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Impact of Stock Market Development on the Economic Growth of Pakistan

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Muhammad Irfan Akram & Naeem Akram (2024). Impact of Stock Market Development on the Economic Growth of Pakistan. *Asian Journal of Economics and Finance*. 6(1), 87-98. https://DOI: 10.47509/ AJEF.2024.v06i01.05 **Abstract:** The stock market's growth is a sign of the financial health of the economy. It indicates an investor's interest in a country. Thus, stock market development is an important barometer of economic growth. The present study, while using time series data for the period 1977–2020 and applying the auto-regressive distributed lag (ARDL) co-integration technique, has analysed the role of stock markets in the economic growth of Pakistan. Population growth has a negative relationship with economic growth. Stock market performance, investments, and the existence of a military regime have positive and significant impacts on economic growth in Pakistan.

Keywords: Economic growth, stock market development, democracy, ARDL

JEL Classifications: O43, G23, C32, and O53

1. Introduction

The development of banks, stock markets, and other financial institutions emerged because of the need to finance large technological inventions that individuals could not fund (Akram, 2016). This revised financial system promoted the efficient distribution of capital by creating easily traded and diversified financial assets (Levine, 1991). The stock markets are a crucial indicator of a country's economic development because they facilitate the mobilisation of domestic resources for productive investment, leading to an increase in capital productivity. By providing opportunities for investment at a lower cost, the stock market encourages the use of savings (Obstfeld, 1994). Liquidity in the stock markets allows firms to invest in a more productive manner, leading to better capital allocation and growth (Paudel, 2005).

According to Gill *et al.* (1988), a robust and thriving stock market can bring about significant economic benefits in five distinct ways. First, it can contribute to the stability of a country's financial system and economy by

reducing floating and higher real interest rates through permanent equity financing. Second, it can promote employment and growth by providing financing for small businesses, both directly through a country's larger formal markets and indirectly by conducting venture capital operations. Third, it can encourage democratic ownership of the industry by widely dividing the ownership of securities among the public. Fourth, it can facilitate access to international capital markets provided that the market is efficient and has a liquid securities exchange. Finally, a formal and well-regulated market can enhance economic performance by setting fair prices for market securities and reducing their buying and selling costs.

During the early 1990s, many developing countries initiated economic liberalisation and opened their stock markets to international investors, leading to significant improvements in the size and depth of their stock markets (Husain & Mahmood, 2001). In Pakistan, the government took substantial steps towards economic liberalisation, privatisation and foreign exchange control facilitation during that time, including measures to open the stock markets to international investors (Husain, 2006). Despite facing challenges such as low foreign investment, high inflation, high trade deficits, and depleted foreign exchange reserves, the Karachi Stock Exchange (KSE) was declared the best-performing stock market of 2017, based on indicators such as market capitalisation market index, and trade volume, which showed remarkable growth. The authorities have frequently claimed that these developments indicate the country's economic progress. However, it would be beneficial to investigate whether these developments have had any impact on the real sector of the economy. Given the significance of stock market development, this study explores the relationship between stock market development and economic growth in Pakistan between 1977 and 2020.

2. Literature Review

The relationship between consumption and saving/investment is based on the life cycle income hypothesis of Ando & Modigliani (1963), which suggests that individuals should base their consumption expenditure on their expected income over their entire lifetime. The remaining amount of current income can then be saved or invested. Since then, numerous studies have been conducted on the role of the stock exchange in economic development.

Husain and Mahmood (2001) found that stock markets had a positive and significant impact on economic growth in Pakistan from 1959 to 1998. Greenwood and Smith (1997) suggested that stock markets could minimise the cost of mobilising savings, thus diverting savings to productive investments and stimulating economic growth. Levine (1991) and Bencivenga *et al.* (1999) argued that savers are often reluctant to give control of their savings to long-term investments, but liquid equity markets can give them assets that can be sold quickly and cheaply. Bencivenga and Smith (1991) showed that savings could increase economic growth by reducing uncertainty.

Hasan *et al.* (2009) analysed the role of stock market development on China's economic growth for the period 1986–2002 and found that the legal environment, financial market development, political diversity, and property rights awareness all had a positive and significant impact on economic growth. Har *et al.* (2009) also found that the stock market stimulated economic growth by providing new private capital.

Enisan and Olufisayo (2009) concluded that stock market development had a positive impact on long-term economic growth in South Africa and Egypt. Nazir *et al.* (2010) found that the capital market played an important role in the development of business and industry in Pakistan, contributing to economic development. Antonios (2010) found a unidirectional causality between stock market development and economic growth in Germany during 1965–2007. Tachiwou (2010) found that stock market development positively impacted both short- and long-term economic growth in West African Monetary Union countries, indicating that stock markets can serve as an indicator of investor behaviour and financial strength in an economy.

Rioja and Valev (2011) found that in low-income countries, banks played a crucial role in capital accumulation, whereas in high-income countries, stock market development had a significant role in both capital growth and productivity. Cavenail *et al.* (2014) supported this argument and found that depending on the level of economic development, stock markets and banks may have different effects. Alajekwu *et al.* (2012) found that financial trading ratio and market capitalisation had a negative impact on economic growth in Nigeria for the period 1994-2008, while Osamwonyi and Kasimu (2013) found that market capitalisation and the number of listed securities contributed to economic growth in Ghana, Kenya, and Nigeria. Bayar *et al.* (2014) found a long-term relationship between stock market development and economic growth in Turkey for the period 1999-2013. Russeau and Wachtel (2000) also found a positive and significant impact of stock market liquidity on economic growth in 47 countries during 1980–1995.

Albaity and Tohidi (2015) concluded that stock market development has a positive and significant impact on economic growth and that the effect is stronger in countries with higher levels of financial development. Dincer and Yüksel (2016), using data from Turkey, found that stock markets can mobilise savings and allocate them to more productive investments, thus stimulating economic growth. Kaur and Kaur (2017) found that in India, stock market development has a positive impact on economic growth in the long run, although the short-run impact is insignificant. Similarly, Bahmani-Oskooee and Miteza (2019) found that in Croatia, stock market development has a larger impact on economic growth eventually. It has also been supported by Ewetan and Ewetan (2020) and Nwaogbe and Ogbeide (2019) in Nigeria. Eshun and Essilfie (2018) concluded that stock market development has a positive and significant impact on economic growth in Ghana.

Zhang and Wang (2019) found that the relationship between stock market development and economic growth in China is nonlinear, with a threshold effect. Specifically, the positive impact of stock market development on economic growth is weakened when the stock market size exceeds a certain threshold. Abdulai and Nartey (2020) found that stock market development has a positive and significant impact on economic growth in Ghana, and that the impact is stronger in the long run than in the short run. Ojirika et. al. (2020) found that stock market development causes economic growth in Nigeria, but not vice versa.

3. Data and Methodology

The impact of stock market development on economic growth cannot be estimated incognito in the presence of other factors that are associated with economic growth. Therefore, GDP growth is assumed to be a function of population growth, market capitalisation, investment (Gross Capital Formation), democracy, and openness. The variable descriptions and sources of their data are summarised in Table 1.

| Sr. No. | Name of the Variable | Data Source | Description |
|---------|----------------------------|-------------------------------|--|
| 1. | Per Capita GDP (Y) | SBP | To measure economic growth, per capita GDP has been used. |
| 2. | Investment (K) | SBP | Gross fixed capital formation as a percentage of GDP has been used as a proxy for investment. |
| 3. | Population growth rate (L) | SBP | Annual growth rate of the population. |
| 4. | Openness (OP) | SBP | Exports plus imports as a percentage of GDP is considered a proxy for openness. |
| 7 | Market Capitalization (MC) | Pakistan Stock Exchange | Market capitalisation is a measure of the value of all shares of companies on a stock exchange |
| 8. | Democracy (DEM) | _ | We constructed a proxy that takes a value of one for the years when the country is ruled by dictators in Pakistan and zero for the years when a democratic government is in place. |

Table 1: Variable Descriptions

The present study used data for the period 1977–2020. The general form of the econometrics model is represented as:

$$Y_t = \beta_0 + \beta_1 L_t + \beta_2 M C_t + \beta_3 K_t + \beta_4 D E M_t + \beta_5 O P_t + u_t$$

As some of the selected variables are integrated at the level and others at the first difference, this study has used the autoregressive distributed lags model (ARDL) co-integration method introduced by Pesaran *et al.* (1999) and it can perform in three stages. In the first step, long-term cointegration between the variables is checked using the bound F-test. In this test, the calculated F-statistic value is compared with the tabulated Fstatistic. If it exceeds the upper limit, then it reflects the existence of longrun Co-integration. If it is below the lower bound, then it means that there is no longer co-integration between the variables. However, if it falls between the upper and lower bounds, then the results are inconclusive (Pesaran *et al.*, 1999). After establishing the long-run co-integrating relationship, the short-run and long-run coefficients are estimated.

4. **Results and Discussion**

For the time series data, the first step is to check the unit root. The present study used the Augmented Dicky Fuller (ADF) test for this purpose. The results are summarised in Table 2.

| Name of the Variable | Level | | 1st Difference | | | | |
|-------------------------|-----------|------------------------|----------------|-----------|------------------------|------|-------------------------|
| | Intercept | Trend and Intercept | None | Intercept | Trend and Intercept | None | Order of Integration |
| Υ | -0.9378 | -2.3555 | 3.1202 | -4.3296* | | | I(1) |
| L | 0.1212 | -2.6936 | -2.5727 | | | | I(0) |
| MC | -1.3920 | -2.3188 | 0.1572 | -5.7938* | | | I(1) |
| Κ | -1.9276 | -2.5269 | -6.3700* | | | | I(1) |
| DEM | -2.0573 | -2.3701 | 1.5584 | -6.0756* | | | I(1) |
| Op | -2.2244 | -3.0412 | -0.5320 | -6.1443* | | | I(1) |

Table 2: Unit Root Test

Null Hypothesis: Presence of a unit root. * Indicates null rejection at 5% level

The results reveal that per capita GDP (Y), Openness (OP), Democracy (DEM), and Stock Market Capitalisation (MC) have unit root levels. However, these variables are stationary in the first difference, indicating that the variables are I (1). The rest of the variables are stationary at the level i.e., they are in I (0). Hence, our model is a mixture of I (1) and I (0) variables and we do not have any I (2) variables. In this scenario, we will use the ARDL cointegration technique proposed by Pesran *et al.* (2001) to estimate the model.

4.1. ARDL Estimation Results

The choice of the maximum interval length is crucial in the ARDL model. The VAR model was run without restriction (i.e., Unrestricted Var model) to select the maximum number of lags in the model. The results of the VAR Lag Order Selection Criteria are summarised in Table 3 below.

| Lag | Akaike Information Criterion | Schwarz information criterion | HQ: Hannan– Quinn information criterion |
|-----|---------------------------------|----------------------------------|--|
| 0 | -7.3910 | -7.0906 | -7.2851 |
| 1 | -17.9205 | -15.8176 | -17.1791 |
| 2 | -22.1519* | -20.7720* | -23.9601* |

Table 3: VAR Lag Order Selection Criteria

The results indicate that using three different lag selection criteria (Akaike information criterion, Schwarz information criterion and Hannan-Quinn information criterion), 2 is the optimal maximum lag. By running the model and checking for different outcomes, it was found that the ARDL model (1, 0, 2, 0, 1, 1) is the most appropriate model on the Schwarz information criterion. The next step is the calculation of the bound F statistic. These results are summarised in Table 4.

Table 4: ARDL Bound Test

| Bound F-statistic value | Significance | I(0) Bounds (Lower Bound) | I(1) Bounds (Upper Bound) |
|----------------------------|--------------|------------------------------|------------------------------|
| 19.0139 | 10% | 2.26 | 3.35 |
| | 5% | 2.62 | 3.79 |
| | 2.5% | 2.96 | 4.18 |
| | 1% | 3.41 | 4.68 |

According to the results, the calculated F-statistics is above the upper limit at 5% and even 1% level of significance; hence, it concludes that there is a long-run relationship among the variables. In the next step, the long-run coefficients have been estimated and reported in Table 5.

Table 5: ARDL Long Run Coefficients (1, 0, 2, 0, 1, 1)

| Independent Variables | Coefficients | Std. Error | t- statistics | Probability |
|-------------------------------|--------------|------------|---------------|-------------|
| L | -0.8348 | 0.0296 | -28.1946 | 0.0012 |
| OP | -0.1043 | 0.0400 | -2.6067 | 0.1167 |
| K | 0.2603 | 0.0515 | 5.0568 | 0.0356 |
| DEM | 0.0362 | 0.0032 | 11.4006 | 0.0073 |
| MC | 0.0986 | 0.0067 | 14.6294 | 0.0044 |
| С | 6.7266 | 0.0755 | 89.0929 | 0.0001 |
| F-Statistics | 1.8641 | P-value | | 0.0002 |
| Serial correlation | n LM test | | 0.984822 | |
| [value in () is the p value] | | | (0.2973) | |

Eventually, population growth has a negative impact on economic growth. A one per cent increase in population growth will result in an 83% per cent decrease in per capita GDP. These results support the conventional Malthusian theory that population growth hurts the economic growth of a country (Malthus, 1798).

Contrary to expectations, openness was found to be insignificant with a negative sign. Sukar and Ramakrishna (2002) also found similar results in Ethiopia. One possible explanation is that trade distortions might be a major contributor to this negative and insignificant impact.

Gross capital formation has been used as a proxy for investment. Investment has a significantly positive impact on per capita GDP, which is supported by numerous past studies on the subject, e.g. Mankiw *et al.* (1992). A one per cent increase in gross capital formation as a percentage of GDP will increase GDP per capita by 26%.

Democracy has also emerged as a significant factor for economic growth in Pakistan. This reflects that in Pakistan, the presence of a military government has a significant impact on per capita GDP. During the military regime, economic growth was significantly higher compared to democratic government.

In line with our expectations, market capitalisation (the indicator for stock market development) has been found to have a positive and significant impact on economic growth. The results reveal that 1% increase in market capitalisation as a percentage of GDP will result in an increase of approximately 10% in per capita GDP. These results are supported by various past studies, including those of Husain & Mahmood (2001) and Kamran *et al.* (2018).

Serial correlation LM test, F statistic is significant, and we do not reject the null hypothesis of no serial correlation and conclude that there is no serial correlation in our model.

The high value of R-Square reveals that considering the number of variables, the overall goodness of fit of the model is satisfactory. The F-Statistic measuring the joint significance of all the regressors in the model is also statistically significant. The serial correlation LM test indicates the non-existence of a serial correlation. After estimating the long-run coefficients, the final step in ARDL analysis is the estimation of the error correction model because if there is co-integration among the variables, then in the short-run error correction will also occur. The results of the error correction model are summarised in Table 4.

The significant error correction terms further confirmed the existence of a stable long-run relationship among the variables. The coefficient of the error correction term also represents the speed of adjustment. The

| Variables | Coefficient | P-Value |
|--------------------|-------------|---------|
| D(Growth(-1))* | -0.98286 | 0.00000 |
| D(L) | 2.07777 | 0.07750 |
| D(OP) | 3.94775 | 0.23750 |
| D(OP (-1)) | 12.76295 | 0.12540 |
| D(OP(-2)) | -4.73038 | 0.41920 |
| D(K) | 8.71071 | 0.00000 |
| D(DEM) | -0.04782 | 0.93640 |
| D(DEM(-1)) | 0.00347 | 0.89680 |
| D(MC) | 0.496910 | 0.0820 |
| D(MC(-1)) | 0.000988 | 0.9987 |
| C | -17.3647 | 0.7372 |
| ECT(-1)* | -0.50286 | 0.0000 |
| R-squared | 0.98971 | |
| Adjusted R-squared | 0.98926 | |
| F-statistic | 21.5190 | |
| Prob(F-statistic) | 0.0000 | |

Table 6: Short-run estimation results (1, 0, 2, 0, 1, 1)

* and ** denote significance at 5% and 10 % levels, respectively

results suggest that following a shock, approximately 50% of the adjustment towards the long-run equilibrium is completed after one year.

Openness and democracy have an insignificant relationship with economic growth in the short run. This implies that the effects of these variables on economic growth are transmitted only in the long run, and the short run effects are marginal. However, investment, labour productivity and market capitalisation have a positive and significant effect on economic growth in the short run.



Figure 1: CUMSUM test results

The cumulative sum (CUSUM) graphs show that the coefficient of the short run lies within the critical limits, indicating the stability of the coefficients over the sample period.

5. Conclusion and Policy Implications

The stock markets play a very important role by diverting domestic resources to productive investment. Hence, the stock market is crucial for the development of industry and trade, which ultimately have positive impacts on economic growth. Economic activities in the stock market are now becoming essential in Pakistan, as the stock market has gained considerable interest in the past few years. Different indicators such as market capitalisation trade volume and market index have shown remarkable growth. Authorities have often claimed that these developments reveal the country's economic development. It would be very important to examine the impact of these developments on the economy.

The present study has analysed the long-term impact on stock market development for economic growth in Pakistan for the period 1977-2020. The outcomes of the present study reveal that in the long run, population growth has a negative relationship with economic growth. It has been further found that investments, the existence of a military regime, and growth in stock market performance have a positive and significant impact on economic growth. However, the study is unable to find a significant impact of openness on economic growth in Pakistan. The government can use the results of this investigation to support economic development in Pakistan. It concludes that market capitalisation democracy (existence of military regime), and investment have a positive and significant impact on economic growth. On the other hand, population growth is negatively related to economic growth. However, openness does not significantly impact economic growth.

In view of the findings of the present analysis, some important policy implications have arisen. It has been found that high population growth curtailed economic growth. Therefore, to stimulate economic growth, Pakistan must try to control the population by adopting effective population control policies. There is also a need to promote investment by adopting policies to reduce the cost of doing business in Pakistan.

A military regime emerged as having a positive impact on economic growth, but it must not be considered as an argument in favour of military rule. Rather, it is recommended that the involvement of the military in support of one or other opposition parties during the democratic period should be discouraged. Thus, economic stability may be achieved that will result in higher growth in democratic periods. The results confirm the positive impact of stock market development on economic growth. Therefore, it is recommended that the government promote investment in stock markets. However, there is a need for new regulations to enhance investment in stock markets. If the necessary measures are taken to make the Pakistan stock market more effective, not only investors and participating firms but the entire economy is likely to benefit. To increase investment in the stock market and make it a more effective tool for economic growth, the following are proposed:

- The Securities and Exchange Commission of Pakistan (SECP) is responsible for regulating the securities market in Pakistan. To make commission more effective, staff in the securities market should be given appropriate training to bring new and emerging stock market regulatory regulations in line with international standards.
- Strong provisions through specific laws should be made to protect the rights of investors. Maximum possible information should be made available to investors at minimum possible costs.
- The timely and regular dissemination of information is necessary for participating firms. Provisions should be made to require organisations to relate their financial data at least quarterly.
- Special provisions should be made to attract foreign portfolio investment in the domestic market.

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Ethical Approval

This article does not contain any studies with human participants performed by any of the authors.

Conflict of interest

The authors declare that they have no conflicts of interest to declare. However, the views presented in this paper are their personal and do not reflect the views of their affiliated institution in any respect.

Data availability statement

Data were obtained from the Economic Survey of Pakistan and State Bank of Pakistan reports.

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