

Full Length Research Paper

Relationship between economic growth and stock market development

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Accepted 28 September, 2010

The capital market plays an essential role in the growth of commerce and industry which ultimately affects the economy of the country to a large extent. This is the rationale that the industrial bodies, government advisors and even the central bank of the country keep a close eye on the activities of the stock market. This paper explores the relationship between the stock market development and economic growth in Pakistan for the period of 1986 to 2008. We investigated the stock market development and economic growth relationship by using the two major measures of stock market development, namely: size of the market and liquidity prevalent in the market in terms of market capitalization. The results revealed that economic growth can be attained by increasing the size of the stock markets of a country as well as the market capitalization in an emerging market like Pakistan.

Key words: Pakistan, stock market development, economic growth, augmented dicky-fuller test, market capitalization, liquidity, human development index, emerging economies.

INTRODUCTION

The increasing importance of financial markets across the world has reinforced the general conviction that 'finance' is an important element of economic growth. As such, the emphasis has remained on economic growth and stock market development. Being an important pillar of the economy of a country, the stock market plays a pivotal role in the growth of the industry and commerce which ultimately affects the economy of the country to a large extent. This is the rationale that the industrial bodies, government advisors and even the central bank of the country keep a close eye of observation on the activities of the stock market.

The stock market is momentous from both the investors' point of view as well as the industry's point of view. According to Levine and Zervos (1998), there are certain factors that can be used as a measurement of stock markets' development and as such, they have direct relation with the economic growth of the country as

well. Some of these factors include liquidity and stock market capitalization as well as the turnover of stocks in the market.

In this paper, the relationship between stock market development and economic growth in Pakistan for the period of 1986 to 2008 was investigated. The economy of Pakistan has suffered, in several decades, from low level of foreign investment, except for few years of the current decade, and it has increased the deficit of imports and exports along with untenable budgetary deficits, high inflation and hemorrhaging foreign exchange reserves. On the other hand, Karachi stock exchange (KSE) is the biggest and the most liquid stock exchange in Pakistan, which was declared as the "Best performing stock market" for 2002. A total of 654 companies were listed with the market capitalization of Rs. 2806 trillion (US\$ 33.81 billion) with listed capital of Rs. 705.873 billion (US\$ 10.615 billion) on 25th September, 2009. As such, there is a frantic need to investigate the relationship of economic growth of the Pakistan economy and stock market development, keeping in view these two facets of macroeconomic growth indicators.

The present study takes into consideration the two key

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measures of stock market development, that is, size and liquidity. Market capitalization has been used as a proxy for the size of the KSE. Theoretically, this market measure is expected to be positively correlated with the ability to mobilize capital and diversify risk on economy-wide basis. Liquidity can be defined as the ability of the market to absorb fairly, large volumes of stock trades without drastically affecting the price, and can be calculated as a value of traded shares divided by gross domestic product (GDP). As per Nowbutsing and Odit (2008),

“The total value traded ratio measures the organized trading of firm equity as a share of national output and therefore should positively reflect liquidity on an economy-wide basis”.

This measure has been taken to complement the market capitalization. Although, a market may be large in size, there may, however, be low level of shares trading. As per the available literature, the related studies depicting the relationship of human and stock market development on economic growth of Pakistan could not be found. The present study, which is a pioneer in its nature, will fill the research gap existing in the field of stock market development and economic growth and will provide, to the readers, an insight into the factors playing their role in the economic growth in Pakistan.

LITERATURE REVIEW

A number of studies in ‘economics literature’ have established a positive relationship between economic growth and stock market development. A well organized and managed stock market arouses investment opportunities in the country by recognizing and financing productive projects that ultimately lead to economic activity, allocates capital efficiently, mobilizes domestic savings, helps diversifying risks and facilitates exchange of goods and services (Mishkin, 2001; Caporale et al., 2004). Greenwood and Smith (1997) reported that the cost of mobilizing savings is less in the large stock markets, while Kyle (1984) and Holmstrom and Tirole (1998) explained that liquid stock markets improve the market efficiency by delivering the timely and accurate information to the investor. Obstfeld (1994a; b) argued that the international integrated stock markets can increase the investor risk, but at the same time provide more opportunities to investors to do diversified investment internationally. Some studies reported that stock market liquidity and size is crucial for growth (Bencivenga et al., 1996; Levine, 1991). Although the investments in capital markets are much profitable for investors, investors do not want to block their savings for long periods. Liquid equity markets are the solution for the aforementioned problem (long term investment) as they provide such assets which can be sold easily and

inexpensively by the investor. On the other hand, the firms also have permanent access to capital raised through equity issues (Levine and Zervos, 1998).

How can new stock markets increase economic growth? Greenwood and Jovanovic (1990) and King and Levine (1993) show that the new stock markets provide timely and accurate information about the firms to the investors, which thus increases the investors’ risk adjusted returns. Moreover, North (1991) reported that the developing stock exchange may lower the cost of transferring the ownership, which gains the investor’s attention to invest in equity markets and can increase economic growth. As shown by Bencivenga and Smith (1992), a new stock market can also increase economic growth by decreasing liquid assets holdings and this increases the physical capital growth rate in the long run. Furthermore, Paudel (2005) confirmed that stock markets, on account of liquidity, facilitate firms to attain the much needed capital quickly; therefore, it facilitates capital allocation, investment and growth. In this regard, Adajaski and Biekpe (2005) found a considerable positive impact of stock market development on economic growth in countries of upper middle-income economies. Their findings were more strengthened by Bahadur and Neupane (2006), who concluded that stock markets fluctuations help to predict the future growth of an economy.

The developed stock markets function in a way that they increase savings and provide opportunities to investors to do productive investments that boost economic growth. Stock markets also provide the opportunities to investors to make diversified investments in reducing their unique risk, contribute to the mobilization of domestic savings by increasing the investment options available to investors and branch out their portfolios. Thus, investors are provided with an important source of investment capital at relatively lower cost (Dailami and Aktin, 1990). In well developed stock markets, the liquidity risk is also low due to which the investors do not hesitate to invest in long term promising projects. So, the investors can sell their stocks at any time with minimum effect on actual investments which retains the capital in the firms and is not prematurely removed to meet short-term liquidity needs.

In addition, stock market plays a vital role in allocating funds to the corporate sector, which will have a real effect on the economic growth. Debt finance is unavailable in many countries, mostly in developing countries, where banks give loans to a selected group of companies or individual investors (Mirakhor and Lillanueva, 1990). This limited loan facility can also expose constraints in credit markets, due to the possibility that the banker’s profit (interest) from lending to a specific group of borrowers (individual or companies) does not increase as the margin rate of charge to borrowers increases (Stieglitz and Weiss, 1981; Cho, 1986).

The arguments for the positive relationship between economic growth and stock market development have

been supported by a number of empirical studies, such as Atje and Jovanovich (1993), Levine and Zervos (1993, 1998), Rousseau and Wachtel (2000) and Beck and Levine (2004). Although these studies do not discuss the importance of stock market development along with the banking sector development, economic growth and stock market development in an integrated framework, their findings, however, indicate a strong positive relationship between stock market development growth rates of real GDP per capita. This is also consistent with the work of Levine and Zervos (1995) and Demircug-Kunt (1994) that stock markets and banking sector development can give a big boost to economic development.

Other than liquidity, global risk diversification is another major function of stock market that contributes to economic growth. Saint-Paul (1992), Deveraux and Smith (1994) and Obstfeld (1994a; b) found that opportunities for risk reduction through global diversification may also increase the investors' risk and at the same time, provide more opportunities to investors to do diversified investment internationally. Optimal investment decisions are made by investors with the help of equilibrium pricing in stock exchange as well as easily and publicly available information which leads to better allocation of funds among corporations. Consequently, a higher rate of economic growth can be achieved. In efficient capital markets, information is easily available to a common investor and as such, he can do appropriate investments which reduce the investors' burden in gathering additional information (Kyle, 1984; Stiglitz and Weiss, 1981).

In the context of Pakistan, Shahbaz et al. (2008) argued that there is a long-run bond between stock market development and economic growth in favor of Pakistan. Their results are dynamic and robust and they indicate that stock market development is an important helm for economic growth. They applied the Engle-Granger causality estimation that confirms the existence of bi-directional causality among stock markets development and economic growth in the case of Pakistan in the long-run. However, in the short-run, the causality runs only oneway, that is, from stock markets development to economic growth. The present study further extends the findings of Shahbaz et al. (2008) by adopting a different set of variables for stock market development and economic growth as well as different methodology using the augmented Dicky-Fuller (ADF) unit root testing and long time series data available in the Pakistani context.

METHODOLOGY

The present study examines the impact of stock market development on the growth of the economy. For this purpose, we consider two measures of stock market development, that is, size and liquidity. 'Size' is the market capitalization derived as a percentage of GDP, whereas LIQ is the total value of traded share derived as a percentage of GDP. The following model has been used for the analysis:

$$Y_t = \alpha_0 + \beta_1 FDI_t + \beta_2 HDI_t + \beta_3 SIZE_t + \beta_4 LIQ_t + \varepsilon_t \dots \dots \dots (1)$$

Where:

Y_t = GDP per capita
 FDI_t = FDI as percentage of the GDP
 HDI_t = Human development index of Pakistan
 $SIZE_t$ = Total size of the stock market (Market capitalization/GDP)
 LIQ_t = Total value of traded shares derived as the stock market liquidity (Total value of traded shares /GDP)

Over the past few years, the country has experienced sustainable and consistent economic growth. The contributory factors to this growth involved successful trade liberalization, relatively stable democratic government and institutional factors among others. However, it can be surmised easily that two main factors that have helped the economy in the achievement of sustained growth is FDI and human capital. FDI is being recognized more and more as a major source of economic growth (Khan, 2005; Afza and Nazir, 2007). The common conviction is that FDI eases the transfer of technology, organizational and managerial practices, skills and, more importantly, access to international market. Investors normally are inclined to adopt a two-stage process when assessing countries as investment opportunities. The first step is to test the potential investors based on economic rudiments. After that, those countries which pass the first phase are assessed based on the incentives in the forms of tax benefits and business ease they proffer. Thus, as a factor in attracting inflows of FDI, incentives are secondary to the more crucial determinants such as raw material accessibility, market size and availability of efficient and skilled human capital. Recently, over the years, the government has put considerable efforts in attracting FDI to Pakistan.

Moreover, it is well-documented in the literature that human development is one of the important determinants for growth of the economy (Nowbutsing and Odit, 2008). The government has invested a lot in the development of skilled human capital by sophisticated modes of education and technical training. The said skilled human capital is expected to increase the economic competitiveness of the country as well as it caused an increase in the foreign exchange reserve in the forms of international remittances (Afza and Nazir, 2007). We use the human development index (HDI) as the measure of human development in any country. This variable is reported in the human development report each year by the United Nations development program (UNDP). Consequently, these two variables are also taken as the determinants of economic growth along with the stock market development.

The data have been collected from different sources available. For instance, FDI data for the study period were collected from the official website of the Pakistani Board of Investment, Business and Finance Review and The Daily Jang Business Magazine. The data on stock market indicators namely 'size' and 'LIQ' were collected from various KSE publications and bulletins of Business Recorder, while HDI data were obtained from the annual human development reports of UNDP. However, the graphical representation of the data is as follow.

Figure 1 plots some indicators of stock market development over the study period, that is, market capitalization and the value of traded shares in KSE. In the graph, it is obvious that for the period of 1986 to 2002, the market capitalization value was below 500 billion rupees and in 2003, an intense growth was seen. However, in 2008, it had the highest value. In the graph, the value of traded shares on KSE for the period of 1986 to 2008 in billion rupees is graphically represented on the right Y-axis and it can be interpreted that till 2003, the value of traded shares is quite lower. However, a sharp boost is visible from the year 2003 onwards. This is the period in which the factual picture of the economy indicated a higher

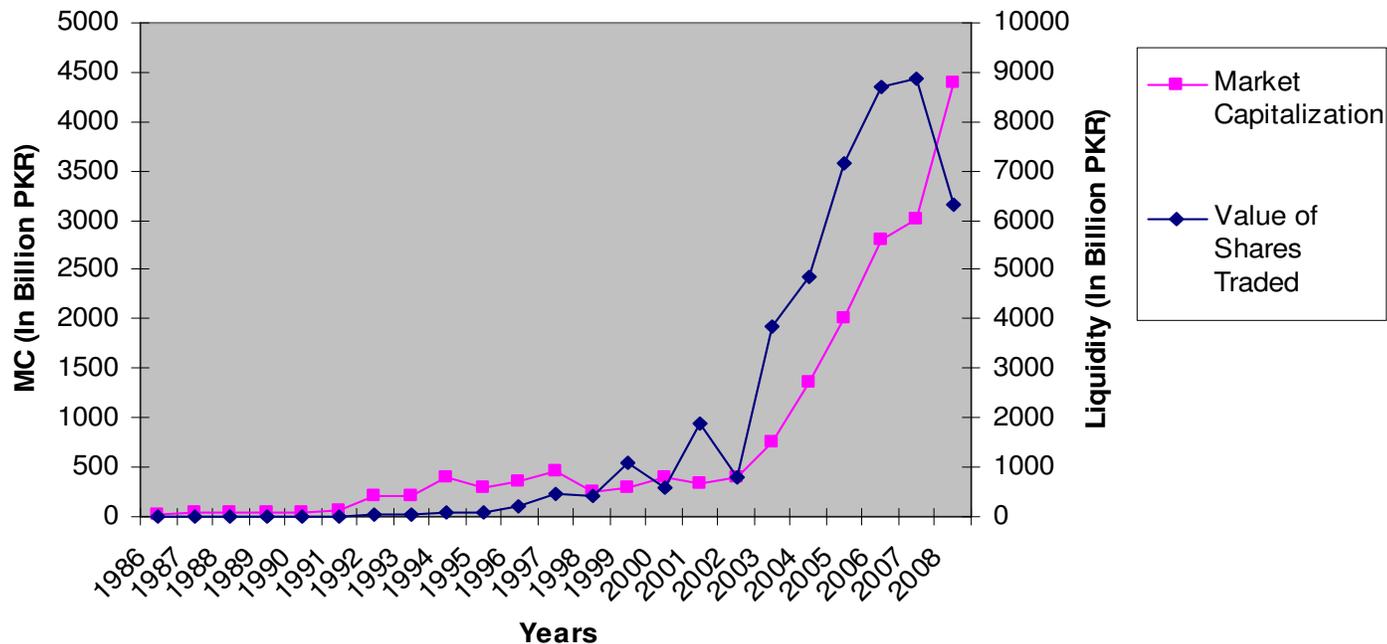


Figure 1. Market capitalization and value of traded shares on KSE.

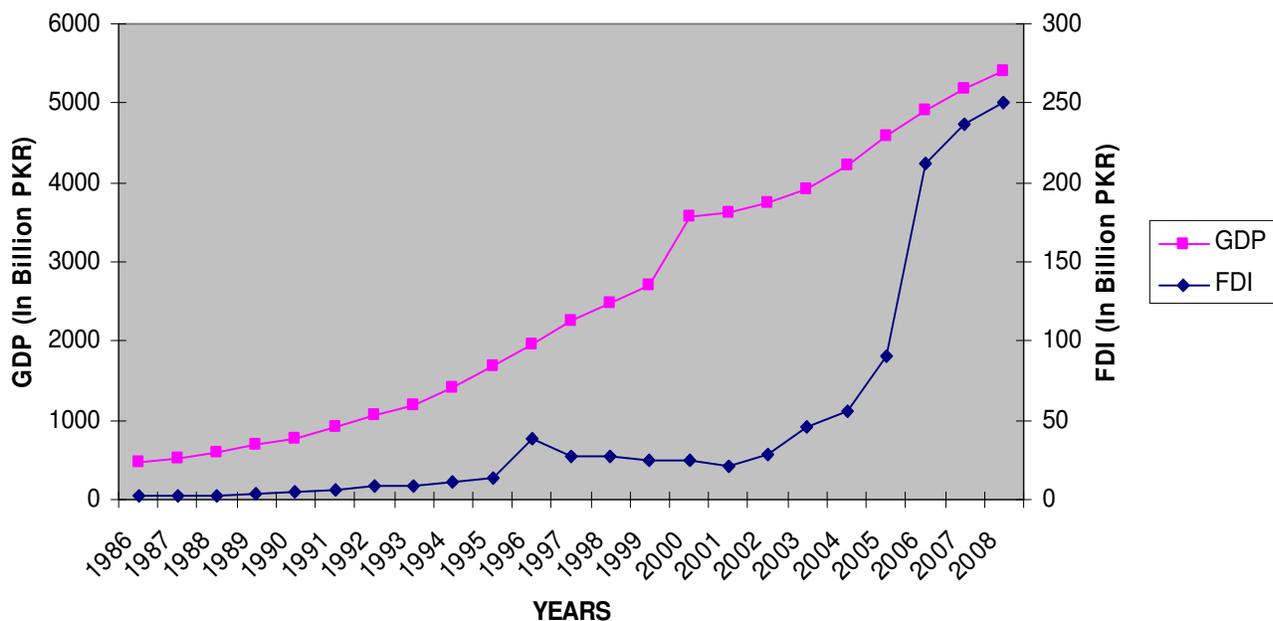


Figure 2. GDP and FDI in Pakistan economy during 1986 to 2008.

economy indicated a higher growth in terms of portfolio and direct foreign investment in Pakistan. As such, a heavy investment was brought into the sectors of telecommunication, oil and energy and banking in the said era.

Figure 2 represents the situation of GDP in billion rupees along with FDI in Pakistan during the period of 1986 to 2008. Both figures indicated a positive growth in the Pakistani economic situation since 2008. However, the situation of FDI and stock market is quite unsatisfactory during the 2008 period and it is expected to become

worse in the coming years due to the situation of law and order in Pakistan. In terms of HDI ranking by UNDP, facts are providing mixed evidence and Pakistan has not proved herself to be growing and developing in human development significantly (Figure 3).

The summary descriptive statistics of the variables used (Table 1) show the mean, standard deviation and minimum and maximum value of the data. It is obvious from the table that GDP per capita income of Pakistan ranges from 358 to US\$ 1042 (the highest per capita income earned in the year 2008) with an average of

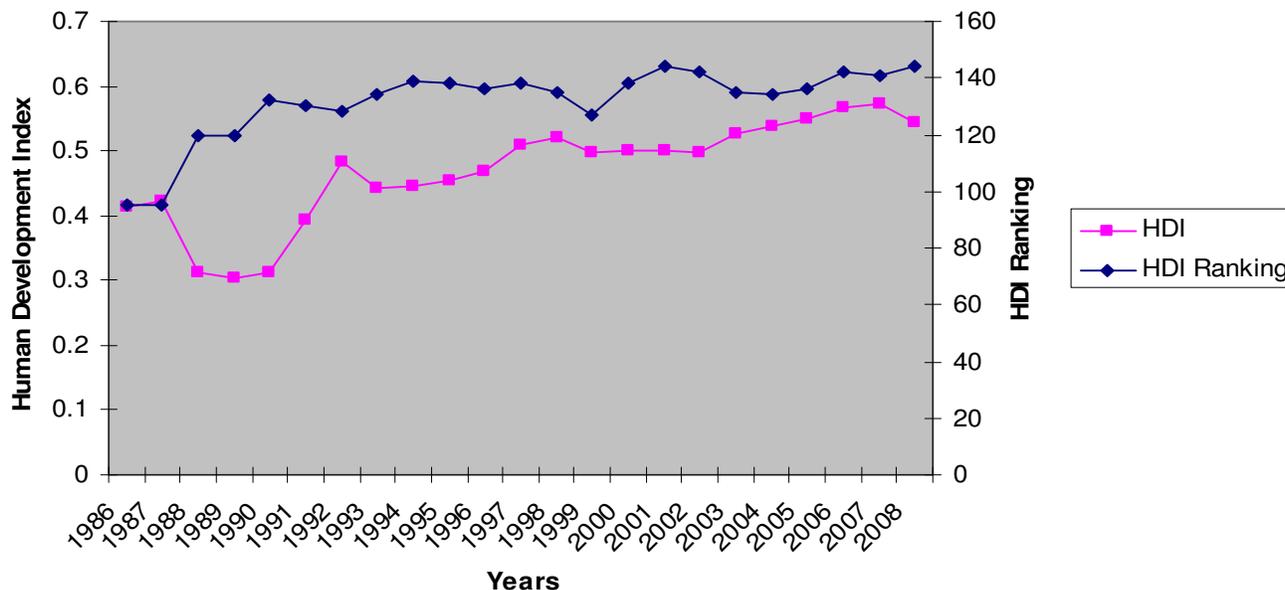


Figure 3. GDP and FDI in Pakistan economy during 1986 to 2008.

Table 1. Summary statistics of the study variables.

Variable	N	Minimum	Maximum	Mean	Std. deviation
GDP per capita	23	358.00	1042.00	540.1304	182.1741
HDI	23	0.31	0.57	.04684	7.920E-02
HD ranking	23	95.00	144.00	131.4348	13.2247
Market capitalization	23	25.42	4400.00	792.8548	1159.0814
Size of market	23	2.58	8870.00	1979.7960	3015.4212
FDI	23	1878.12	250616.40	49900.72	75674.58

US\$540, which is progressively increasing throughout the study period. The average HDI of Pakistan has remained on 0.47 and its ranking continuously fell from 95 to 144 in the year 2008. The capitalization of KSE ranges from 25 to 4400 billion rupees which is its highest achieved value in 2008 with an average market capitalization of 793 billion rupees. The total value of shares traded in KSE is averaged at 1,980 billion rupees starting from its minimum value of 2.58 billion rupees in year 1986 to 8870 billion rupees in the year 2007. Finally, the average FDI in Pakistan has been 49.9 billion rupees with a minimum of 1.88 billion rupees in the year 1987 to 250 billion rupees in the year 2008.

ESTIMATION RESULTS: ADF TEST

Checking the stationarity of the data is very crucial as regression with non-stationary data may lead to counterfeit result. The term “spurious regression” was first used by Granger and Newbold (1974) to describe the regression results, involving time series data which looks good, that is, the t-values suggest that there is a significant relationship among the tested variables. However, in reality, no connection existed between the variables. In statistics and econometrics, the ADF test is

a form of unit root testing for stationarity in a time series sample. It is an augmented version of the Dickey–Fuller test for a more complicated set of models with time series data. Table 2 reports the results of stationarity check using ADF test. It is obvious from the results of Table 2 that the variables are either I (0), that is, stationary in a level or I (1), that is, stationery at the first level of difference.

Table 3 reports the findings of the study’s model (1), which incorporate the impact of foreign direct investment and human capital, estimated through ADF unit root testing approach, on the relationship of stock market development and economic growth. As such, foreign direct investment has established its positive and statistically significant relationship on growth of the economy. It shows that foreign direct investment stimulates the economic activities and development process in the country to a greater extent, which is obvious from the higher positive value of its coefficient. The positive and statistically significant value of HDI also augments the competitiveness of the economy of Pakistan and improves the level of economic growth. Both foreign direct

Table 2. ADF test results for stationarity.

Variable	ADF test	Variable	ADF test	Decision
FDI	0.423058	DFDI	-3.919461	I(1)
LIQ	-2.727438	DLIQ		I(0)
SIZE	1.842318	DSIZE		I(0)
HDI	-3.901584	DHDI		I(0)
GDP	4.18584	DGDP	-2.87345	I(1)

Critical values are 1% -3.76959, 5% -3.00486 and 10% -2.64224.

Table 3. ADF test for stock market development and economic growth.

Dependent variable: GDP					
Method: Least squares					
Sample: 1986 to 2008					
Included observations: 23					
Variable	Coefficient	Std. error	t-Statistic	Prob.	
FDI	4403.936	2530.110	1.740611	0.0979	
HDI	825.0205	42.02427	19.63200	0.0000	
SIZE	367.0618	166.8351	2.200148	0.0404	
LIQ	18.50273	34.86764	1.630656	0.0998	
R ²	0.916942	Mean dependent variance	540.1304		
Adjusted R ²	0.903828	S.D. dependent variance	182.1741		
S.E. of regression	56.49509	Akaike info criterion	11.06296		
Sum squared residual	60642.22	Schwarz criterion	11.26043		
Log likelihood	-123.2240	Durbin-Watson stat	2.194746		

investment and human development cause the development enhancement of any country's economic situation and this phenomenon is very much prevalent in Pakistan.

The results of the relationship of stock market development and economic growth have also been presented in Table 3. It is clearly visible from the results that stock market development influences the process of economic development in Pakistan. Both variables of the study model (size and liquidity of the stock market) affected the economic growth positively and significantly. However, the impact of size is greater than the liquidity available in the stock market, which can be assessed by the greater value of the coefficient of size as compared to liquidity, as well as the level of statistical significance of the variables. These results provide some important implications for the regulators that they should concatenate on the stock market capitalization along with FDI and human development in order to boost the process of economic growth. Nonetheless, the results found are in accordance with the findings of Shahbaz et al. (2008) and Nowbutsing and Odit (2008).

Conclusion

The increasing importance of financial markets has reinforced the researchers to study the impact of stock market development on economic growth. The present study is an attempt to investigate this relationship of stock market development and economic growth by taking size and liquidity of KSE as independent variables along with FDI and HDI of Pakistan. The impact of these variables is empirically tested on GDP per capita as a dependant variable of economic growth for the period of 1986 to 2008 using ADF unit root testing methodology. As such, the results reported the expected positive signs which are statistically significant at some level of significance.

The development of stock markets is highly important in sustaining a better economic growth. However, size of the market, as measured by market capitalization, has a stronger influence on economic growth than the liquidity of stock market. Moreover, FDI as well as the development of human capital also has a strong positive relationship with the economic growth of Pakistan. As a result, there are some implications proposed to the

financial regulators and economic specialists of Pakistan by the present study. Although the stock markets of Pakistan are growing and developing during the last few years, this growth in the stock markets should, however, be accompanied with the industrial and manufacturing growth of the country. There exists a strong need for implementing the efficient monetary regulations that could contribute to the transparency and effectiveness of stock markets. Furthermore, the integration of three domestic stock exchanges (that is, Karachi, Lahore and Islamabad) might prove to be a viable option for economic development and sustainable growth in Pakistan.

Finally, there are some limitations in the present paper. The study used the annual data of the stock market capitalization and size of the stock market for the purpose of the analysis. However, the results could be more refined if the shorter intervals of the data could be used and some scientific and modern measures of data analysis, which could not be possible due to limitation of available resources and data could be applied. In future, the results may be more generalized by opting the quarterly data as well as some more measures of HDI for Pakistan and the results could be compared to the other countries of the region, which was left out for future research.

ACKNOWLEDGEMENTS

The authors wish to thank Mr. Tarqi Hameed Alvi, Mr. Muhammad Shahbaz and Mr. Imran Ali at COMSATS Lahore for their generous guidance and help.

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