbeam, 2021). Trade deficits have become a continuous problem in Pakistan, and this has added pressure on the economy and market performance.

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Another important factor in the growth of the economy and stock market performance is industrial production. The Large-Scale Manufacturing (LSM) index is a common proxy of industrial activity. Research shows that the increase in industrial production results in positive corporate profits that make a positive impact on the stock prices and performance in the market (Nguyen & Pham, 2022). This bond brings out the interdependence of the real and the financial worlds.

In its method, the recent studies have increasingly embraced sophisticated econometric methods in order to capture the dynamism in the relationship between the stock markets and economic growth. Pesaran and his team were the pioneers of what today is known as the Autoregressive Distributed Lag Model (ARDL), and its popularity is closely connected to the fact that it allows estimating both the short-run and long-run relationships at the same time (Pesaran et al., 2001). This method is especially effective in the analysis of time-series data of mixed integration orders, which is prevalent in macroeconomic analysis.

In addition, Granger causality tests are common in establishing the causal direction between variables. According to evidence provided by different research, the correlation between economic growth and stock market development is usually two-sided and comprises an elaborate feedback process (Pradhan et al., 2017). In Pakistan, both unidirectional and bidirectional causality are supported with empirical results depending on which variables are taken into consideration.

The nexus of the stock market and growth is further exacerbated by the issues of globalization and monetary integration. The emerging markets are becoming more and more vulnerable to global shocks such as changes in oil prices, international financial crises, and geopolitical uncertainties. These aspects can have a profound effect on the performance of the domestic stock market and the economic stability (Ghani et al., 2022). Thus, global variables need to be included in empirical studies in order to reflect these external factors.

To conclude, according to the literature, the development of the stock market is a key factor in economic growth, though the relationship is subject to many macroeconomic and institutional determinants. Whereas there are studies that offer a solid case of a positive and significant relationship, there are studies that point out the volatility, inefficiency and the external shock threats. The evidence behind the case of Pakistan indicates that there exists a complex and dynamic relationship that needs to be further empirically studied through the application of sound methodologies. The proposed study will be able to add to this field of knowledge by including the latest evidence related to the stock market-growth nexus and providing insights that can be valuable at the policy level.

## Theoretical Framework

This paper has a theoretical framework based on major financial and economic theories explaining the correlation between stock market development and economic growth. The Efficient Market Hypothesis (Fama, 1970) is the hypothesis that stock prices are an efficient distribution of information, with the help of which resources are effectively distributed. According to the theory of q (also known as Tobin) (Tobin, 1969), when the market is valued high in comparison to replacement cost, firms will

invest in order to trigger economic growth. Also, the Life-Cycle Hypothesis (Ando & Modigliani, 1963) is an explanation of the effect of the stock market on consumption as a result of wealth effects. All these theories will stand in favour of the idea that the stock markets hold a central position in economic activity. Also, endogenous growth theory underlines the fact that financial development similarly stimulates productivity and innovation that promote ongoing economic growth (Levine, 2021). The combination of these hypotheses gives a holistic approach to the analysis of the dynamic relationship between stock market variables and macroeconomic variables in Pakistan.

## Conceptual Framework

The conceptual framework illustrates the relationship between stock market development and economic growth, incorporating key macroeconomic variables as determinants:

***Dependent Variable:***

- Economic Growth (Real GDP)

***Independent Variables (Stock Market Indicators)***

- Market Capitalization
- Turnover Ratio

***Control Variables (Macroeconomic Factors)***

- Foreign Direct Investment (FDI)
- Inflation (CPI)
- Net Exports (NX)
- International Oil Prices (IOP)
- Industrial Output (LSM)

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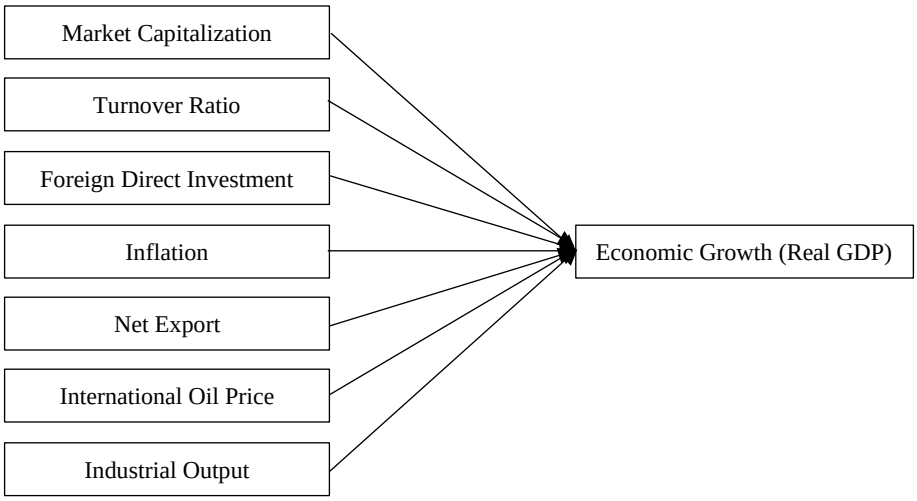



**Figure 01: Conceptual Framework**

## Study Hypotheses

**$H_1$:** Stock market development has a significant impact on economic growth in Pakistan.

**$H_2$:** Market capitalization has a significant positive relationship with real GDP.

**$H_3$:** Turnover ratio has a significant effect on economic growth.

**$H_4$:** Foreign direct investment (FDI) has a significant positive impact on economic growth.

**$H_5$:** Net exports have a significant relationship with economic growth.

**$H_6$:** Inflation (CPI) has a significant negative impact on economic growth.

**$H_7$:** International oil prices have a significant effect on economic growth.

**$H_8$:** Industrial output (LSM) has a significant positive relationship with economic growth.

**$H_9$:** There exists a long-run equilibrium relationship between stock market indicators and economic growth.

**$H_{10}$:** There is a bidirectional causal relationship between stock market development and economic growth.

## RESEARCH METHODOLOGY

The present research paper will also use a quantitative research design to empirically examine how the stock market development relates to economic growth in Pakistan. The time-series methodology will be used in order to capture short and long-run dynamics between variables. Financial economics makes extensive use of quantitative approaches to provide objectivity, accuracy, and generalizability of results

(Baltagi, 2021). It is an explanatory design that attempts to provide causal correlations among the stock market indicators and macroeconomic performance based on sophisticated econometric models.

**Data and Sources**

The paper uses the quarterly secondary data between 2002 and 2022. The sources of data include the publications of the State Bank of Pakistan, Pakistan Bureau of Statistics and international financial databases, which are credible and internationally accepted sources of information. Secondary data is used to guarantee consistency and reliability, which is necessary to conduct an empirical economic analysis (Wooldridge, 2020). All the variables will be converted to suitable forms to support consistency and minimize scale and heteroscedasticity problems.

**Variables and Measurement**

The dependent variable of economic growth is the Real Gross Domestic Product (RGDP). Market Capitalization (CAP) and Turnover Ratio (TOS) are proxies of the development of the stock market that denote market size and liquidity, respectively. Moreover, there are a number of macroeconomic control variables, namely: Foreign Direct Investment (FDI), Net Exports (NX), Consumer Price Index (CPI) as a measure of inflation, International Oil Prices (IOP), and Large-Scale Manufacturing (LSM) index. These variables are chosen due to the existing literature that has indicated their importance in affecting the performance of the stock markets and the economic growth (Levine, 2021; Shahbaz et al., 2021).

**Econometric Model Specification.**

The functional relationship among the variables is given as follows:

RGDP = f (CAP, TOS, FDI, NX, CPI, IOP, LSM).

This association is also stated in a linear econometric model to analyze how the independent variables can affect economic growth. The model can be used to test both the direct and indirect impacts of the stock market indicators and macroeconomic variables on RGDP. In finance-growth studies, such model specifications are usually used to represent the structural relationship between the variables (Asteriou & Pilbeam, 2021).

**Estimation Technique (ARDL Approach)**

The research design involves the Autoregressive Distributed Lag (ARDL) bounds testing framework, which is used to yield the short and long-term associations among the variables. The reason why the ARDL model is more favored is that it is flexible to accommodate the variables that are incorporated of various orders, i.e., I(0) and I(1), and it is not necessary to pre-test the uniformity of unit roots (Pesaran et al., 2001). Also, ARDL offers effective and unbiased estimates with small samples of data and estimates long-term outcomes and short-term processes at the same time. The Akaike Information Criterion (AIC) is applied to determine the optimum lag length, and the model is accurate and robust.

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### Unit Root and Diagnostic Tests.

In order to ascertain the soundness of the findings, unit root tests, including the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests, are done to test the stationarity conditions of the variables. It is important to establish stationarity in order to prevent the outcome of spurious regression (Wooldridge, 2020). Moreover, diagnostic tests such as serial correlation, heteroscedasticity and model stability tests (CUSUM and CUSUMSQ) are used to ensure the strength and soundness of the model estimated. These tests take care of the classical requirements of regression analysis of the model.

### Error Correction Model (ECM)

To determine the rate of adjustment in a short-run disequilibrium to a long-run equilibrium, an Error Correction Model (ECM) is obtained based on the ARDL framework. The error correction coefficient is used to show the rate at which the system comes back to equilibrium following a shock. A negative and statistically significant ECM value is the indicator of the existence of a stable long-run relationship between the variables (Shahbaz et al., 2021).

### Granger Causality Analysis

The research uses the Granger causality test in order to establish the causality between the development of the stock market and economic growth. This method is useful in determining whether alterations in one variable can result in alterations in another and thus provides causal relationships, as opposed to correlation (Baltagi, 2021). The findings of this discussion give more information about the cyclical relationships between financial and real sectors.

## ANALYSIS AND INTERPRETATIONS

**Table 01: Descriptive Statistics**

| Variable | Mean | Std. Dev. | Skewness | Kurtosis |
|---|---|---|---|---|
| RGDP | 707.33 | 95.84 | -0.17 | 2.88 |
| CAP | 4686044 | 2827286 | 0.07 | 1.75 |
| TOS | 5119.33 | 3289.31 | 1.78 | 8.11 |
| FDI | 737.89 | 402.03 | 0.84 | 4.49 |
| NX | -5000.97 | 3067.44 | -0.44 | 3.05 |
| CPI | 80.02 | 37.57 | 0.37 | 2.11 |
| IOP | 142.83 | 53.93 | 0.20 | 2.08 |
| LSM | 90.19 | 21.04 | -0.07 | 2.81 |

Table 01 shows the descriptive statistics of all variables, the distribution of which gives a perspective on their characteristics. The mean values describe the average amount of each variable during the study, which means that RGDP is average with respect to its growth, whereas CAP and TOS have large values to indicate the size and the activity of the stock market. CAP and TOS have a high standard deviation, indicating a high degree of volatility in the stock market, which is normal in emerging

economies. The weighted average of NX is negative, which proves that there has been a sustained trade deficit in Pakistan. The skew values indicate that the majority of variables are quite symmetrical, with the exception of TOS and FDI, which have positive skew, which demonstrates the existence of extremely high values. The values of kurtosis are near 3, indicating that most of the variables are normally distributed, with the exception of TOS and FDI, which are leptokurtic in their distribution, i.e., with higher peaks and possible outliers. In general, the data seem to be appropriate in terms of further econometric analysis (Wooldridge, 2020).

**Table 02: Unit Root Test Results (ADF)**

| Variable | T-Statistic | P-value | Order of Integration |
|---|---|---|---|
| RGDP | -3.00 | 0.039 | I(1) |
| CAP | -7.22 | 0.000 | I(1) |
| TOS | -5.21 | 0.000 | I(0) |
| FDI | -2.90 | 0.049 | I(0) |
| NX | -11.32 | 0.000 | I(1) |
| CPI | -7.22 | 0.000 | I(1) |
| IOP | -6.84 | 0.000 | I(1) |
| LSM | -3.77 | 0.004 | I(1) |

Table 02 presents the outcome of the Augmented Dickey-Fuller (ADF) test, which is applied to test the stationarity of the variables. The results have shown that the greater part of the variables, such as RGDP, CAP, NX, CPI, IOP and LSM, are stationary at the first difference I(1), and TOS and FDI are stationary at the level I(0). This mixed order of integration establishes the fact that the variables do not integrate at the same level, thus eliminating the application of standard cointegration methods like Johansen. Nevertheless, that is why the use of the ARDL model is justified, as it can integrate both I(0) and I(1) variables without the requirement to integrate them at the same level (Pesaran et al., 2001). It is important to guarantee that there exists stationarity so that the outcome of a spurious regression is avoided and that estimates are made with reliability.

**Table 03: ARDL Bound Test Results**

| Test Statistic | Value | Lower Bound (5%) | Upper Bound (5%) | Decision |
|---|---|---|---|---|
| F-statistic | 5.11 | 2.69 | 3.83 | Cointegration Exists |

Table 03 shows the outcome of the ARDL bound test that was conducted to establish the existence of a long-run relationship among the variables. The F-statistic (5.11) calculated is greater than the upper bound critical value (3.83) at the 5 percent significance level, and this results in the null hypothesis of no cointegration being rejected. This confirms that there is a stable long-run equilibrium relationship between the indicators of the stock market and the macroeconomic variables and economic growth. A cointegration would suggest that the variables are correlated in the long term, even in the short term, although the variables vary; however, this approach does not contradict the theoretical fact that the relationship between financial development and economic growth is expected to be strong (Shahbaz et al., 2021).

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**Table 04: Long-Run ARDL Estimates**

| Variable | Coefficient | T-Statistic | Probability |
|---|---|---|---|
| CAP | -0.000036 | -0.89 | 0.37 |
| TOS | -0.001062 | -0.07 | 0.93 |
| FDI | 0.150988 | 1.42 | 0.16 |
| NX | 0.098128 | 1.45 | 0.15 |
| CPI | -7.926388 | -1.30 | 0.19 |
| IOP | -1.330193 | -1.39 | 0.17 |
| LSM | -3.444818 | -0.41 | 0.67 |

Table 04 indicates the estimated ARDL model long-run coefficients. According to the results, the individual variables are statistically insignificant since they have a p-value that is greater than the standard level of significance of 0.05. Despite the fact that there are positive (FDI, NX) and negative (CPI, IOP) relationships between variables and the RGDP, none of them are strong enough separately. This implies that the evolution of the stock market and the macroeconomic variables do not affect economic growth separately, but collectively. This is indicative of structural constraints and ineffectiveness of new financial markets, in which the system as a whole is more important than any single indicator (Levine, 2021).

**Table 05: Error Correction Model**

| Variable | Coefficient | T-Statistic | Probability |
|---|---|---|---|
| ECM(-1) | -0.209840 | -6.87 | 0.000 |

Table 05 shows the findings of the Error Correction Model (ECM) that accounts for the dynamics and the rate of adjustment in the short-run to the long-run equilibrium. The error correction coefficient (-0.209840) is negative, and it is very significant, which proves that there is a stable relationship in the long run. The scale of this coefficient shows that 20.9 percent of disequilibrium of the last period is smoothed over each quarter. This means that the system would reach the equilibrium in approximately five quarters. The high ECM coefficient confirms the trustworthiness of the ARDL model and proves the capacity of the economy in adapting to short-term shocks (Asteriou & Pilbeam, 2021).

**Table 06: Granger Causality Results**

| Null Hypothesis | F-Statistic | P-value | Decision |
|---|---|---|---|
| CAP → RGDP | 2.77 | 0.033 | Reject |
| RGDP → CAP | 4.39 | 0.003 | Reject |
| FDI → RGDP | 4.75 | 0.001 | Reject |
| RGDP → FDI | 2.37 | 0.060 | Accept |
| NX → RGDP | 5.57 | 0.000 | Reject |
| CPI → RGDP | 6.71 | 0.000 | Reject |

The findings of the Granger causality test, which test the causality direction between variables, are given in Table 06. The findings suggest a two-way causality between RGDP and CAP because both null hypotheses are rejected, with the hope that there is a feedback between the stock market development and economic growth. Moreover, there is unidirectional causality of FDI, NX, and CPI on RGDP, which implies that these variables have a huge impact on economic growth. Nonetheless, FDI is not Granger-caused by RGDP, with the null hypothesis being admitted. The results indicate the multilateral nature of financial and macroeconomic variables and indicate the feedback hypothesis according to which financial markets and economic growth reinforce each other (Pradhan et al., 2017).

## DISCUSSION

The results of this paper give valuable knowledge on the dynamic behavior between the development of the stock market and economic growth in Pakistan. The empirical findings support the presence of a long-run equilibrium statement between stock market indicators and macroeconomic variables by showing that the finance-growth nexus theory is true. This fits with the discussion that operational financial markets lead to greater efficiency in the allocation of capital and sustainable economic development (Levine, 2021; Shahbaz et al., 2021; Nguyen & Pham, 2022; Boubakari & Jin, 2020). The large F-statistic of the ARDL bound test supports the cointegration, and therefore, the performance of the stock market and economic development are moving together over time.

Nonetheless, the long-run coefficient outcomes show that the individual stock market indicators, including market capitalization and turnover ratio, have no statistical significance. This implies that the collective contribution of the stock market to the growth of the economy may not influence its independent impacts. The existence of these findings represents a poor indication of structural inefficiency and inadequate depth of markets in developing economies such as Pakistan, which are yet to reach the stage of financial market maturation (Boubakari & Jin, 2020). These inefficiencies could lower the efficiency of stock markets in directing resources to productive investments.

The dynamics of the error correction model (ECM) in the short run are that the adjustment coefficient is significant and negative, which proves that the model is stable. The pace of the adjustment implies that the alterations of the long-run equilibrium are eliminated in a comparatively short time. This observation is in line with earlier research that highlights the role of financial markets in the stabilization of economic fluctuations and recovery following shocks (Asteriou & Pilbeam, 2021). It also means that the policy actions that are taken to enhance market efficiency may have comparatively fast economic pay-offs.

Moreover, Granger causality analysis indicates that there exists a two-way relationship between economic growth and some important variables in the form of market capitalization, inflation, net exports, oil prices, and industrial output. This confirms the hypothesis of the feedback hypothesis, according to which the development of the financial system and the economic growth mutually support one another (Pradhan et al., 2017). Bidirectional causality implies that it is not only the development of the stock market that affects the growth of an economy, but economic

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growth also leads to better results in the performance of the market. The result of this interdependence is the importance of combined policy strategies, which could explain the real and financial sectors at the same time.

Another relationship determined by the study is the unidirectional causal relationship between foreign direct investment (FDI) and economic growth, which shows the importance of external funds inflow in boosting economic activity. FDI also leads to improvement in technology, creation of jobs, and an increase in productivity, which is a requirement of long-term growth (Shahbaz et al., 2021). Nevertheless, the fact that turnover ratio and GDP are not causal implies that market liquidity is not enough to stimulate economic growth in the Pakistani economy.

Economic growth shows high interactions with macroeconomic variables, especially inflation and oil prices, as a sign of the susceptibility of the Pakistani economy to foreign shocks and internal conflicts. Uncertainty can be heightened by high inflation and unpredictable oil prices, which will decrease investment and have a negative effect on market performance (Ghani et al., 2022). Thus, macroeconomic stability is an important factor that leads to an increase in the stock market's effectiveness.

Generally speaking, the results indicate that the role of the stock market in the economic growth of Pakistan is relevant, although it is defined through the institutional quality and macroeconomic settings at large. The stock market has a huge growth potential that must be fully achieved by strengthening financial regulations, enhancing market transparency, and maintaining macroeconomic stability. These findings are important in the current body of literature as they present new empirical findings and give useful policy implications to new economies.

## CONCLUSION

This research concludes that the development of stock markets has an important but multifaceted role in the determination of the growth of the economy in Pakistan. The empirical results affirm that there is a long-run equilibrium between the indicators of the stock market and macroeconomic variables, which supports the finance-growth nexus. The unimportance of each long-run coefficient is, however, indicative that the effect of stock market variables is more systemic than individualistic, which represents structural inefficiency in the financial system. The existence of bidirectional causality between the macroeconomic variables and the growth of the economy also confirms the feedback hypothesis, showing that financial and real sectors reinforce each other (Levine, 2021; Pradhan et al., 2017). Also, the important role played by foreign direct investment underscores the importance of foreign capital inflows in economic activity. In general, the research underlines the fact that the stock market as an instrument of growing the economy requires stability of the macroeconomy, the quality of institutions, and the support of policies. These aspects should be reinforced to make capital markets more effective in building sustainable economic growth (Shahbaz et al., 2021).

## RECOMMENDATIONS

According to the findings, some policy recommendations are provided. To begin with, policymakers should work on enhancing regulatory systems that will enhance transparency, efficiency, and investor confidence in the stock market. The market volatility and the encouragement of long-term investment may be improved by strengthening the institutional quality and governance mechanisms (Boubakari & Jin, 2020). Second, critical macroeconomic variables, including inflation and exchange rates, should be stabilized since these have a tremendous impact on the performance of the stock market as well as economic growth. Third, the government must promote foreign direct investment through the provision of a favorable business environment, incentives and political stability. Also, the market liquidity should be improved, as well as increasing financial instruments, to further enrich the stock market and promote its economic contribution. Lastly, the policymakers would implement multi-faceted approaches that would address the development of the financial sector and the actual sector at the same time to realize sustainable economic development (Asteriou & Pilbeam, 2021).

## LIMITATIONS

There are various limitations of this study despite its contributions. First, the analysis is performed according to quarterly time series, starting with 2002 and ending with 2022, which might not reflect structural breaks or economic shocks in the recent past, like global financial crises or pandemics. Second, the analysis is limited to a few macroeconomic variables and indicators of stock markets, and it may fail to capture other important aspects like political stability, institutional quality and investor sentiment. Third, the application of the ARDL model, despite being robust, might be incapable of addressing nonlinear relationships and structural complexities that exist in emerging markets. In addition, the results can be impacted by data constraints and measurement problems. These limitations can be overcome in future research by using high-frequency data, other methods of econometric analysis, and larger groups of variables to obtain more detailed information (Wooldridge, 2020).

## SIGNIFICANCE OF THE STUDY

This research has a major academic and practical value. In academics, it adds to the current literature through offering current empirical research on the correlation between the development of the stock market and economic growth in an emerging economy setting. It complements the knowledge of dynamic relationships between financial markets and macroeconomic variables with the help of strong econometric methods. In practice, the findings are of importance to policy makers, financial regulators and investors because of the significance of having financial market development in order to realize sustainable economic growth. Another issue highlighted in the study is that policy interventions must be effective to enhance market efficiency and stability. Besides, it offers the basis of future studies in the sphere of financial economics and specifically in developing nations where capital markets continue to develop (Levine, 2021; Shahbaz et al., 2021).

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