Macroeconomic Factors and Stock Market Development: With Special Reference to Colombo Stock Exchange

Kulathunga KMMCB

Department of Management Sciences, Faculty of Management, Uva Wellassa University, Badulla, Sri Lanka

Abstract- Stock market development has a paramount importance in an economy. Although most of the growing economies are endowed with growing stock markets, due to prevailed unfavorable econo-political condition in Sri Lanka, Colombo Stock Exchange (CSE) remained underdeveloped during the pre-war period. However, due to considerable economic growth and peaceful political environment, CSE reported a robust growth in the post-war period. Nevertheless, despite the impressive economic environment emerged, the stock market growth was not sustained after 2012. Therefore, the constraints for stock market development remain unclear. Thus, this study examined the impact of macroeconomic factors on stock market development in Sri Lanka using descriptive statistics and multiple regression analysis over the monthly data between 2002 and 2014. Stock market turnover was used as the proxy of stock market development whereas inflation volatility, deposit interest rate, lending interest rate, exchange rate volatility and gross domestic production were used as the key macroeconomic factors.

The results suggest that all macroeconomic factors influence the stock market development. More precisely, volatile inflation rate and exchange rate together with higher deposit rate have curtailed the stock market development in Sri Lanka. Moreover, positive optimism created by the economic growth and the stock market performance during the previous periods tend to enhance stock market performance.

Accordingly, to develop CSE, policy makers can implement policies to stabilize macroeconomic environment and attract more local and foreign investors to CSE. As this study used only macroeconomic factors, future researchers may conduct further studies to identify other factors like institutional factors, industry specific factors, country specific factors etc. that can be affected to stock market development.

Index Terms- Macroeconomic factors, stock market turnover, Sri Lanka

I. INTRODUCTION

Contribution of financial system for maintaining the competitiveness of an economy is immense. Financial system of an economy includes banks, stock markets, pension and mutual funds, insurers, central bank, as well as regulatory and supervisory authorities. The financial system contributes to economic development through allocating capital, reducing information and transactions costs, and increasing savings and productivity (Aghion, Bacchetta, & Banerjee, 2000). However, weak financial systems disrupt financial intermediation.

Moreover, it undermine the effectiveness of monetary policy, exacerbate economic downturns, trigger capital flight and exchange rate pressures, and create large fiscal costs related to rescuing troubled financial institutions (Ahmad & Malik, 2009). Therefore, well-functioning financial systems are essential for both domestic and international economic and financial stability as it provides the basis for a healthy economic growth.

Stock market is one of the important components in a financial system. Financial intermediation, risk diversification, information gaining and capital market discipline are the key benefits associated with a stock market (Mun, Siong, & Thing, 2008). Therefore, stock market development plays an important role in predicting future economic growth. In contrast, underdeveloped stock markets affect economies negatively through increasing investment risks, financial structure problems and asymmetric information problems (Demirgüç-Kunt & Levine, 1996).

In emerging markets, stock markets are still in transitioning phase in terms of expansion and level of sophistication. Accordingly, around 40 stock markets including Colombo Stock Exchange (CSE) have been identified as emerging stock markets (Chowdhury, Sharmin, & Rahman, 2014). Rapid economic development and high return of these countries creates opportunities for investors to be competitive in the global market and attract investors (Henry & Kannan, 2008). However, emerging markets are generally characterized with economic and political turbulences, exchange rate fluctuations, high transaction costs and poor information infrastructure (Peavy & Brock, 1994). These characteristics create additional risks for investors. For example, returns generated from stock appreciation can turn into a loss due to unfavorable exchange rates. Thus, these risks are not favorable to attract foreign investors.

Macroeconomic factors like inflation, industrial production, exchange rate, money supply, unemployment, risk premium, and rate of interest etc. have large influences on stock market operations (Büyükşalvarcı, 2010; Erdogan & Ozlale, 2005). This is mainly because economic forces affect the discount rates, the ability of firms to generate cash flows and future dividend payments. Theoretical models such as Capital Asset Pricing Model (CAPM) introduced by Sharpe (1964) and Arbitrage Pricing Theory (APT) introduced by Ross (1976) suggest that an understanding of the macroeconomic context is essential for investors and policy makers in making effective investment decisions.

Stock market capitalization as a share of GDP is one of the most commonly used measures of stock market development in cross-country comparisons. When compared to other Asian region countries, market capitalization of CSE is still only a 30 percent of the GDP while market capitalization relative to GDP

in India, Thailand, Philippines, Malaysia and Singapore are 53 percent, 77 percent, 87 percent, 160 percent and 250 percent respectively. Thus, CSE is not exploiting the full potential of the stock market to support economic development. In other words, still there are huge numbers of potential investors which has not yet been attracted by the CSE.

Compared with the developed economies, most emerging economies do not have a well-functioning stock markets (Feldman & Kumar, 1995). Recent studies have identified high transaction cost, high return volatility, poor information structure etc. as major efficiency issues in emerging stock markets (Adjasi & Biekpe, 2006; Kuwornu, 2012). In most emerging stock markets, only a few stocks account for a considerable part of the total market capitalization (Patel & Sarkar, 1998). Because of these actively traded shares, serious informational and disclosure deficiencies occur for other stocks. Further, there are weaknesses in the transparency of transactions on these markets (Henry & Kannan, 2008). Further, firms in emerging stock markets do not have a long enough track record to form a reputation (Yartey, 2008). Moreover, share prices in emerging markets are considerably more volatile than in developed markets (El-Erian & Kumar, 1995). Thus, it is unclear whether emerging markets respond similarly to macroeconomic environment like developed markets.

Being an emerging stock market in the world, CSE has gained considerable attention of investors, policy makers and academics. This is mainly due to the post-war development of the CSE. Economic environment in Sri Lanka has changed considerably due to the war. However, the Sri Lankan stock market returned back to its pre-war stagnant status within a short period of time. Thus, it is unclear how Sri Lankan stock market responds to economic environment during pre-war and post-war periods. Moreover, it is quite puzzling why a country with a substantial economic growth endows such a stagnant stock market. Therefore, an enormous challenge is vested in the policy makers in developing strategies aimed at financial deepening in Sri Lanka. This provides an important rationale for investigating the impact of macroeconomic factors on the stock market development in the Sri Lanka.

Therefore, this study addresses *do macroeconomic factors affect stock market development*? Macroeconomic factors in this context refer to factors like interest rate, inflation, exchange rate, gross domestic production.
To this end, this study aims to,

1) assess the status of macroeconomic context in Sri Lanka.
2) assess the stock market performance in Sri Lanka.
3) investigate the impact of macroeconomic factors on stock market development in Sri Lanka.

II.   THERORATICAL BACKGROUND

Recent evidence suggests that stock market development contributes positively to the economic development in a number of ways like capital formation, risk diversifications, savings mobilization, liquidity creation and corporate governance (Filer, Hanousek, & Campos, 2000; N'Zué, 2006). Further, stock markets reduce the financing constraints of investors by creating an alternative to bank financing (Adjasi & Biekpe, 2006).

However, stock markets in developing countries posses' number of weaknesses compared to stock markets in developed countries.

Importance of macroeconomic conditions for stock market operations is well documented in the literature. For example, Ahmed (2008) revealed the existence of long-run relationship between the stock market indices and the macroeconomic variables such as industrial production, exports, foreign direct investment, money supply, exchange rate and interest rate. Wongbangpo and Sharma (2002) found that, in the long-run, stock price indexes are positively related to macroeconomic variables. Further, stock prices regularly respond to the variations of macroeconomic factors. Moreover, Nasseh and Strauss (2000) found that the major stock markets under investigation are highly influenced by both domestic as well as international macroeconomic activities such as industrial production, business surveys on manufacturing activities, short and long-term interest rates as well as foreign stock prices and production. Thus, the knowledge on the relationship between macroeconomic factors and stock market operations provide opportunity to earn superior returns by selecting specific stocks as information becomes available on certain macroeconomic variables. Moreover, manipulations of macroeconomic variables influence the economic growth through depressing certain economic sectors (Raju & Khanapuri, 2009).

Although changes in macroeconomic factors could predict the stock market variation, no agreement regarding the signs and the direction of causality can be seen. For example, Naceur, Ghazouani, and Omran (2007) found that macroeconomic instability has a negative and significant relationship with stock market development. Boyd, Levine, and Smith (2001) found a nonlinear relationship between macroeconomic factors and stock market development. Garcia and Liu (1999) were found insignificant effect of macroeconomic instability on stock market development. Further, macroeconomic variables have differing effects on different sectors of the stock market. For example, macroeconomic variables cause an increase in retail and mining sector indices although negatively affected on all share and financial indices (Hancocks, 2010).

Stock market development signals the future trend of the economy. Further, it works as an indicator of the overall health of the economy. Stock market development can be assessed by using the stock market integration, size, liquidity, volatility etc. (Caporale, Howells, & Soliman, 2004; Naceur et al., 2007). However, existence of different stock market characteristics in different countries creates a challenge in measuring stock market development. While developed countries such as Australia, Canada, Japan, US, UK etc. have well established stock markets, developing countries such as Sri Lanka, Thailand, Pakistan etc. have relatively less developed stock markets. These stock markets are different in terms of transparency and liquidity, legal and regulatory framework, quality of business education, availability of investment securities and existence of sophisticated technologies to deal with stock markets (Aurangzeb, 2012). Stock market turnover is commonly used proxy for stock market development in terms of liquidity. The turnover measures the ratio of the value of total stocks traded to market capitalization. Many analysts use the stock market turnover as a measure of transactions costs (Charkravarty, 2005;

Yartey, 2008). Higher turnover ratios indicate higher efficiency (Cherif & Gazdar, 2010).

Consumer price indices are widely used to measure inflation (Al-Khazali & Pyun, 2004; Quayes & Jamal, 2008). High variability of inflation over the time indicates an uncertainty of the future price levels. Moreover, inflation volatility can impede economic growth even if inflation on average remains unchanged (Rother, 2004). The Colombo Consumers' Price Index (CCPI) is widely used to measure inflation in Sri Lanka (Gunasekarage, Pisedtasalasai, & Power, 2004; Menike, 2006).

The interest rate is the percent charged, or paid, for the use of money. The interest rates that banks charge make loans more expensive. Numerous studies have investigated the relationship between stock market behavior and interest rates (Chutang & Kumara, 2008; Czaja, Scholz, & Wilkens, 2009). Lending and deposit interest rates of commercial banks are good indicators of the efficiency of the financial system as it usually refers to rates offered to customers for savings deposits and meets the short and medium term financing needs of the investors .

The relationship between exchange rate and stock market development is also well researched (Abdalla & Murinde, 1997; Aydemir & Demirhan, 2009). Changes in the exchange rates affect firm's foreign operations and overall profits and consequently its stock price. Understanding the relationship between stock market behavior and exchange rate is necessary for three main reasons. First, it affects decisions about monetary and fiscal policy. Second, the link between the two markets is used to predict the path of the exchange rate which benefits multinational corporations in managing their exposure to foreign contracts and exchange rate risk associated with their earnings. Third, currency is more often being included as an asset in investment funds' portfolios, knowledge on the currency rates and other assets in a portfolio is vital for the performance of the fund. Therefore, fluctuations in exchange rate should have an impact on equity investment decisions of foreign investors.

Numbers of empirical studies have observed a relationship between gross domestic production and stock market development. For example, Chen, Roll, and Ross (1986) identify gross domestic production as a vital risk factor in determining stock returns, while Cutler, Poterba, and Summers (1998) find that stock returns correlate positively with the growth of the gross domestic production. Besides, Errunza and Hogan (1998), conclude that the volatility of gross domestic production has a negative impact on the stock market development.

Therefore, it is evident that stock market operations depend on macroeconomic factors such as inflation, exchange rate, market rate of interest, GDP etc. (Adam & Tweneboah, 2008; Er & Vuran, 2012). Moreover, results revealed that the relationship between stock returns and macroeconomic variables were mainly due to the relative size of the respective stock market and their integration with world markets (Raju & Khanapuri, 2009).

III.   METHODOLOGY

Five macroeconomic variables namely inflation, deposit interest rate, lending interest rate, exchange rate volatility and GDP were taken as indicators of economic environment. Monthly volatility of CCPI was computed by moving three

months average inflation over a time window of 13 years and used as a proxy for the inflation. Further, natural logarithm of both weighted average deposit rate (WADR) and weighted average lending rate (WALR) were used to represent interest rate and data were collected from CBSL reports. Exchange rate volatility was computed by moving three months average exchange rate over a time window of 13 years using the data collected from the central bank. Moreover, in this study GDP was used as a proxy for economic growth. However, since monthly data on GDP was not available quarterly data was interpolated to get monthly GDP. Data were collected from publications of department of census and statistics. Stock market development was used as the dependent variable of this study and stock market turnover were used as measure of stock market development. Accordingly, stock market turnover indicates the trading volume of the stock market relative to its size. Data were collected from the CSE data library (2014).

Recent trends of macroeconomic factors and CSE were analyzed using descriptive statistics and exploratory data analysis techniques. Further, the regression model illustrated in equation one was used to investigate the impact of macroeconomic factors on development of CSE.

$$\ln(SMP) = \alpha + \beta_1 (IFV) + \beta_2 \ln(DR) + \beta_3 \ln(LR) + \beta_4 \ln(GDP) + \beta_5 (ERV) + \beta_6 \, lag(\ln SMP) + \varepsilon \, \ldots\ldots\ldots\ldots\ldots\ldots(1)$$

Where, α denotes the constant and β_1 to β_6 denotes coefficients to be estimated while IFV, DR, LR, GDP and ERV denote inflation volatility, deposit rate, lending rate, gross domestic production and exchange rate volatility respectively. Further, SMP is a vector of stock market performance indicator covering stock market turnover (SMT) and ε denotes the error term. Further, in this study lag values SMP were used to capture the time series effect. The data used for the regression model covers the 13 year period from 2002 to 2014.

The data were screened for missing values and violation of assumptions prior to regression analysis. To have unbiased and consistent regression results, normality was tested via normal P-P plots. Variance inflation factor (VIF) and Durbin Watson (DW) test was used to detect autocorrelation. Finally, homoscedasticity of the residuals was visually analyzed by using a scatter-plot of predicated values vs. residuals.

IV.   RESULTS AND DISCUSSION

Recent Trends in Macroeconomic Factors during 2002-2014

During the war period there was a relatively high inflation in Sri Lanka. Further, inflation had increased up to 25 percent in the first half of the 2009 and this has been sharply reduced after the war. Moreover, higher levels of fluctuations in the inflation rate can be observed during the war period than the post-war period. Further, as shown in table 1, in the sample period, inflation volatility records a minimum of -7.40 and a peak of 1.50. Further, the average inflation volatility -0.99 and as indicated by standard deviation (SD) there is a high volatility in the general price level during the 2002-2014. Thus, unstable general price level can be observed in the country as a whole.

Table.1: Descriptive Statistics of Macroeconomic Factors

	Min	Max	Mean	SD
Inflation Volatility (INV)	-7.40	1.50	-0.99	1.45
Lending Rate (LR)	8.94	20.79	12.79	3.18
Deposit Rate (DR)	4.84	11.74	7.96	2.08
Exchange Rate Volatility (ERV)	0.06	7.27	1.28	1.29
Gross Domestic Production (GDP)	365.00	846.00	582.00	127.00

According to the table 1, the average lending rate is 12.79 during the sample period. During the war period, higher fluctuations in both the deposit and lending interest rates were observed. Further, a considerable decline in both the deposit and lending rates was reported during the ceasefire period. Remarkably, during the period from 2006-2009, both interest rates were showing an increasing trend with a momentous increase especially in the lending rate and a significant decline in both interest rates just after the war. In the year 2012 again interest rates were increased considerably. However, after 2013 both interest rates were declined. Thus, these may have been resulted from an unstable interest rate policy in the country.

As depicted in table 1, exchange rate volatility reported an average of 1.28. The standard deviation of 1.29 shows high exchange rate volatility during the sample period. Continuous devaluations in the LKR can be observed while, during 2009-2011, LKR has been significantly appreciated. In the year 2012, government changed its exchange rate policy and as a result there was a significant depreciation in the LKR and however, there is a more stabilization in the exchange rate in the country after 2012.

As illustrated in table 1, the average GDP is LKR 582 billion during the sample period. The standard deviation of 127 indicates stability of the variable during sample period. During the war period GDP growth rate was around 5 percent and after the war it had reached to a level around 7 percent. However, higher fluctuations in the GDP growth rate can be observed in the country as a whole.

Performance of Colombo Stock Exchange

Inception of share trading under the Colombo Share Brokers Association in 1896 can be identified as the origin of the stock market activities in Sri Lanka. The establishment of a formal stock exchange in 1985 and the incorporation of the Colombo Stock Exchange marked a milestone in the history of share trading in Sri Lanka. The CSE is a company limited by guarantee, and was established under the Companies Act No. 17 of 1982. At present, 289 companies representing 20 business sectors have been listed in CSE. Transactions of the CSE are conducted with a completely automated system which was introduced in 1997.

After the war against terror in May 2009, CSE has grown at a considerable rate. However, development in CSE was not sustained. For an example, the ASPI increased from 500 points in 2002 to 2500 points in mid 2005 and declined to 2000 points in 2006. A remarkable boom in ASPI can be observed after May 2009. ASPI reached to 7800 points, the highest ASPI in CSE history, in February 2011. In May 2012, ASPI declined to 4800 points. Further, market capitalization as a percentage of GDP was barely 5 percent in 2002 and was around 25 percent by the end of 2009. Market capitalization as a percentage of GDP surpassed 100 percent in February 2011. Nevertheless, market capitalization came down again to 25 -30 percent level in 2013. This downturn in MCR is parallel to the behavior of ASPI which was coming down from 7800 points to below 5000 points during this period. The average market capitalization of CSE is only 30 percent of the GDP. The regional average is over 160 percent whereas the world average is over 70 percent. This clearly shows that as an undervalued market, CSE is not exploiting the full potential of the stock market to support the financing needs of the corporate sector.

Stock market turnover has increased from 11 percent in 2002 to 28 percent in 2005 and in early 2009 it had declined almost to 18 percent. In 2010, again SMT reached to 38 percent, showing more investors engaged in trading in the market during that period. For example, there were 702,838 Central Depositary Accounts and 64,792 active investors in the CSE by the year 2012. However, in 2014 stock market turnover reports only a 9 percent showing a dramatic decline and inefficiency in CSE activities. During the period of 2002 and 2005, 25-35 percent foreign trades took place. Interestingly, the sudden increase of nearly 87 percent in foreign trades took place in April 2008 had declined dramatically to a level of 18 percent in the following month. Nevertheless, still foreign trade turnover contributes only a level of 30 percent to the stock market turnover in CSE. Thus, overall domestic and foreign stock turnover shows a low liquidity in the CSE which could turn out due to market inefficiencies.

According to the stock market development indicators; namely ASPI, stock market capitalization and stock market turnover, before 2009 CSE remained as an underdeveloped stock market. During 2002-2009 only 36 companies and 151,945 CDS accounts were newly listed in the CSE. Further, only 101,602 local individual investors were registered for new securities accounts during that period. Moreover, during 2002- 2009 total stock market turnover was only LKR 741 billion and total domestic and foreign turnover was LKR 506 billion and LKR 234 billion respectively. More precisely, after 2009, CSE reported a considerable growth. For example, during 2009-2013, 60 companies and 232,687 CDS accounts were newly listed in the CSE. Moreover, 179,066 local individuals were registered for new securities accounts during that period. As a result of that, market capitalization of CSE was increased in a considerable manner. Further, during 2009 - 2011 very sharp increase was recorded in the stock market turnover. During 2009-2013, LKR 1240 billion domestic stock turnover and LKR 290 billion foreign stock turnover in the CSE was reported. However, from the year 2012 it seems a considerable drop in the CSE development. For example, annual turnover of CSE and market

capitalization ratio were considerably dropped in 2012, 2013 and 2014.

Relationship between Macroeconomic Factors and Stock Market Turnover

Normality of the data was assessed by using a P-P Plot and the close concentration of data points to the line provides the evidence of meeting the normality assumption satisfactorily. Constant distribution of variance (Homoscedasticity) was checked by using the scatter plot of residuals drawn against predicted values. The pattern-less or directionless distribution of residuals confirms that data are distributed with a constant variance depicting the homoscedasticity condition and hence, the second assumption is also met by the data. The Durbin-Watson statistic of 1.945 proves that the model is free from serious autocorrelation. Multicolinearity effect was tested with Variance Inflation Factor (VIF). Accordingly, there is no serious multicolinearity effect in data.

The regression equation with the Stock market turnover was significant, (R^2 = .976, F (7, 131) = 751.47, $p < .001$). This suggests that 97 percent of the variation of SMT can be explained by the explanatory variables.

Inflation volatility significantly predicts SMT (β = -.059, $p < .001$). Every one unit increase in IFV, ceteris paribus, result in 0.059 percent decrease in SMT. When there is a highly fluctuating inflation, a considerable impact could be created on the purchasing power of the domestic investors. Thus, this might be a reason for the negative impact of IFV on SMT identified above. However, this negative but low level of influence of IFV on SMT reveal that investments in the market are regarded as a good hedge against inflation in Sri Lanka.

Table 2: Coefficients of regression analysis with SMT

	B	Std. Error	t	Sig.
(Constant)	-31.695	1.365	-23.223	.000[***]
Inflation Volatility (IFV)	-.059	.010	-6.169	.000[***]
Log Lending Rate (LR)	.671	.124	5.412	.000[***]
Log Deposit Rate (DR)	-.827	.123	-6.724	.000[***]
Exchange Rate Volatility (ERV)	-.040	.011	-3.527	.001[***]
Log Gross Domestic Production (GDP)	3.848	.134	28.710	.000[***]
Lags(Log Stock Turnover) (lnSMT)	.144	.024	5.974	.000[***]

Note: dependent variable is Stock Market Turnover (SMT)
The symbol (***) indicates the statistical significance at 99 level.
R^2 = .976, DW = 1.945

LR significantly predicts SMT (β = .671, $p < .001$). Every one percent increase in LR, ceteris paribus, results in 0.671 percent increase in SMT when other variables are assumed constant. However, these results contradict with most of the previous studies (Ali, Rehman, Yilmaz, Khan, & Afzal, 2010; Chutang & Kumara, 2008) as lending rates charged by the banks have negative impact on stock market development. However, the results of this study are compatible with the results of Mukherjee and Naka (1995) and (Ologunde and Elumilade (2006))confirming a positive relationship between short-term interest rate and stock market development. Hence, it can be assumed that short-term lending interest rate risk exposure has declined in Sri Lankan capital market. This may be due to the increased availability of improved tools for managing interest rate risk.

Results indicate a statistically significant negative coefficient (β = -.827, $p < .001$) for DR. This demonstrates that when DR increases by one percent, ceteris paribus, the SMT decreases by 0.827 percent. Thus, whenever the deposit interest rate in the economy increases, a negative trend in the stock market turnover can be observed, as a result of the opportunity given by the deposit interest rates to the investors so as to move their investment from stock market to bank deposits and maximize their return.

In this study ERV significantly predicted SMT (β = -.04, $p = .001$). Every one percent increase in ERV, ceteris paribus, results in 0.04 percent decrease in SMT. Higher dependence on imported raw materials results to deteriorate corporate profits through exchange rate volatility. Thus, inconsistency in exchange rate induces investor to shift from stock market investment to other investments like real estate and bank deposits. Low demand for stocks is caused to decrease stock market turnover.

According to the regression results, GDP significantly predicted SMT (β = 3.848, $p < .001$). Every one percent increase in GDP, ceteris paribus, results in 3.848 percent increase in SMT. This is resulted from the pivotal role played by GDP in determining investors' choice in emerging economies like Sri Lanka. Continuous and steady GDP growth in Sri Lanka during the last few years has been resulted in an increase in purchasing power and in turn large numbers of investors tend to invest in CSE. Hence, higher purchasing power might increase the stock market turnover at CSE.

Further, Lag SMT also significantly predicts SMT (β =.144, $p < .001$). Every one percent increase in previous month SMT, ceteris paribus, results in 0.144 percent increase in SMT. Continuous improvements in stock market turnover indicates the development of stock market. Thus, investors motivated to invest in stocks and as a result further improvement in SMT can be observed. It reveals that in short-run, previous month's stock market turnover considerably influence to the investment decision.

V. CONCLUSION AND RECOMMEDATION

Unstable economic environment prevailed in Sri Lanka during the war period became comparatively stable after the war. For example, despite the higher levels of inflation prevailed during the war period, a more stable level of inflation could be observed after the war. Further, both deposit and lending interest rates were increased considerably in the pre-war phase. In post-war phase, interest rate becomes more stable. Thus, the behavior of interest rate convinces the rapid development of the banking sector in the post-war phase. Further, continuous deprecation in LKR could be observed and exchange rate was stable with the CBSL's exchange rate policy introduced in 2012. Moreover, the most influential factor behind the post-war stock market development is the considerable increase in domestic production. Stable economic environment is essential for the stock market development. High volatility in inflation, interest rate, exchange rate etc. creates inauspicious economic environment which makes investment decisions harder. Thus, investors seek only short-term profits from the stock market. This may be the major reason for short-term improvement in the CSE.

This research has three main implications. First, this study provides empirical evidences on the impact of macroeconomic factors to the stock market development in the context of CSE. The findings of this study are consistent with other studies as discussed in theoretical background. Thus, policy makers can develop policies to stabilize interest rate, inflation rate and foreign exchange rate to create investor confidence on the stock market.

Second, low stock market turnover implies the necessity of attracting new investors to the CSE. Thus, policy makers can implement policies and programmes to attract both local and foreign investors to the CSE. For example, conducting awareness programs on stock market investments, providing tax concessions for CSE investment income are some of them. Third, this study examined only the effects of macroeconomic factors to the stock market development. Hence, future researchers may conduct further studies to identify other factors like institutional factors, industry specific factors, country specific factors etc. that can be affected to stock development.

REFERENCES

[1] Abdalla, I. S., & Murinde, V. (1997). Exchange rate and stock price interactions in emerging financial markets: evidence on India, Korea, Pakistan and the Philippines. Applied Financial Economics, 7(1), 25-35.

[2] Adam, A. M., & Tweneboah, G. (2008). Macroeconomic factors and stock market movement: evidence from Ghana. Available at SSRN 1289842.

[3] 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.

[4] Aghion, P., Bacchetta, P., & Banerjee, A. (2000). Capital Markets and the Instability of Open Economies,". Pierre-Richard Agé nor, Marcus Miller, David Vines and Axel Weber (eds.), The Asian Financial Crisis: Causes, Contagion and Consequences (Cambridge: Cambridge University Press, 1999), 167-194.

[5] Ahmad, E., & Malik, A. (2009). Financial sector development and economic growth: An empirical analysis of developing countries. Journal of Economic Cooperation and Development, 30(1), 17-40.

[6] Ahmed. (2008). Aggregate economic variables and stock markets in India. International Research Journal of Finance and Economics(14), 141-164.

[7] Al-Khazali, O. M., & Pyun, C. S. (2004). Stock prices and inflation: new evidence from the Pacific-Basin countries. Review of Quantitative Finance and Accounting, 22(2), 123-140.

[8] Ali, I., Rehman, K. U., Yilmaz, A. K., Khan, M. A., & Afzal, H. (2010). Causal relationship between macro-economic indicators and stock exchange prices in Pakistan. African Journal of Business Management, 4(3), 312-319.

[9] Aurangzeb. (2012). Factors Affecting Performance of Stock Market: Evidence from South Asian Countries. International Journal of Academic Research in Business and Social Sciences, 2(9).

[10] Aydemir, O., & Demirhan, E. (2009). The relationship between stock prices and exchange rates evidence from Turkey. International Research Journal of Finance and Economics, 23, 207-215.

[11] Boyd, Levine, R., & Smith, B. D. (2001). The impact of inflation on financial sector performance. Journal of Monetary Economics, 47(2), 221-248.

[12] Büyükşalvarcı, A. (2010). The effects of macroeconomics variables on stock returns: evidence from Turkey. European Journal of Social Sciences, 14(3), 404-416.

[13] 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.

[14] Charkravarty, S. (2005). Stock market and macroeconomic behavior in India. Institute of Economic Growth [cited 20 May 2011]. Available from Internet: http://www. iegindia. org/dispap/dis106. pdf.

[15] Chen, N.-F., Roll, R., & Ross, S. A. (1986). Economic forces and the stock market. Journal of business, 383-403.

[16] Cherif, M., & Gazdar, K. (2010). Macroeconomic and institutional determinants of stock market development in MENA region: new results from a panel data analysis. International Journal of Banking and Finance, 7(1), 8.

[17] Chowdhury, S. S. H., Sharmin, R., & Rahman, A. (2014). Effect of Sentiment on the Bangladesh Stock Market Returns. Available at SSRN 2416223.

[18] Chutang, Z., & Kumara, E. S. (2008). Impact of Short-Term Interest Rates on Stock Prices: Evidence from Sri Lanka. Paper presented at the Proceedings of the 7th International Conference on Innovation &Management.

[19] Cutler, D. M., Poterba, J. M., & Summers, L. H. (1998). What moves stock prices? Bernstein, Peter L. and Frank L. Fabozzi, 56-63.

[20] Czaja, M.-G., Scholz, H., & Wilkens, M. (2009). Interest rate risk of German financial institutions: the impact of level, slope, and curvature of the term structure. Review of Quantitative Finance and Accounting, 33(1), 1-26.

[21] Demirgüç-Kunt, A., & Levine, R. (1996). Stock markets, corporate finance, and economic growth: an overview. The World Bank Economic Review, 223-239.

[22] El-Erian, M., & Kumar, M. S. (1995). Emerging stock markets in Middle Eastern countries. Paper presented at the World Bank Conference on Stock Markets, Corporate Finance and Economic Growth, Washington DC, February.

[23] Er, Ş., & Vuran, B. (2012). Factors Affecting Stock Returns of Firms Quoted in ISE Market: A Dynamic Panel Data Approach. International Journal of Business and Social Research, 2(1), 108-121.

[24] Erdogan, E., & Ozlale, U. (2005). Effects of Macroeconomic Dynamics on Stock Return: The Case of the Turkish Stock Exchange Market. Journal of Economic Corporation, 26(2), 69-90.

[25] Errunza, V., & Hogan, K. (1998). Macroeconomic determinants of European stock market volatility. European Financial Management, 4(3), 361-377.

[26] Feldman, R. A., & Kumar, M. S. (1995). Emerging equity markets: growth, benefits, and policy concerns. The World Bank Research Observer, 10(2), 181-200.

[27] Filer, R. K., Hanousek, J., & Campos, N. F. (2000). Do stock markets promote economic growth? CERGE-EI Working Paper Series(151).

[28] Garcia, V. F., & Liu, L. (1999). Macroeconomic Determinants of Stock Market Development. Journal of Applied Economics, 2(1), 29-59.

[29] Gunasekarage, A., Pisedtasalasai, A., & Power, D. M. (2004). Macroeconomic influence on the stock market: evidence from an emerging market in South Asia. Journal of Emerging Market Finance, 3(3), 285-304.

[30] Hancocks, R. L. (2010). An analysis of the influence of domestic macroeconomic variables on the performance of South African stock market sectoral indices. Rhodes University.

[31] Henry, P. B., & Kannan, P. (2008). Growth and Returns in Emerging Markets International Financial Issues in the Pacific Rim: Global Imbalances, Financial Liberalization, and Exchange Rate Policy (NBER-EASE Volume 17) (pp. 241-265): University of Chicago Press.

[32] Kuwornu, J. K. (2012). Effect of macroeconomic variables on the ghanaian stock market returns: A co-integration analysis. Agris on-line Papers in Economics and Informatics, 4(2), 1-12.

[33] Menike, L. (2006). The effect of macroeconomic variables on stock prices in emerging Sri Lankan stock market. Sabaragamuwa university journal, 6(1), 50-67.

[34] Mukherjee, T. K., & Naka, A. (1995). Dynamic relations between macroeconomic variables and the Japanese stock market: an application of a vector error correction model. Journal of Financial Research, 18(2), 223-237.

[35] Mun, H. W., Siong, E. C., & Thing, T. C. (2008). Stock market and economic growth in Malaysia: Causality test. Asian Social Science, 4(4), P86.

[36] N'Zué, F. F. (2006). Stock market development and economic growth: evidence from Cote D'Ivoire. African Development Review, 18(1), 123-143.

[37] Naceur, S. B., Ghazouani, S., & Omran, M. (2007). The determinants of stock market development in the Middle-Eastern and North African region. Managerial Finance, 33(7), 477-489.

[38] Nasseh, A., & Strauss, J. (2000). Stock prices and domestic and international macroeconomic activity: a cointegration approach. The Quarterly Review of Economics and Finance, 40(2), 229-245.

[39] Ologunde, A., & Elumilade, D. (2006). T. O. ASAOLU 2006,'Stock Market Capitalization and Interest Rate in Nigeria: A Time Series Analysis '. International Research Journal of Finance and Economics(4), l54-166.

[40] Patel, S. A., & Sarkar, A. (1998). Crises in developed and emerging stock markets. Financial Analysts Journal, 50-61.

[41] Peavy, J. W., & Brock, H. W. (1994). Managing Emerging Market Portfolios: ICFA Continuing Education, September 28-29, 1993, San Francisco, California: Cfa Inst.

[42] Quayes, S., & Jamal, A. (2008). Does inflation affect stock prices? Applied Economics Letters, 15(10), 767-769.

[43] Raju, G. A., & Khanapuri, H. (2009). The Effect of Macroeconomic Factors on Indian Share Prices: A Sectoral Approach. Journal of Global Economy, 5(2), 125-134.

[44] Ross, S. A. (1976). The arbitrage theory of capital asset pricing. Journal of economic theory, 13(3), 341-360.

[45] Rother, P. (2004). Fiscal policy and inflation volatility.

[46] Sharpe, W. F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk*. The Journal of finance, 19(3), 425-442.

[47] Wongbangpo, P., & Sharma, S. C. (2002). Stock market and macroeconomic fundamental dynamic interactions: ASEAN-5 countries. Journal of Asian Economics, 13(1), 27-51.

[48] Yartey, C. A. (2008). The determinants of stock market development in emerging economies: is South Africa different? (Vol. 8): International Monetary Fund.

AUTHORS

First Author – KMMCB Kulathunga, Department of Management Sciences, Faculty of Management, Uva Wellassa University, Badulla, maduranga99a@gmail.com