



## **The Impact of Capital Market on Economic Growth: A Malaysian Outlook**

**Sabariah Nordin<sup>1\*</sup>, Norhafiza Nordin<sup>2</sup>**

<sup>1</sup>School of Economics, Finance and Banking, Universiti Utara Malaysia, Sintok, Kedah, Malaysia, <sup>2</sup>School of Economics, Finance and Banking, Universiti Utara Malaysia, Sintok, Kedah, Malaysia. \*Email: [norsabariah@uum.edu.my](mailto:norsabariah@uum.edu.my)

### **ABSTRACT**

This study analyzes the influence of the stock market and the debt market on the Malaysian economy. The Johansen-Juselius co-integration test reveals the existence of co-integrating relationship between real growth domestic product per capita, stock market and debt market. The vector error correction model long-run results show that both, the stock market and the debt market, have positive and significant influence on the Malaysian economy. The stock market is found to exert greater influence on the Malaysian economy compared to the debt market. Furthermore, unlike the debt market, the stock market is found to exert uni-directional causality on the economy. Since both markets have significant and positive influence on the Malaysian economy, the policy makers should implement appropriate measures to be able to fully utilize the opportunity created by both markets, especially the liquidity condition of the stock market as it influences an investor's financial and investment decision making process.

**Keywords:** Capital Market, Stock Market, Debt Market

**JEL Classifications:** G1, O1

### **1. INTRODUCTION**

Financial market plays a significant role in an economy. Its significant role lies in its function of becoming the center of financing for various deficit units. As a market that links a surplus unit with a deficit unit, its development is found to be critical for an economy. A number of studies have been examining the relationship between financial market development and economic growth (Ang, 2009; Alfaro et al., 2004; Durham, 2004). Most of them indicate the importance of financial market development in promoting economic growth. Furthermore, there is also evidence that more financially developed countries are able to circumvent currency crises (Federici and Caprioli, 2009). Hence, the financial market is not just capable of promoting economic growth, but a certain level of financial market development helps to prevent an economy from entering a crisis. This highlights the vigorous role of the financial market in an economy.

Despite the function of domestic financial market and the importance of its development towards economic growth, a few

studies have acknowledged its role in enhancing the effect of foreign direct investment on economic growth (Ang, 2009; Alfaro et al., 2004). The financial market functions as a pulling factor that attracts investors to invest in a particular economy that has a well-developed financial market. Even though foreign investors may not rely on domestic sources of capital, a well-developed financial market is important in making sure that any financial transactions performed by investors can be executed efficiently.

This study intends to assess the role of capital market in promoting Malaysian economic growth. In achieving the objectives, this study differentiates the capital market into equity market and debt market. The tests conducted in this study highlight which market performs the role better in promoting economic growth with respect to differences that exist for the equity and the debt markets.

This study is organized as follows. The first section highlights the background of the study together with the objectives of the study. The second section reviews available literature and tries to assess the gap that exists for further research. The following section describes

the methodology used for this study, and the last section discusses the results and concludes the findings of the study respectively.

## 2. OVERVIEW OF THE MALAYSIAN FINANCIAL MARKET

The capital market in Malaysia can be divided into equity market and debt market. Malaysian equity market can be considered as an established market since it has an active secondary market which is known as Bursa Malaysia, and its market capitalization tripled in just 10 years period (Malaysia's Capital Market, 2011. p. 18). Bursa Malaysia provides an organized platform for those who wish to trade mainly equity. The trading activities are represented by a number of indices developed by Bursa Malaysia, and the most widely used index is the FTSE Bursa Malaysia KLCI which is normally used to indicate the performance of the Malaysian economy. For instance, during a crisis, like the 1997 Asian Financial Crisis, the index dropped significantly by about 70% in 1997 compared to 1996 (based on the data downloaded from the World Bank database).

As for the Malaysian debt market, similar to equity market, the Malaysian debt market is one of the astonishing debt markets in the world. The Malaysian debt market is the Asia's third largest bond market (measured against growth domestic product [GDP]) and the world's largest global sukuk market (Malaysia's Capital Market, 2011. p. 18). The debt market can be differentiated as the private debt market and the public debt market. The private debt market involves the issuance of debt instruments by the private sector, while the public debt market involves the issuance of debt instruments by the government (including the central bank).

The Malaysian capital market grew drastically from a total size of RM717.5 billion in 2000 to RM2.0 trillion in 2010, with RM1275.3 billion attributed to the stock market and RM758.6 billion attributed to the bond market (Malaysia's Capital Market, 2011. p. 20). From 2000 to 2010, the stock market's capitalization grew by 11.1% on average annually, while the bond market grew by 10.8% on average annually. At the end of 2010, the outstanding debt securities and stock market capitalization were 97% and 165% of nominal GDP respectively. This indicates that the Malaysian capital market is relatively large compared to the Malaysian economy. Given the large size of the Malaysian capital market, it is possible that the market could contribute significantly to the Malaysian economic growth.

## 3. LITERATURE REVIEW

Financial markets, regardless of bank-based or capital market-based, is a crucial element in the development of a country. The importance of financial markets lies in their abilities to facilitate the flow of funds between surplus and deficit units. Without an efficient financial market, productive projects cannot be exploited due to inability to get funds. Thus, this may hinder or slow down the country's economic development.

Poor operation of the financial market has been associated with an obstacle to economic growth (Acosta and Loza, 2005). Logically,

less developed and inefficient financial markets have limited instruments and financial institutions. In addition, the legal systems may also not be fully defined and implemented. Hence, this may lead to low financial transparency. Consequently, this situation may result in higher costs for companies to raise capital and may lower the return on savings or investments. In brief, in such poorly managed financial markets, it may be more difficult and costly to raise capital to finance productive projects; thus, hindering the country's economic development.

Since capital is one of the important factors of production, the existence of a financial market as a mean of capital mobilization is undeniably needed. It is not just that the financial market needs to exist, it must be continuously developed in order to contribute towards economic growth. Schumpeter (1912, taken from Enisan and Olufisayo, 2009) was the first person to promote the idea that financial development encourages growth. This idea is further supported by other economists (Goldsmith, 1969; McKinnon, 1973; Shaw, 1973 – taken from Enisan and Olufisayo, 2009). A well-functioning financial sector is believed to assist the movement of limited funds from the surplus unit to the deficit unit efficiently, hence promoting growth in economic sectors (Enisan and Olufisayo, 2009).

Nevertheless, not everybody agrees with the idea that financial development promotes economic growth. Another view is that the development in the financial sector is initiated by the real economic sector's growth (Enisan and Olufisayo, 2009). The argument is based on the reasoning that changes in the financial market act as a respond to the demand created by economic growth for certain financial instruments.

In addition, there is also a third view to the relationship between financial development and economic growth which calls for interdependency between the two variables (Luintel and Khan, 1999, taken from Enisan and Olufisayo, 2009). A country with a well-developed financial sector could promote economic growth, which then lead to high demand on financial products. This demand, as the financial institutions react to it, then would again lead to greater economic growth. There is bi-directional causality between financial development and economic growth.

Previous studies provide evidence on the relationship between financial markets and economic growth (Levine and Zervos, 1998; Levine et al., 2000; Arestis et al., 2001; Enisan and Olufisayo, 2009; Azman-Saini et al., 2010; Thumrongvit et al., 2013; Ngare et al., 2014; Bayar et al., 2014). They show that a country's economic activities are significantly influenced by the development of the banking sector, the bond market and the stock market. A study by King and Levine (1993) find that financial development has significant positive relationship with economic growth, where financial development refers to the development of a banking sector. Levine et al. (2000) find that well-functioning financial markets lead to higher economic growth. Specifically, they examine how financial development affects the factors that are believed to cause economic growth. The factors include capital accumulation, factor productivity growth, and saving.

Similar result is shown by Levine and Zervos (1998). Using data from 47 countries over the period from 1976 to 1993, their findings provide evidence that the stock market and the banking sector contribute significantly to the economic growth of a country. A study by Enisan and Olufisayo (2009) support past empirical evidence when their study shows that the stock market is co-integrated with economic growth. Using an autoregressive distributed lag bounds test on 24-year (1980-2004) data from seven African countries, results of the study show that the stock market in Egypt and South Africa significantly affect the countries' economic growth. Further evidence reveals bi-directional relationships between stock market and economic growth for Cote D'Ivoire, Kenya, Morocco and Zimbabwe. Employing data from 91 countries for the period from 1975 to 2005, Azman-Saini et al. (2010) show that FDI brings positive impact on economic growth only after the financial market development exceeds a certain threshold level. Nevertheless, this study focuses on the banking sector rather than the stock market and the bond market.

Adopting sample from the United States, United Kingdom, Canada, Norway and Sweden, Rousseau and Wachtel (1998) provide evidence that financial intermediation is a significant factor in the industrial transformation of these countries. Thumrongvit et al. (2013), using panel data methodology, study the impact of stock market and bond market on economic growth. The data for their study consists of data from 38 developed and developing countries over the period of 1989-2010. Their results are consistent with previous studies, which indicate both markets are positively related to economic growth. In addition, they find that the effect of bank credit on economic growth diminishes with the advancement of bond markets. In a more recent study for 36 African countries by Ngare et al. (2014) supports extant literature, that stock market has a positive impact on economic growth. Specifically, the findings of the study show that economic growth of countries with stock markets grows faster than those that do not have stock markets. Yet, the developments for these countries are faster for small countries compared to large countries. Similarly, Bayar et al. (2014) find that the stock market in Turkey leads to the country's economic growth, using co-integration and VAR methodologies. Nevertheless, Arestis et al. (2001) find that the stock market gives lesser impact on economic growth compared to the banking system. The co-integration technique is employed to examine the role of the markets using data from Germany, France, United States, United Kingdom, and Japan.

In addition to the studies that examine the direct effect of financial markets on economic growth, there are a few studies that examine the effect of foreign direct investment on economic growth provided that the economy has reached certain level of financial market development (Ang, 2009; Alfaro et al., 2004; Durham, 2004). The development of the domestic financial market has been recognized as one of the "absorptive capacities" of a host country with respect to the benefits associated with FDI on the host country. Given that the host country has achieved a certain level of financial market development, the host country is said to being able to absorb the benefits associated with FDI spillovers, which then would increase the output. For that reason, a number of studies have been trying to assess the importance of financial

market development in enhancing the impact of FDI on economic growth of a host country.

In proving the theoretical assumptions of the impact of FDI and financial development on economic growth, Ang (2009) has conducted a case study on Thailand. Based on an annual time series data from 1970 to 2004, results of the study suggest that financial development is crucial in enhancing the effect of FDI on economic growth. Domestic credit to private sector as a percentage of GDP and the ratio of M2 to GDP are two indicators used to reflect financial development of Thailand. Prior to Ang (2009), Alfaro et al. (2004) also try to uncover the notion of exploiting FDI more efficiently through better financial system. They have constructed a few series regarding the financial market with two broad categories: Series related to the banking sector and series related to the stock market. Based on an OLS regression results, their models indicate that FDI by itself is not as significant as its interaction with any of the financial markets series. The interaction term between FDI and the financial market turns out to be significant and positive for all models. The highest significance is found for the interactions with liquidity measures, private credit and bank credit, which is at one percent significance level. Conversely, financial markets by themselves are found to be insignificant. In short, the study suggests that for the benefit of FDI to be realized, the host country must possess a certain level of domestic financial market development.

Another study that considers financial development as an "absorptive capacity" of the host country in gaining the positive impact of FDI on economic growth is Durham (2004). He uses the total stock market capitalization relative to GDP as a proxy for financial development. Using data on 62 non-OECD and 21 high-income countries, he develops a few models that take into consideration institutional and financial variables. Based on a cross-sectional OLS regression, using OECD data, which include flows from OECD countries to lower income countries, he finds that contemporaneous, lagged FDI, and the ratio of stock market capitalization over GDP, tested alone, do not have significant impact on output growth. However, when tested for the interaction between lagged FDI and the ratio of stock market capitalization over GDP, the interaction shows positive impact on growth. However, Borensztein et al. (1998), in examining the impact of financial development on growth, does not convey any significance in the financial development variables.

Various measures are used to represent financial development in past studies. Some use a single measure, while some use an index based on a set of measures that cover all relevant aspects of financial development. The most widely used measure is a monetary aggregate such as M2 or M3 as a ratio of nominal GDP (Ang and McKibbin, 2007). An example of index can be referred to a study by Federici and Caprioli (2009).

In brief, extant literature provides evidence that financial markets promote economic growth: Better functioning or efficient financial markets can stimulate higher economic growth. Findings of past studies show positive impact of banking sector, stock market and bond market on economic growth for most of the countries

under study regardless of the methodologies and period employed. Majority of the studies carried out provide evidence that support the proposition that better functioning financial systems play an important role in promoting economic growth.

#### 4. METHODOLOGY

This study employs time series data in assessing the impact of capital market on economic growth in Malaysia. Among estimation techniques considered for this study include Johansen-Juselius (1990) co-integration test, vector error correction model (VECM), Granger causality and variance decomposition.

This study investigates the impact of capital market on Malaysian economic growth by recognizing the capital market as the debt market and the equity market. The constant GDP per capita is used to proxy for an economic growth indicator. The debt market represents the combination of public debt and private debt. Meanwhile, the equity market is assessed based on the market capitalization of the shares listed on Bursa Malaysia. This study employs yearly data for the period of 1981-2014. The data are gathered from the Bank Negara Malaysia Bulletin and the World Development Indicators Database.

Prior to conducting the co-integration test, each variable is exposed to the unit root tests of Augmented Dickey-Fuller (ADF) and Phillip-Perrons (PP). Only variables that have been identified as stationary at first differenced or I(1) can be used. The intuition of co-integration is that time series integrated of order 1 with a long-run equilibrium relationship cannot drift too far apart from each other because in the long-run the variables converge towards equilibrium. Besides, when there is a co-integration relationship among the variables, there is an ability to forecast future movement of the variables.

In order to test for co-integration, this study applies Johansen-Juselius method of maximum likelihood estimator of the so-called reduced rank model. Test for co-integration begins with a VAR specification for the  $n \times 1$  vector of I(1) variables:

$$X_t = \mu + A_1 X_{t-1} + \dots + A_k X_{t-k} + u_t \tag{1}$$

Where the error term,  $u_t$ , is assumed to be an independent and identically distributed Gaussian process. Rewriting Equation 1 as a VECM which represents the short-run and long-run responses to the changes in the variables:

$$\Delta X_t = \mu + \Gamma_1 \Delta X_{t-1} + \dots + \Gamma_{k-1} \Delta X_{t-k+1} + \Pi X_{t-k} + u_t \tag{2}$$

Where,

$$\Gamma_j = -(I - A_1 - \dots - A_j) \tag{3}$$

$j = 1, \dots, k$

$$\Pi = -(I - A_1 - \dots - A_k) \tag{4}$$

$\Delta$  denotes changes in the variables,  $X_t$  is a  $p \times 1$  vector of variables integrated of order 1,  $\mu$  is  $p \times 1$  vector of constants,  $k$  is a lag

structure, and  $u_t$  is a  $p \times 1$  vector of white noise error terms. Long-run information in  $X_t$  is determined by the long-run impact matrix of  $\Pi$ , and it is the rank of this matrix that decides on the number of cointegrating vectors. The result of  $\Pi = 0$  implies no cointegration.  $\Gamma_j$  is a  $p \times p$  matrix that indicates short-term changes among variables given  $p$  equations and  $j$  lag.

Under the null hypothesis of  $r$  co-integrating vectors,  $\Pi$  can be transformed into  $\alpha\beta$ , where  $\alpha$  and  $\beta$  are  $n \times r$  matrices. Since  $\Pi$  denotes the long run equilibrium impact,  $\alpha$  can be construed as a “speed of adjustment towards long-run equilibrium” and can be determined from the error correction equations. A larger  $\alpha$  indicates a faster convergence towards long-run equilibrium which is due to the short run deviations. Meanwhile,  $\beta$  is considered as the asymptotically efficient estimates of the co-integrating vectors.  $\beta' X_{t-1}$  is known as an error correction term (ECT), and it is used to measure the long-run relationships of the variables. To rewrite the equation for  $X_t$ :

$$\Delta X_t = \mu + \sum_{i=1}^{k-1} \Gamma_i \Delta X_{t-i} + \alpha \beta' X_{t-k} + u_t \tag{5}$$

Johansen and Juselius propose two likelihood ratio test statistics to test for the order of co-integration,  $r$ , in determining the rank of  $\Pi$  which include:

$$\text{Trace} = -T \sum_{i=q+1}^n \ln(1 - \hat{\lambda}_i) \tag{6}$$

$$\lambda^{\max} = -T \ln(1 - \hat{\lambda}_{q+1}) \tag{7}$$

The Trace test determines the number of maximum co-integrating relationships, while the  $\lambda^{\max}$  test is used to test specific alternative hypotheses. Models where  $\Pi$  is in full rank are rejected since  $X_t$  is stationary, and there would be no error-correction (Maysami and Koh, 2000).

#### 5. RESULTS AND FINDING

Prior to performing the co-integration test, each underlying variable is exposed to unit root tests of ADF and PP. Results of the unit root tests are summarized in Table 1. Results of Table 1 indicate that all underlying variables are I(1). The next step is to proceed with the co-integration test.

**Table 1: Unit root test results based on the ADF test and PP**

Variables	Intercept only		Trend and intercept	
	Level	First difference	Level	First difference
ADF				
LGDPPCC	-0.431420	-4.750129**	-1.719028	-4.672683**
LMC	-1.233889	-6.547085**	-2.290883	-6.488316**
LDEBT	-0.040774	-8.571706**	-2.701515	-8.469694**
PP				
LGDPPCC	-0.444079	-4.750129**	-1.911774	-4.672683**
LMC	-1.179111	-6.596716**	-2.362880	-6.539742**
LDEBT	-0.269819	-8.797635**	-3.159689	-8.705701**

\*\*Indicate 1% significance level. ADF: Augmented Dickey-Fuller, PP: Phillips-Perron

**Table 2: Co-integration test results**

Model: LGDPPCC, LMC, LDEBT (LGDPPCC is the dependent variable)				
Number of co-integrating relations	Trace statistic		Max-Eigen statistic	
	No deterministic trend (restricted constant)	Linear deterministic trend	No deterministic trend (restricted constant)	Linear deterministic trend
None	49.94560*	37.37483*	30.77175*	22.61679*
At most 1	19.17384	14.75804	15.44405	14.58606*
At most 2	3.729793	0.171974	3.729793	0.171974

\*Denotes rejection of the hypothesis at the 5% significance level

Table 2 reports the co-integration results of the Johansen and Juselius (1990) test. Using lag 2, the trace statistics and maximum eigenvalue statistics show the existence of co-integrating relationship among underlying variables of real GDP per capita, market capitalization and debt.

Since there is a long run co-integrating relationship among underlying variables, Table 3 highlights the long run estimations. Results of the normalized co-integrating coefficients indicate that both, the stock market capitalization and the debt market, have significant and positive influence on the real GDP per capita. Both are significant at 1% level. A 1% increase in the stock market capitalization is reflected in a 0.23% increase in the real GDP per capita, while a 1% increase in the debt is reflected in a 0.09% increase in the real GDP per capita. The stock market seems to have greater influence on the real GDP per capita compared to the debt market.

To further justify the significant role of the capital market in the economy, we also conduct the causality test. Causality test results provide evidence on the existence of uni-directional causality from the stock market to the real GDP per capita GDP (Table 4). There is no significant causality from the debt market to the real GDP per capita and vice versa. As there is a co-integrating relationship among the underlying variables, the ECT of the dependent variable of real GDP per capita is found to be negative and significant which indicates the existence of short-run adjustments towards equilibrium. The ECT of 0.3 indicates that about 30% of last year's deviation is corrected this year.

Table 5 highlights the results of variance decomposition of real GDP per capita. The stock market has been showing an increasing degree of importance in explaining variations in the real GDP per capita. Nearly 27% of the variation in the real GDP per capita is explained by the stock market capitalization in the 10<sup>th</sup> period. The debt market does not seem to play an important role in explaining variations in the real GDP per capita, and the longer the period, the lesser its influence on the economy.

The diagnostic tests stated in Table 4 indicate that the model is adequately specified as it satisfies all underlying assumptions. The stability of the estimates is also ensured via the CUSUM and CUSUM of squares tests as indicated by Figure 1.

## 6. CONCLUSION

The conclusion that can be made from this study is that the capital market, in general, has a significant influence on the economy.

**Table 3: Normalized co-integrating coefficients (LGDPPCC is the dependent variable)**

Variable	Coefficient	Standard error	t statistic
LGDPPCC	1.0000		
LMC	-0.225950	0.01460	-15.47603
LDEBT	-0.086876	0.01158	-7.502245

**Table 4: Temporal causality and block exogeneity test results**

Dependent variables	ΔLGDPPCC	ΔLMC	ΔLDEBT	ECT
ΔLGDPPCC	-	7.519947 (0.0233)*	1.456624 (0.4827)	-0.297459 (0.14020) [-2.12162]*
ΔLMC	0.803063 (0.6693)	-	0.276492 (0.8709)	2.907450 (2.19706) [1.32334]
ΔLDEBT	2.541009 (0.2807)	4.379970 (0.1119)	-	-2.839659 (1.55023) [-1.83176]

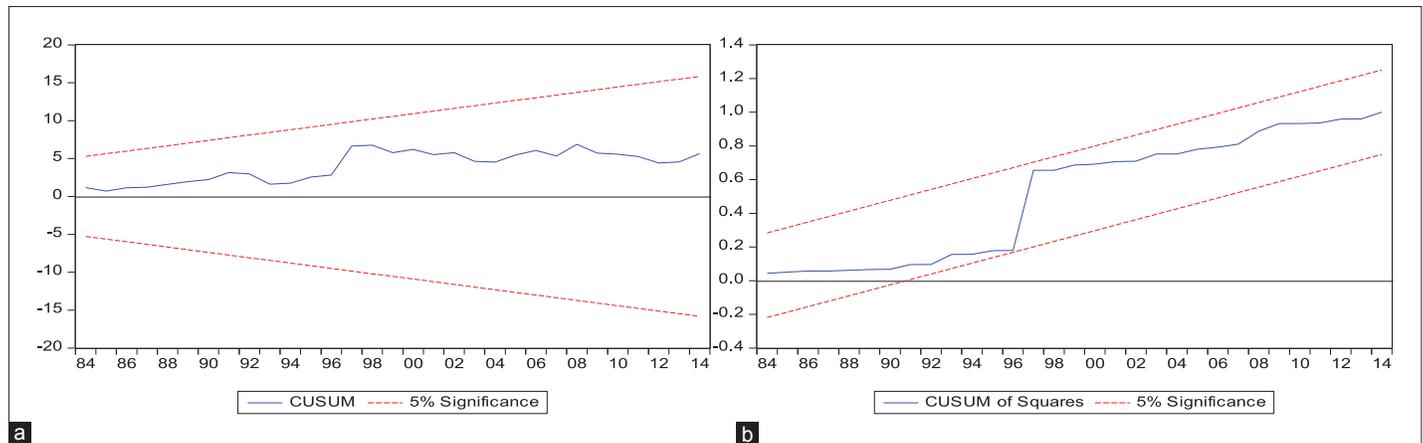
Diagnostic tests: Adjusted R<sup>2</sup>=0.5867, Normality test: JB,  $\chi^2(2)$ =3.623113 (0.7275), LM: F(2,4)=14.77606 (0.0973); 10.61858 (0.3028), Heteroscedasticity:  $\chi^2$ =85.05651 (0.4473). \*Represents significance at 5% level. Standard errors and t statistics are in parentheses and brackets respectively

**Table 5: Variance decomposition of LGDPPCC**

Period	SE	LGDPPCC	LMC	LDEBT
1	0.024458	100.0000	0.000000	0.000000
2	0.057724	77.74708	22.02025	0.232664
3	0.074132	77.79455	21.90148	0.303967
4	0.086160	77.58732	22.17723	0.235450
5	0.099219	76.04523	23.76168	0.193089
6	0.111333	75.05977	24.78618	0.154056
7	0.122110	74.44893	25.42264	0.128432
8	0.132224	73.92965	25.95892	0.111432
9	0.141762	73.50585	26.39582	0.098332
10	0.150692	73.17721	26.73472	0.088069

SE: Standard error

Its significant influence is derived from its main function of becoming the center of financing for businesses as well as for the government. Nevertheless, even though facts show that debt is preferred more than shares for the private sectors in getting funds, the stock market has been proved to show greater influence on the economy. This is due to the active secondary market of the shares as they are more actively traded compared to debt market instruments. The share price is free to fluctuate depending on the factors that affect it, however, for the bond, even though the price can fluctuate, basically because of the changes in the interest rates, at the end, it will move towards the par value.

**Figure 1:** CUSUM and CUSUM of squares stability tests

The findings of this study have one important policy implication. It is shown that the stock market has greater impact on the country's economy. For that reason, the authorities or the policy makers should implement appropriate measures in order to be able to fully utilize the opportunity created by the stock market. More initiatives should be put forward to stimulate the competitiveness of the stock market, thus providing liquidity to investors. Liquidity is a very crucial aspect for a stock market as it plays a significant role in influencing an investor's financial and investment decision making process. This is because an investor would prefer to invest in a stock market in which shares can be rapidly sold and the act of selling has little impact on the stock's price, hence preserving their wealth. Nevertheless, since the debt market is also found to be significant in positively influencing the economy, it should also be considered in the policy making.

In addition to that, current rules and regulations, and the monitoring system may need to be revamped in order to ensure the effectiveness and efficiency of the trading system. For example, more transparent disclosure policies and accounting policies must be implemented. What is more important is to gain the investors' confidence in the system. The participation of more investors, especially foreign investors, shall once again lead to higher market liquidity. By enhancing the market liquidity, the market will be able to facilitate investment and to provide efficient asset allocation, hence, may boost the country's economic development.

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