BANK, STOCK MARKET AND ENVIRONMENTAL CONDITION TOWARDS ECONOMIC GROWTH. AN EMPIRICAL EVIDENCE IN MALAYSIA FROM 2000 TO 2009

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ABSTRACT

The study aims to examine the relationship between economic growth with banking system, stock market system, inflation, and interest rate in short run and long run. Effort is also taken to determine whether banking system is a complement or substitute to stock market system in influencing economic growth. The monthly secondary data ranging from 2000 to 2009 obtained from Bank Negara Reports, Malaysian Financial Report and Bursa Malaysia Reports were used. The Ordinary Least Square estimation results reveal that R-squared is high. F-test shows the data fits the model. But the estimated Durbin Watson value indicates that the data set has an autocorrelation problem. In Unit Root Test results, all the variables have a unit root problem at the level form, but the variables are found to be integrated at first order. Next, VAR(p) model determines that the optimal lag length of 1. Moreover, cointegration test shows that bank credit and market capitalization are found to be significant in affecting economic growth in long run while inflation and interest rate are insignificant. Bank credit is found to have negative and greater effect on the economic growth while market capitalization has the positive and less effect. Therefore, banking system acts as a substitute to stock market system in affecting economic growth. Furthermore, the result indicates that there is no short run relationship between dependent variable and independent variables in the Vector Error Correction model. Finally, the results from Impulse Responses Function and Variance Decomposition also support the findings. In conclusion, some recommendations and future study are discussed.

INTRODUCTION

Malaysia has begun to integrate its economy with the rest of the world by carrying out series of liberalization policies. These policies have successfully directed the flow of foreign and domestic fund by changing the stock of money. The impact of changing the stock of money on the economic growth of the nation can be seen through various monetary channels. Traditionally when the stock of money increases, money supply will be greater than money demand. Therefore, the interest rate will fall. Demand for investment will increase, thus increasing the national income of the nation. This explains the link between stock of money and economic growth. Besides, an increase in the stock of money can also influence the asset market through the changes in interest rate channel. When interest rate decreases, demand for bonds will decrease. This will increase the demand for stocks. Excess demand for stocks will increase the price of the assets.

Researchers also believe as the stock of money expands, firms can obtain loan through banking system. This will enable the firms to buy capital goods. Monitoring and supervision of these loans can increase productivity that eventually increasing the company's profit. Changes in the company's profit are the key indicator for equity performance in the stock market. Thus, money is also important in creating credit that influences the stock market through credit channel. The credit channel in a nation is established by funds from bank and stock market.

Problem Statement

A sound financial system should be a complement to economic growth. Unfortunately, the financial system in developing countries is unable to complement economic growth when financial dualism exists in their country. According to Bank Negara Gabenor, Tan Sri Dr. Zeti Akthar Aziz, Malaysia needs to develop a dynamic financial system to attract asset flows to support economic growth. Therefore, financial dualism

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Various reasons were given as the source of the crises. Firstly, mismanagement of exchange rate that lead to a fall in the Malaysian exchange rate as much as 25 percent. Secondly, the increase in the amount of M2 of money supply to GDP as much as 200 percent indicating mismanagement between asset and liabilities in the financial system. Finally, the inflow of hot money did not go through proper sterilization process in the financial system.

The financial system can be distinguished into the banking system and stock market system in its role towards contributing to the economic growth of the nation. Based on the literature review, some researchers found that banking system acts as a complement to the stock market system. In contrast, some researchers claim that banking system acts as a substitute to the stock market system. However, there are researchers believe that the financial dualism and environmental condition of the nation can hinder the effectiveness of the financial system.

No doubt, the prominence of the topic that link financial development with the economic growth of a nation was discussed quite extensively. There is still surprisingly little argument on how to measure whether bank or stock market contributes to financial development that is essential for growth. With this, the extent financial dualism plays in the financial development that lead to growth can also be measured. Therefore, the research question of this study is as follows: What is the extent financial development can contribute to the economic growth of a nation?

Research Objective

The overall objective of this study is to examine the contribution of financial development towards economic growth in Malaysia. The specific objectives of this study are to examine whether:

- a. Banking system contributes to the economic growth of the nation.
- b. Stock market system contributes to the economic growth of the nation.
- c. Environmental condition can influence the economic growth of the nation.
- d. There is short run or long run relationship between financial development and economic growth of the nation.
- e. Finally, some suggestions to effectively link financial development with economic growth.

Scope of Study

This study is based on a time series analysis which uses the monthly time series data obtained from 2000 to 2009. Various secondary sources like the Bank Negara Reports, the Malaysian Financial Report and the Bursa Malaysia Reports were used.

The study aims to link financial development with the economic growth in Malaysia. Financial development will be divided into banking system and the stock market system. The financial development in the banking system is measured by credit of total loan meanwhile in the stock market is measured by using market capitalization. Industrial Production Index (IPI) is used to measure economic growth. The other variables used to measure the economic environment of the nation are inflation rate and interest rate. Inflation rate is essential because it can determine the level of risk meanwhile interest rate is used to determine liberalization or the extent of government involvement in the financial market. Therefore, inflation is measured by using Consumer Price Index (CPI) while interest rate is measured by using 12 months Treasury Bills.

LITERATURE REVIEW

The financial system of a nation can be distinguished into the banking system and the stock market system. According to some researchers, the banking system acts as a complement to the stock market system. In contrast, certain researchers believe that they are substitute. In addition, there are researchers who believe that the effectiveness of the financial system can be hindered by the existence of financial dualism and the condition of the economic environment in the nation.

Banking system acts as a complement to the stock market system

According to Cole *et al.* (2008), banks, financial intermediaries and stock market were important to influence the economic growth. Bank stock returns also had the ability to affect the economic growth. The information of bank and firm that published could represent a country's financial system. But, the study did not measure the performance of bank functions directly. They supported that bank stock returns were compliment used as an indicator for financial development because they reflect the quality and size of bank credits.

King and Levine (1993) revealed that roles of bank and stock market could independently and jointly create growth. The researchers focused on several measures of banking development, and found that banking sector development was positively correlated with per capita income growth, productivity improvement and capital accumulation. Deidda and Fattouh (2008) indicated that both bank and stock market development had positive effect on economic growth. But, the impact of bank development to economic growth is lower than the level of stock market development. Dawson (2008) revealed that financial development would enhance economic growth in both consistent sources of growth equations. This supported by the study of Bekaert and Harvey (2000), Hao (2006), Greenwood and Jovanovic (1990), and Bencivenga and Smith (1991).

In addition, Levine *et al.* (2000) applied recent GMM techniques developed for dynamic panels, and provided more evidence that the development of financial intermediation had a strong and causal effect on economic growth. Liu and Li (2001) found a significant relationship between financial sources of fixed asset investments and output growth. Domestic loans and households' financial savings will also have the large impact on economic growth.

Both bank and stock market development led to economic growth by using the quarterly data and applying time series methods on five developed countries (Arestis *et al.*, 2001). They also found that the impact of banking sector was bigger than stock market development in influencing economic growth. Bell and Rousseau (2001) in their study had evaluated the relationship between individual macroeconomic indicators and measurements of financial development in India and found that the financial sector had been instrumental in promoting economic performance. Rousseau and Wachtel (2000) and Beck and Levine (2004) further used the Levine and Zervos approach of stock markets, banks and growth by using panel techniques (GMM estimator) and indicated that banking and stock market development would affect the economic growth.

Moreover, Wu *et al.* (2009) revealed that the stock market capitalization and liquidity had positive long run effects on economic development. If deepening financial markets, it might hamper long run real output, but it improved risk diversification and information services of commercial banks that could stabilize economic development. Besides, stock market liquidity had the short term negative impact on economic growth. Hondroyiannis *et al.* (2005) studied the relationship between banking system development with the stock market and economic performance in Greece over the period 1986 to 1999. The study used the VAR models and their findings suggested that there existed a bi-directional causality between finance and growth in the long run, although their effects were small.

All these researchers claimed that bank and stock market were complements. Due to their complementary role, they could efficiently improve the allocation of resources.

Banking system acts as a substitute to the stock market system

Groenewold *et al.* (2003) claimed that a sound financial system was important in the process of economic development. The analysis used daily data on seven share prices from 1992 to 2001. The stocks were initially tested using ADF test. The univariate and multivariate involved regression were used latter. The result revealed that the stock market in China was weak and did not easily adapt to change in the regulation made by the bank.

Besides, Rousseau and Xiao (2007) used time series technique. The variables chosen were domestic credit to represent bank development, size of outstanding shares to represent stock market development, real sector to be measured by GDP and fixed investment. The study used quarterly data from 1995 to 2005. Initially, a unit root test was carried out on all the variables. This was followed by the cointegration test to see the long run relationship between bank, stock market and economic growth. Finally, the short run relationship among these variables is tested by using Granger-causality test. The result revealed that bank still produce a positively significant effect on GDP and fixed investment but stock market did not. This was because the development of stock market was not based on market force but it was an attempt made by the government.

Naceur and Ghazouani (2007) carried out the study to link financial development with economic growth. The result revealed that financial development involving bank and stock market did not significantly lead to economic growth. The data was based on 10 MENA countries using unbalance panel data. The variables used in this study are economic growth, income per capita, ratio of export plus import to GDP, inflation rate, ratio government consumption to GDP, foreign direct investment (FDI) and black market premium (BMP). The result revealed that overall financial development dampened economic growth. This was due to the undeveloped financial system.

The study supported by Nieuwerburgh *et al.* (2006) who claimed that stock market was important in an economic life. A cointegration analysis carried out to analyze the cause and effect of financial development with economic growth. An annual data said from year 1830 to 2000 were used in this analysis. Stock market development was measured by total market capitalization. Economic activity was measured using GDP per capita and exchange rate. The result revealed before 1990, financial development did not granger cause economic growth. When there was financial liberalization after 1990, there was a long run relationship between economic growth and financial development.

In addition, Levine (1997) explained the mention role of stock market by looking at five interrelated functions. All these functions could increase growth through two channels, capital accumulation and technological innovation. Similar method was used by Enisan and Olufisayo (2009) on seven countries in sub Sahara Africa. The study indicated positive relationship between financial development and economic growth in the short run and in the long run. Durham (2002) also found that positive long run and short run effect between stock market liberalization and macroeconomic growth. Higher economic growth could be used to overcome poverty.

From the surveys of Pagano (1993), there were at least four ways that financial development contributed to economic growth. Meanwhile, Boyd and Prescott (1986) emphasized the fundamental role of banks in producing information and reducing misallocation of resources. On the other hands, Bhide (1993) noted that stock markets would not enhance resource allocations and corporate government as banks. In adversely, Allen and Gale (2000) showed some models stressed that stock markets reduced the inefficiencies monopoly power of banks and therefore encouraged growth enhancing activities. Atje and Jovanovic (1993) found a large effect of stock market development measured by the value traded divided by GDP on subsequent development, but they failed to find a similar effect for bank lending. Thangavelu and Ang (2004) revealed that financial intermediaries and financial markets had different impacts on economic growth. Besides, the variables of interest rates which used in sensitivity test did not influence the results.

Levine and Zervos (1998) found that the initial level of stock market development liquidity and the initial level of banking development were positively and significantly associated with long term economic growth. They also found that stock market size which measured by market capitalization divided by GDP did not correlated with growth indicators. This study supported by Levine (1999) and Levine *et al.* (2000), who presented an instrumental variable that explained cross-country differences in financial development but was uncorrelated with economic growth due to simultaneity bias. Demirguc-Kunt and Levine (1996) concluded that countries with well-developed stock markets had well-developed financial intermediaries, and vice versa, implying that there was no distinction between bank-based and market-based financial systems.

Kassimatis and Spyrou (2001) showed that equity markets only played the role in liberalization countries such as Chile and Mexico. The equity market did not affect real sector growth in India where financially repressed economies. Moreover, the banking crises in 1980s and 1990s in Chile and Mexico caused the negative relation between the credit market and economic growth. In South Korea, equity and credit markets both affected economic growth but not vice versa. Besides, countries where the nature of the stock market was speculative such as Taiwan, possessed negative relationship between equity market development and economic development.

Moreover, Claessens *et al.* (2006) found that higher-income economies with sounder macro policies, more efficient legal systems, greater openness and higher growth opportunities had more developed local markets. The researchers also claimed countries with more developed stock markets experiencing more internationalization. Levine and Zervos (2005) revealed that financial markets and institutions provided important services for long run growth, besides, stock markets and banks provided different financial services.

El-Wassal (2005) used the Cointegration tests and indicated that there was a long run relationship between stock market growth and real economic activity, privatization and stock returns in India, Korea, Malaysia, Philippines and Zimbabwe. The Granger Causality tests indicated that the existence of a bidirectional relationship between stock market growth and real economic activity, privatization and stock returns in Malaysia, Philippines and Zimbabwe. The results also revealed that privatization programs had a significant effect on stock market activating. In addition, high stock returns played an important role in increasing stock market liquidity. Adjasi and Biekpe (2006) indicated that the positive effect of stock market development on economic growth was significant for countries categorized as upper middle income economies. The study suggested that low income African countries and less developed stock markets should be emphasized to develop and grow more to enhance economic growth from stock markets.

Kim and Wu (2008) found that sovereign credit ratings and various governance perspectives were critical to determine the financial development in different financial sectors within emerging markets. Choong *et al.* (2009) revealed that Foreign Direct Investment (FDI) exhibited a positive impact on growth, while both foreign debt and portfolio investment had a negative impact on growth in all sample countries. However, their results indicated that stock markets might be a significant channel or leading institutional factor through which capital flows affected economic growth.

There was number of studies had confirmed that the fundamental role of private capital flows in promoting economic growth. Borensztein *et al.* (1998) suggested that the presence of foreign capital inflows could provide additional capital to local savings and promote capital accumulation. Recent findings by Baharumshah and Thanoon (2006) revealed that short term capital could hinder growth during the surge and sudden reversals of inflows in the emerging Asian economies. According to Edwards (2001), private capital flows which also known as financial openness had a positive effect on growth in developed countries. Mody and Murshid (2005) suggested that besides maximizing profits, investors attempted to minimize risks by distributing their investment in various countries, which would lead to an increase in uncertainty or volatility in the economic performance of the recipient country.

Furthermore, Castaneda (2006) revealed that there was a non-linear relationship between stock market size and economic growth in this type of economic situation. Besides, the formation of an equity market might retard economic growth when institutions were weak. This link involved ownership concentration and the lack of formal institutions in the economy. Similarly, Caporale *et al.* (2004) found that equity markets played a positive role in liberalized economies such as Chile and Mexico or in South Korea where government guidance was important. With the difference for the first two countries, there was a negative relationship between the banking sector and the real economy.

In a paper by Khan and Senhadji (2003), it was shown that a linear model captured the positive relationship between financial depth and growth when the measure of economic growth was long term GDP. In addition, Morck *et al.* (2000) showed with Canadian data that large family firms were not conducive to growth due to management entrenchment, capital market power, high barriers against outside investment and low investment in innovation.

The environmental condition supports the economic growth

Beck and Levine (2002) supported that industries which concentrated in external finance would grow faster in countries with higher levels of financial development and efficient legal systems. The results supported the financial services as well as law and finance views. In contrast, the study did not support either the bank based or the market based views because it did not help to explain the industrial growth patterns or the efficiency of capital allocation.

Huang *et al.* (2010) and Hung (2003) indicated that inflation played an important role in determining the relationship between financial development and economic growth. Financial development was usually shown to raise inflation and reduce economic growth for countries with relatively high initial inflation rates. It was opposite for the countries with relatively low initial inflation rates.

In addition, Romero-Avila (2007) in his study found that the banking laws' harmonization could raise a positive impact on finance growth and even the economic growth by increasing the efficiency of financial intermediation in the EU from 1960 to 2001. These results were important to control the other growth determinants, potential simultaneity bias and business cycle effects. La Porta *et al.* (1998) also showed that legal factors might explain observed differences in the degree of development and composition of financial systems across countries.

There were other studies focused on specific mechanisms through which financial policies might affect growth. Rajan and Zingales (1998) examined whether industries that were more reliant on external finance experience higher growth in those countries with more developed financial systems. Levine (2001) showed that the lifting of restrictions on foreign bank entry spurred growth through improvements in productivity levels. In another study investigation, Jayaratne and Strahan (1996) provided evidence that

intrastate branch reformed in the United States was positively affected the growth by raising bank lending quality.

Bekaert *et al.* (2001) also found the different specifications that financial liberalizations were associated with significant increased in real economic growth. The effect was larger for countries with high education levels. Their results suggested that financial market liberalizations were associated with higher real growth, in the range of 1 percent per annum. In the study conducted by Ergungor (2008) revealed that countries would grow faster when they had well-developed stock markets in flexible judicial environments because entrepreneurs would invest more when they no need to pay holdup rents to investors. The researcher also found that bank oriented financial systems were correlated with high economic growth in countries with inflexible judicial systems.

A study was conducted by Naceur *et al.* (2008) on MENA countries indicated that there was an improvement in financial system when comparison was made before and after liberalization. Similarly, Fernandez *et al.* (2010) also claimed that the tighter restrictions on non-traditional bank activities and on non-financial firms would reduce the negative influence of bank concentration on economic growth. However, too much market monitoring would cause the greater negative influence of bank concentration on economic growth.

METHODOLOGY

Based on the literature review, a theoretical framework will be developed. The relationship between banking system, stock market system, environmental condition and economic growth are established using Ordinary Least Square estimation (OLS). Initially, the multiple coefficient of determination R^2 is used to analyze how well the sample regression line fits the data. Then, the F-Test conducted to measure overall significance of the estimated regression which is also a test of significance of R^2 . Thirdly, the T-Test is used to verify the truth or false of a null hypothesis. Durbin Watson is developed to detect correlation in Least-Squares Regressions. If the value of R^2 is high but the variables are found that insignificant, then there will be an autocorrelation problem. This will be followed by the Unit Root Test to determine whether the variables are stationary. Next, the Cointegration test is carried out to form the long run relationship among the variables. Meanwhile, the Vector Error Correction (VEC) modeling establishes the short run relationship between the variables. Besides, the Impulse Responses Function (IRF) is used to determine how each variable responds over time to a shock in other variables. Finally, the Variance Decomposition (VDC) is used to determine the dynamic interaction among the variables.

Research Framework

The research framework structured the basics of the research project. In the framework, the dependent variable is economic growth, beside, the independent variables are banking system (credit), stock market system (market capitalization), and environmental condition (inflation and interest rate). This research framework is adapted based on the study of Levine and Zervos (2005), Beck and Levine (2004), Naceur and Ghazouani (2007), Deidda and Fattouh (2008), and Hung (2003). The research framework is showed at Figure 1.

Model

Economic Growth = f (Credit, Market Capitalization, Inflation and Interest Rate)

where Credit represents bank development, Market Capitalization represents the stock market development, Inflation is a proxy for risk while Interest Rate reflects the government interference in the financial market through the liberalization policy.

RESULTS AND DISCUSSION

Ordinary Least Square Estimation Results

Refer to Table 1 which shows the result of the Ordinary Least Square estimation (OLS) for the model, Economic Growth = f (Credit, Market Capitalization, Inflation, Interest Rate). The estimated R-squared of 0.729079 indicates that 72.9 percent changes in economic growth are explained by the independent variables like bank credit, market capitalization, consumer price index and interest rate. 27.1 percent are explained by other factors. From the table, the F-statistic value (77.36941) is more than critical F value, thereby, the data is found to fit the model.

Based on the findings, it is proven that credit is significantly negative in explaining the changes in economic growth. One percent changes in the bank credit can reduce the economic growth by 1.46 percent. Similarly, market capitalization can also influence the economic growth of Malaysia. One percent changes in the market capitalization can increase economic growth by 0.19 percent. Both bank credit and market capitalization are found to be significant. This is because the estimated t value of bank credit (-8.280672) and market capitalization (2.294298) can respectively influence the changes in economic growth at 5 percent significance level.

This is in line with the study of Arestis *et al.* (2001) who found both bank and stock market development enhanced the economic growth. Bell and Rousseau (2001) supported the findings that bank and stock market development were important in India to promote economic growth. Dawson (2008), Rousseau and Wachtel (2000), and Beck and Levine (2004) also indicated that bank and stock market development affect the economic growth.

All other variables are found to be insignificant in explaining the changes in the economic growth. This is because the estimated t value of 0.769223 for inflation (CPI) and -1.255798 for interest rate (TB12) are lower than the critical value of t, therefore hypothesis null cannot be rejected. This means the environmental conditions represented by inflation and interest rate do not influence the economic growth in Malaysia. The findings do not support the study of Beck and Levine (2002), Huang *et al.* (2010), Hung (2003), Romero-Avila (2007), and La Porta *et al.* (1998).

As for the Durbin Watson test used to measure the autocorrelation problem in the data, it is clear that the estimated Durbin Watson value of 0.295119 is less than the critical Durbin Watson value of 2. This shows the data set has an autocorrelation problem. This means that the error term at one time period can influence the error term in another time period. Therefore, measures need to be taken to overcome the problem of autocorrelation. This procedure starts with the unit root test.

Unit Root Test Results

Table 2 shows the Augmented Dickey Fuller test. It is used to identify whether the variables used in the analysis are integrated at the level or at the first difference. All the variables are found to have a unit root problem at the level because the estimated t-statistics of -1.200339 for economic growth, 2.793794 for bank credit, -0.671414 for market capitalization, -1.179682 for consumer price index and -1.595941 for 12 months treasury bills are lower than the critical value of -3.486064 (1 percent), -2.885863 (5 percent) and - 2.579818 (10 percent) respectively. But when the variables were differentiated at first order, the variables do not have an unit root problem. This means the variables are integrated at level 1. The estimated t value for economic growth (-11.81920), bank credit (-9.412365), market capitalization (-10.52778), consumer price index (-9.952080) and 12 months treasury bills (-12.20566) were all greater than the critical value of -3.486551 (1 percent), -2.886074 (5 percent) and -2.579931 (10 percent) respectively.

Determination of the Optimal Lag Length

Table 3 represents VAR(p) model which is used to determine the optimal lag length on the model that test the relationship between economic growth (IPI) with bank credit (CREDIT), market capitalization (MC), inflation (CPI), and interest rate (TB12). The table shows the VAR model for the order of p = 1 and 2. Based on the relative minimum value of AIC, the model for the purpose of further analysis is chosen. From the table, the AIC has a relative minimum value when p=1, thereby, the lag length of 1 is chosen for the model.

Cointegration Test Results

Based on Table 4 which shows the Cointegration Rank test (Trace) for the model, Economic Growth = f (Credit, Market Capitalization, Inflation, Interest Rate). The Cointegration Test in the table shows the variables are co-integrated. The Trace statistic value is greater than critical value at 5 percent significance

level, indicating two cointegrating equations at 5 percent significance level. This means that there is a long run relationship between economic growth with bank credit, market capitalization, inflation, and interest rate.

Refer to Table 5 which shows the Normalized Cointegrating Coefficients to determine the long run equilibrium between economic growth (IPI) with bank credit (CREDIT), market capitalization (MC), inflation (CPI), and interest rate (TB12). The estimated t value for bank credit (-6.66447) and market capitalization (4.46798) are more than the critical value of t while inflation (1.71233) and interest rate (-0.66479) are less than the critical value at 5 percent significance level. This indicates that bank credit and market capitalization are significant in explaining the changes in economic growth in the long run while inflation and interest rate are insignificant in explaining the changes in economic growth in long run. By the way, bank credit is found to have negative impact on the economic growth while market capitalization has positive impact on the economic growth. Based on this finding, bank credit is claimed to be substitute to market capitalization in influencing the economic growth. In addition, from the Coefficient value, it can be claimed that bank credit has bigger impact than market capitalization in influencing the economic growth.

The study of Kassimatis and Spyrou (2001) totally supported the findings where the credit market had a negative relation with economic growth because of the banking crisis, while the stock market had the positive impact on the economic growth because of the financial liberalization. This also supports the study of Caporale et al. (2004).

Hondroyiannis *et al.* (2005) supported the findings by indicating that both bank and stock market sector could influence economic growth in the long run in Greece. It is also similar that the contribution of banking sector was greater compared to the stock market sector. This is because Greece was medium sized EU country which started financial liberalization process lately. Groenewold *et al.* (2003) also revealed that stock market in China was weak because it did not easily adapt to change in the regulation made by the bank. Similarly, Malaysia also encounters the limitation of financial liberalization to promote economic growth, therefore, banking system has greater impact than stock market system. The study conducted by Pagano (1993) and Levine and Zervos (1998) also claimed that banking development has a long run relationship with economic growth. The relationship could be influence by changing the efficiency of capital and the productivity growth.

Based on the findings in the Malaysian context, the banking system has a bigger effect on the economic growth since Malaysia is having a bank-based system which is considered as low risk. As a developing country, Malaysia is unable to rely on the stock market system which is high in risk. In 2009, around 75 percent of the total assets are accounted in the banking system in Malaysia.

The findings also support by the study of Wu *et al.* (2009) who revealed that there was a long run equilibrium relationship among banking development, stock market development and economic growth in 13 European Union countries. The researchers also claimed that market capitalization had the positive long run effect on economic growth which is similar with the findings in this study. Market capitalization could improve the risk diversification and information services of commercial banks which stabilize the economic growth in EU countries. However, the findings do not support the findings of these researchers where there is short run relationship between market capitalization and economic growth. This could be because Malaysia is a developing country takes more time to enhance financial liberalization that can help to stimulate bank and stock market sector to enhance economic growth. Moreover, Malaysia has yet to achieve the status of a high income economy.

The finding of market capitalization which had a positive and significant relationship with the economic growth in the long run is supported by the study of Nieuwerburgh *et al.* (2006), Enisan and Olufisayo (2009), Durham (2002), Claessens *et al.* (2006), Levine and Zervos (2005), El-Wassal (2005), Adjasi and Biekpe (2006), and Chong *et al.* (2009). These researchers claimed that the stock market system will affect the economic growth through liquidity by making investment less risky. Besides, the researchers also found that greater domestic stock market development could experience higher internationalization.

Based on the findings, it can be concluded that banking system is a substitute to the stock market system in affecting the economic growth. Bank credit has a negative effect and market capitalization has a positive impact on economic growth. (banking system is prior to concentrate in Malaysia, but when it encounters financial stabilization after financial liberalization, reduce the number of banking crisis encounters and finally reaching the status of a high income economy, it will be substituted by stock market system)

However, the findings did not supported the study by Rousseau and Xiao (2007) who mentioned that bank had positive impact on economic growth while stock market was insignificant in influencing the

economic growth in China. The study of Naceur and Ghazouani (2007) is also not similar with the findings of this study because the results revealed that bank and stock market did not significantly lead to economic growth in MENA countries. This is due to the existence of unorganized financial sector and the performance of stock market is still below expectation.

In addition, the study of Deidda and Fattouh (2008) did not support the findings which indicated that both bank and stock market development had positive impact on the economic growth. The findings show the banking system has the negative impact to influence the economic growth. The study of King and Levine (1993) also argued the findings.

In Malaysia, the banking system has the negative effect on the economic growth because of gradual increase in non-performing loan (NPL). The banking sector's gross non-performing loan ratio reached 4.1 percent in 2008. Besides, the outflow of investment to other countries also caused the banks lack of capital inflows and hampered the domestic financial market developments. On the other hand, the weak productivity growth also caused the banking system to be affected negatively towards economic growth. This is due to no demand during the economic crisis.

Furthermore, the inflation and interest rate which proxy for environmental conditions in Malaysia is not significant in influencing the economic growth. These findings do not support the study conducted by Huang et al. (2010) and Hung (2003) which stated that inflation had positive and significant effect on the economic growth. This is because the inflation in Malaysia is under controlled by the government. Many economic policies are implemented by the government to prevent inflation occurred critically. On the other hand, the interest rate in Malaysia is low, thereby, it does not bring much effect to the economic growth.

Vector Error Correction Model (VEC) Results

Both the error correction term 1 and error correction term 2 found in Table 6 shows that the estimated t value of -1.75229 and -0.99121 are less than the critical value of t respectively. As much it can be concluded that the null hypothesis of no short run relationship for the model. All other variables, economic growth (-0.73336), bank credit (0.15638), market capitalization (-0.66308), inflation (0.67497), and interest rate (0.08768) are also found to be insignificant in explaining changes in economic growth because the estimated t value is less than the critical value of t.

Impulse Responses Function (IRF) Results

According to Figure 2, it shows the response of the endogenous variable to a one standard deviation shock in economic growth (IPI). The economic growth declined initially from period 1 all the way until period 12. The unanticipated innovation in the economic growth increased the value of the inflation (CPI) from period 1 to period 12. This innovation in the economic growth decreased both bank credit (CREDIT) and interest rate (TB12) to below zero from period 1 to period 12 respectively. The fall in economic growth caused market capitalization (MC) to be constant at value zero in period 1, then increased from period 2 to period 12.

Variance Decomposition Results

Refer to Table 7 which shows the variance decomposition with one standard deviation shock in bank credit. Analyzing Table 4.7, the VDC of bank credit is explained as much as 97.37 percent by the innovations of the bank credit itself, 0.18 percent by economic growth, 0.02 percent by market capitalization, 2.01 percent by inflation, and 0.40 percent by interest rate at period 4.

At period 8, the forecast error variance keeps increasing further due to innovations in economic growth (1.31 percent), market capitalization (0.27 percent), inflation (5.81 percent), and interest rate (0.61 percent). The forecast error variance declines to 91.99 percent by the innovations of bank credit itself during the same time period.

Finally, at period 12, the VDC of bank credit is explained as much as 2.63 percent by the innovation in economic growth, 0.64 percent by the innovation in market capitalization, 8.02 percent by the innovation in inflation, 0.64 percent by innovation in interest rate, while 88.06 percent by the innovation in bank credit itself.

Therefore, it can be concluded that the VDC of the bank credit is largely explained by the innovations in the bank credit itself though the value declines overtime. This is followed by the innovations

of the economic growth, market capitalization, inflation, and interest rate where the values increase overtime.

In conclusion, the results from the Impulse Responses Function also supports the findings where bank credit and market capitalization has the counter cyclical graph which both line is inverse to each other during the 12 periods. This confirms that bank credit is a substitute to market capitalization in influencing the economic growth. This is also supported by the Variance Decomposition results. The forecast error variance of innovations due to bank credit decreases while market capitalization increases during the period of study.

CONCLUSION AND RECOMMENDATIONS

Malaysia as a developing country is a bank-based system in the financial development. The flow of foreign and domestic fund is directed by changing the stock of money through credit channel and interest rate channel. The stock market system also influences by the credit channel because the equity performance is due to the changes in the company's profit. The study aims to examine the relationship between the economic growth with the bank credit, market capitalization, inflation, and interest rate in the short run and the long run. Besides, effort is also taken to determine whether bank and stocks are complement or substitute to each other in influencing the economic growth.

Both bank credit and market capitalization are found to be significant in influencing the economic growth. In contrast, the estimated t value of inflation and interest rate are found to be insignificant in explaining the changes in the economic growth. In the Durbin Watson test, the estimated Durbin Watson value showed the data set has an autocorrelation problem. Since the R-squared value is high but Durbin Watson value is less than 2, therefore Unit Root Test is conducted to determine whether the variables are stationary. In the Unit Root Test results, all the variables have a unit root problem at the level, but the variables are found to be integrated and become stationary at first order. Next, VAR(p) model found that the optimal lag length is 1.

Furthermore, the cointegration test reveals two cointegrating vectors at 5 percent significance level. This indicates that there is a long run relationship between economic growth with bank credit, market capitalization, inflation and interest rate. Subsequently, the Normalized Cointegrating Coefficients shows that bank credit and market capitalization are significant in explaining the changes in economic growth in the long run while inflation and interest rate are insignificant. On the other hand, bank credit is found to have negative effect on the economic growth while market capitalization has a positive effect. As a conclusion, the banking system is found to act as a substitute to the stock market in affecting the economic growth. The findings also reveal that banking system has greater effect than market capitalization on the economic growth.

Moreover, VEC model indicates that there is no short run relationship between economic growth with bank credit, market capitalization, inflation, and interest rate. Lastly, the results from the Impulse Responses Function and Variance Decomposition also support the findings.

Based on the findings from this research, some recommendations are suggested to enhance the financial market of Malaysia. Firstly, the intervention of government can help to resolve the problem of non-performing loan (NPL) which might destroy and hamper economic growth in Malaysia. The government should establish the assets management companies to gather the NPL and allocate the public funds to the banks and other financial institutions. The competitive edge of the banks should be strengthened. On the other hand, a framework for the promotion of autonomous or non-courtroom negotiations between the creditors and debtors can be established. Otherwise, the loan period can be extended while the debt equity conversion and changes in management cannot be achieved.

Secondly, nowadays, the money borrowed is not spend but invested in other countries. This causes the banks to experience lack of capital inflow and dampens the domestic financial market development. In this situation, the government should carry out series of policies to ensure the capital inflow is stable in the banking sector in the short term while stock market sector in the long term. The banks can allocate the savings into investments and establish the equilibrium between the demand and the supply of the funds. Besides, the existence of the unorganized financial sector likes the non-licensing money lenders that will lead to the unbalance capital flow. Hence, the regulation should be restricted to abolish the unorganized financial sector.

Thirdly, from the findings, the stock market system is also found to be significant in influencing the economic growth in Malaysia. Obviously, the level of integration of stock market into the economy in

Malaysia is still weak. Therefore, the trading activities on Malaysia stock market have to be enhanced through more education and promotion of the need to increase capital through the stock market. The liquidity of the stock market can improve the efficiency and productivity effects on the economic growth. By implementing the stock market development policies, it will change the investment patterns and infuse higher demand for stock market activities as well as increase the economic growth in Malaysia.

In the future study, an advance econometric method which is Structural Dynamic Model Approach (SDM) with Three Stage Least Square estimation can be used to acquire better and accurate result. Other independent variables such as exchange rate, unemployment rate, national income and foreign direct investment (FDI) also can be used to determine the influence of economic growth.

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APPENDIX

FIGURE 1 : Research framework



FIGURE 2 : Response of Economic Growth (IPI) to One Standard Deviation



Variable	Coefficient	t-Statistic	Prob.	
С	20.32822	8.811414	0.0000	
LOG(CREDIT)	-1.460178	-8.280672	0.0000	
LOG(MC)	0.190044	2.294298	0.0236	
LOG(CPI)	0.608399	0.608399 0.769223		
LOG(TB12)	-0.111287	-0.111287 -1.255798 0		
R-squared	0.729079			
F-Statistic	77.36941			
Durbin-Watson stat	0.295119			

TABLE 1 : The Ordinary Least Square estimation results

TABLE 2 : The Augmented Dickey Fuller test results at the level and first difference

Variable	t-Statistic (Level)	t-Statistic (First Difference)
LOG(IPI)	-1.200339	-11.81920***
LOG(CREDIT)	2.793794*	-9.412365***
LOG(MC)	-0.671414	-10.52778***
LOG(CPI)	-1.179682	-9.952080***
LOG(TB12)	-1.595941	-12.20566***

Mac Kinnon critical values of rejection of null hypothesis is -3.486064, -2.885863, and -2.579818 for 1% (***), 5% (**), and 10% (*) significance level at the level form and -3.486551, -2.886074, and -2.579931 for 1% (***), 5% (**), and 10% (*) significance level at first difference.

	TABLE 3:	: VAR(p) Model	- Determination	of the of	ptimal lag	length
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VAR(p) model		AIC	
VAR(1)	D(LOG(IPI))	-2.212667	
	D(LOG(CREDIT)	-7.606120	
	D(LOG(MC))	-2.910072	
	D(LOG(CPI))	-6.462092	
	D(LOG(TB12))	-2.806344	
VAR(2)	D(LOG(IPI))	-2.233400	
	D(LOG(CREDIT)	-7.701168	
	D(LOG(MC))	-2.945349	
	D(LOG(CPI))	-6.440236	
	D(LOG(TB12))	-2.565484	

TABLE 4 : Cointegration Rank test (Trace) for the model, Economic Growth=f (Credit, Market Capitalization, Inflation, Interest Rate)

Lag interval (in first difference): 1 to 1							
Hypothesized	Hypothesized Eigenvalue Trace Statistic 0.05 Prob.**						
No. of CE(s)	No. of CE(s) Critical Value						
None *	0.227531	80.22734	69.81889	0.0059			
At most 1 * 0.197364 49.76404 47.85613 0.0327							
At most 2 0.111062 23.82129 29.79707 0.2081							
At most 3 0.046034 9.929390 15.49471 0.2862							
At most 4 * 0.036343 4.368355 3.841466 0.0366							
Trace test indicates 2 cointegrating eqn(s) at the 0.05 level							
* Denotes rejection of the hypothesis at the 0.05 level							
** MacKinnon-Haug-Michelis (1999) p-values							

Variable	Coefficient	Standard Error	t-Statistic
LOG(IPI)	1.000000		
LOG(CREDIT)	-3.025068	0.45391	-6.66447
LOG(MC)	0.941091	0.21063	4.46798
LOG(CPI)	3.554227	2.07567	1.71233
LOG(TB12)	-0.156658	0.23565	-0.66479
Log likelihood	1331.838		

TABLE 5 : Normalized Cointegrating Coefficients

TABLE 6 : The VEC between the economic growth with bank credit, market capitalization, inflation, and interest rate.

Variable	Coefficient	Standard Error	t-Statistic
EC term 1	-0.068476	0.03908	-1.75229
EC term 2	-0.125089	0,12620	-0.99121
D(LOG(IPI(-1)))	-0.070230	0.09576	-0.73336
D(LOG(CREDIT(-1)))	0.225685	1.44314	0.15638
D(LOG(MC(-1)))	-0.085154	0.12842	-0.66308
D(LOG(CPI(-1)))	0.541138	0.80172	0.67497
D(LOG(TB12(-1)))	0.009964	0.11363	0.08768
С	-0.006132	0.01101	-0.55694
R-squared	0.050067		
F-statistic	0.828239		
Log likelihood	138.5473		

TABLE 7: The Variance Decomposition of the bank credit (CREDIT)

Period	S.E.	LOG(IPI)	LOG(CREDIT)	LOG(MC)	LOG(CPI)	LOG(TB12)
1	0.005223	0.182112	99.81789	0.000000	0.000000	0.000000
2	0.007757	0.082716	99.43522	0.024368	0.282994	0.174706
3	0.009761	0.076796	98.58991	0.015398	1.020774	0.297124
4	0.011500	0.188987	97.37101	0.024365	2.014028	0.401605
5	0.013071	0.392936	95.99676	0.058869	3.069615	0.481815
6	0.014520	0.664220	94.59727	0.115537	4.082233	0.540744
7	0.015871	0.977378	93.25039	0.189045	5.001307	0.581878
8	0.017139	1.312623	91.99529	0.273937	5.809136	0.609018
9	0.018336	1.654959	90.84858	0.365498	6.505431	0.625531
10	0.019470	1.993660	89.81377	0.459933	7.098434	0.634203
11	0.020548	2.321394	88.88713	0.554351	7.599896	0.637228
12	0.021575	2.633457	88.06122	0.646657	8.022379	0.636288