DETERMINANTS OF STOCK PRICES MOVEMENT IN MALAYSIA

Nurul Huda Zahari[1], Umi Kalthom Abd Rahim[1], Nurul Syafira Mohd Razalli[1] & Fadli Fizari Abu Hassan Asari[1]*

[1]Faculty of Business Management,
Universiti Teknologi MARA (Terengganu),
23000 Dungun, Terengganu, Malaysia.

*Corresponding Author: fizari754@yahoo.com

Abstract

Changes in macroeconomics variables are very important to stock prices movement in major stock markets. The same situation is also happening in Bursa Malaysia. Based on 1980-2010 data, this paper aims to explore the interactions between Gross Domestic Product (GDP), Interest Rate (IR), Exchange Rate (ER) and Inflation Rate (INF) with Malaysian stock prices movement. At the same time, this paper also aims to trace out the most dominant factor among these selected variables. The study has been done using multivariate times series analysis available in STATA software. The results illustrated that stock price has a positive relationship with GDP, IR and INF, while it shows a negative relationship towards ER. The most dominant role is played by ER in influencing the stock prices movement in Bursa Malaysia. For future studies, it is suggested to include the government policies such as government transformation programme and economic transformation programme in giving more holistic perception on the determinants of stock prices movement in Malaysia.

Keywords: **Stock Price, Gross Domestic Product, Exchange Rate, Interest Rate, Multivariate Time Series Analysis, Malaysian Economics**

1.0   INTRODUCTION

In Malaysia, Bursa Malaysia or previously known as Kuala Lumpur Stock Exchange (KLSE) is a place where shares are traded daily. Consisting of primary board and secondary board, this stock market offers various services such as trading, clearing, settlement and depository services. There are lots of factors that can lead to the changes in share prices and one of them is macroeconomic variable. Earlier study made by Habibullah and Baharumshah (1996) and later by Aisyah *et al.* (2009), Roselee and Fung (2009) and Geetha *et al.* (2011) explained the importance of macroeconomics variables on the movement of share prices traded in Bursa Malaysia. Therefore there is a need in continuing the mentioned studies in order to ensure that the potential factors can be identified from time to time. Exploring the possible relationships between the macroeconomics variables which are Gross Domestic Product (GDP), Interest Rate (IR), Exchange Rate (ER) and Inflation Rate (INF) with the Stock prices movement in Malaysia for a period of 1980-2010 is the major objective of this research. In addition, there is a need in identifying the most essential factor among the selected independent variables.

2.0   LITERATURE REVIEW

2.1   Stock Price

Stavarek (2004) defines stock price as the present value of future cash flows of firm and to be coordinated with national economic, while Duca (2007) explains that it is a discounted present value of the firm's payout. Macroeconomic variables have become vital external factors for stock prices movement. Dimitrova (2005) finds a significant relationship between stock prices and exchange rates. Aisyah *et al.* (2009) explains more where money supply, exchange rate, interest rate, reserve and industrial production index influence Malaysian stock market. Abu-Libdeh and Harasheh (2011) determine the quarterly stock market index returns by testing on GDP, labor rate, balance of trade, inflation and exchange rate. Geetha *et al.* (2011) also reveal a dominant relationship between inflation and stock price.

2.2   Gross Domestic Product (GDP)

Wesselink *et al.* (2007) define Gross Domestic Product (GDP) as the wellness of the country, society and human being. Habibullah and Baharumshah (1996) highlight the importance of national output towards increase in share price. The same opinion is shared by Foresti and Pasquale (2007), Somoye *et al.* (2009) and Singh *et al.* (2011) where GDP affect the return of all portfolios and has a positive relationship with the share prices. From another view, there is a negative relation between GDP and stock returns in developed countries as explained by Mauro (2000). In addition, Birz *et al.* (2008) explain that GDP and stock market prices have no relationship because stock market prices can predict economic growth.

2.3   Interest Rate

Patterson and Lygnerud (1999) define interest rate as a discounted rate pay at future date. Interest rate has a negative relationship with the stock prices as revealed in studies by Somoye *et al.* (2009), Alam and Uddin (2009) and Cifter and Ozun (2007). In Malaysia, Aisyah *et al.* (2009) emphasise on the same thing where interest rate shows an inverse relationship with share prices traded in Bursa Malaysia. Syaheera (2011) however explains possibilities in having positive or negative relationships between these two variables in the five different Asian countries.

2.4   Exchange Rate

Singh *et al.* (2011) reveal that the negative relationship between exchange rate and stock return will affect the stock price. Earlier study by Dimitrova (2005) also emphasizes on the negative relationship between exchange rate and the share prices as local currency depreciates. From a contradicting point of view, Aisyah *et al.* (2009) highlight that exchange rate does not have strong dynamic interaction with the stock market movement. Aydemir and Demirhan (2009) conclude that stock market and exchange rates have bilateral relations, and may influence each other. For instance, a study by Sohail and Hussain (2009) explains that the stock return has a positive impact on the effective exchange rate, vice versa.

2.5 Inflation Rate

According to Greeta *et al.* (2011), there is no short run relationship between these two variables for Malaysia and US. This connection however exists in China. Andersson *et al.* (2004) explain that the stock price will be high if the rate of inflation is high. Singh *et al.* (2011) also estimate a direct positive relationship between these variables. This positive association has been discussed earlier by Feldstein (1983), where a special paper in examining the relationship between only two variables, share price and inflation rate, has been written. Even though the relationship is commonly positive, it can sometimes move in different directions as proposed by Farsio and Fazel (2008).

3.0 RESEARCH METHODOLOGY

3.1 Theoretical Model

The research methodology uses an annual time series data which consists of four independent variables and one dependent variable for a period of 30 years (1980-2010). The log-log model is as follows:

$$ln(STOCK_t) = \alpha + \beta_1 ln(GDP_t) + \beta_2 ln(IR_t) + \beta_3 ln(ER_t) + \beta 4 ln(INF_t) + u_t$$

(Equation 1.0)

Where:
STOCK	=	stock price
GDP	=	gross domestic product
IR	=	interest rate
ER	=	exchange rate
INF	=	inflation rate
ln	=	log natural
α	=	constant term
u	=	disturbance term

3.2 Data Retrieval

3.2.1 Stock Price

The data is retrieved from FTSE Bursa Malaysia. It is valued in index.

3.2.2 Gross Domestic Product

The data was retrieved from the official webpage of Malaysian Statistics Department. It is valued in RM.

3.2.3 Interest Rate

The data was retrieved from World Bank data website. It is valued in percentage.

3.2.4 Exchange Rate

The data was retrieved from EIU Country Data website. It is valued in MYR/USD.

3.2.5 Inflation Rate

The data was retrieved from World Bank data website. It is valued in percentage.

3.3 Data analysis

Descriptive statistics has been used in giving fundamental idea on characteristics of each variable. In order to examine stationary level for each variable, Augmented Dickey Fuller (ADF) test was used. Further analysis in finding existence of any long run relationship was done using Johansen cointegration test. Determination on the beginning of long run relationship was then determined based on values stated by FPE, AIC, HQIC and SBIC indicators. Since all variables are stationed at first difference, Vector Error Correction Model (VECM) was chosen to investigate long run relationship between the variables. This is crucial in explaining magnitude of the selected macroeconomic variables toward stock prices movement in Bursa Malaysia.

4.0 RESULTS AND DISCUSSION

4.1 Descriptive Statistics

Table 1.0 explains the characteristics for each variable such as maximum, minimum, mean, coefficient of variation and variance value. The coefficient of variation (CV) is the best indicator to be examined since it gives early idea on stability of the variable. It is formulated by dividing standard deviation over mean. The higher the CV, the greater the dispersion of the variable will be. Exchange rate shows the lowest CV which is 0.1997 while the highest CV value is recorded by GDP which is 0.7827.

Table 1.0: Descriptive statistics

Stats	STOCK	GDP	IR	ER	INF
Max	1518.91	7.66e+08	7.36	3.8883	9.7
Min	395	5.33e+07	2.23	2.2224	.29
Mean	834.4726	2.83e+08	3.5023	3.0303	3.1213
CV	.3608	.7827	.3107	.1997	.6557
Var	90646.22	4.91e+16	1.1841	.3660	4.1890

4.2   Stationarity Test

Result of stationarity test at first difference is shown in Table 2.0 and plotted in Figure 1.0 until Figure 5.0.

Table 2.0: Stationarity test (1st difference)

Variables	1st Difference	
	T-Stat (z-t)	P-Value (z-t)
STOCK	-6.759	0.0000
GDP	-5.121	0.0000
IR	-5.141	0.0000
ER	-5.630	0.0000
INF	-8.408	0.0000

Figure 1.0: Stock price at 1st difference
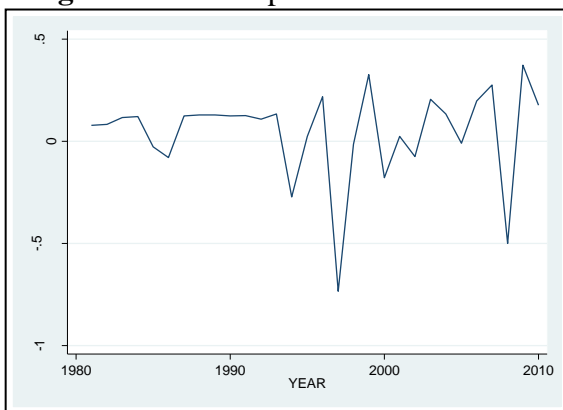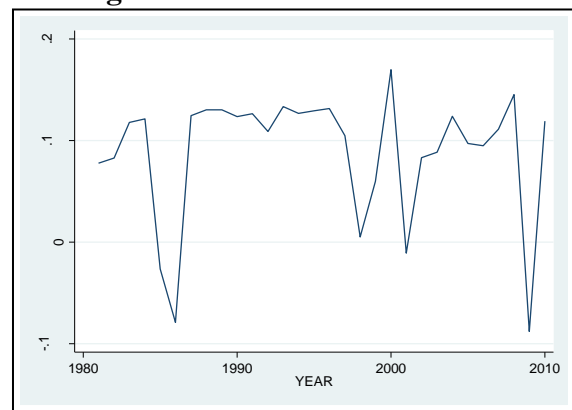

Figure 2.0: GDP at 1st difference

Figure 3.0: Interest rate at 1st difference
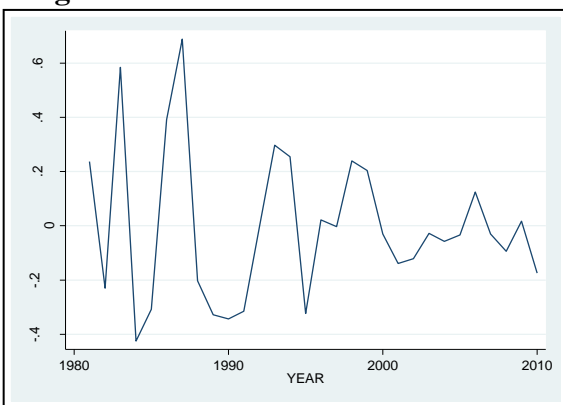

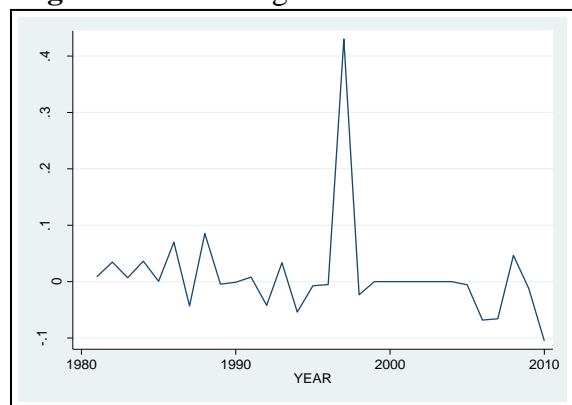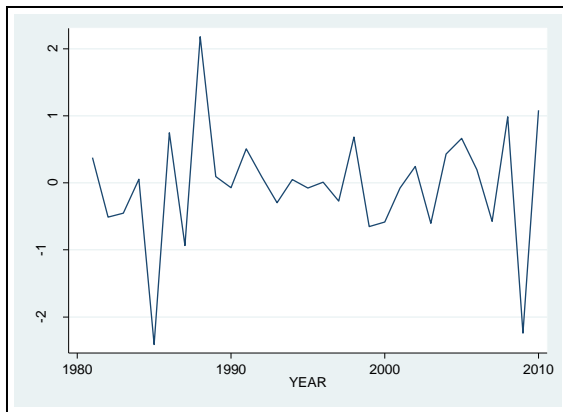**Figure 4.0:** Exchange rate at 1st difference

Figure 5.0: Inflation rate at 1st difference

4.3   Johansen Cointegration Test

The result indicated that there is a co-integrating relationship between independent variables and dependent variable in a long run. Moreover, the relationship started at the fourth lag.

4.4   Estimated Results

The estimated co-integrating equation is derived as follows:

$$\widehat{ln\text{STOCK}} = 7.7403 + 0.6640 ln\text{GDP} + 2.6212 ln\text{IR} - 2.4304 ln\text{ER} + 0.1473 ln\text{INF}$$

(Equation 2.0)

In general, all for macroeconomic variables are significant at 1% significance level. Three variables have positive relationships while only ER has an opposite relationship with the stock price.

A 1% increase in GDP, will increase 0.6640% in stock price. In other words, GDP has a positive relationship with stock price. This relationship is in line with a lot of studies including Habibullah and Baharumshah (1996), Foresti (2007), Somoye *et al.* (2009) and Singh *et al.* (2011). GDP is a measurement of the economic health of a country. The healthier the economic environment, the better it will be in generating more business activities in the country. Since most of the business activities are generated by public listed companies, higher returns on investment are expected. This will automatically increase the share prices in Bursa Malaysia due to higher demand by the investors. Prosperous economic also promises better employment rate. Higher employment will contribute for increase in companies outputs where at the end will generate more incomes and profits. This excellent performance will be one of major causes in increasing price of the shares issued by the companies.

A 1% increases in the interest rate, will increase 2.6212% of stock price in Malaysia. The analysis reveals a positive relationship between interest rate and stock price. This statement however contradicts with many studies except for Syaheera (2011) where it is highlighted that the relationship between these variables may differ among the stock markets. Back to basic monetary theory, increase in interest rate will attract publics for saving. On the other hand, the return of saving interest rate is much lower and takes time to fruitful compare to return based on investment trading which

is more volatile and traded on daily basis. Even though this speculation activity brings huge risk, the high probable return is not deniable.

The results also show that 1% increases in exchange rate, will decrease 2.4304% in stock price. This negative relationship supports the previous studies like Dimitrova (2005) and Singh *et al.* (2011). In details, when US Dollar appreciates compare to Malaysian Ringgit, the foreign investors experience higher purchasing power. They will be attracted to "cheaper" Malaysian shares traded in Bursa Malaysia. This attraction will generate more selling and buying activities among the investors. Since exchange rate fluctuates over time, the demand based on variance between two different currencies will also fluctuate over time. In addition, interest rate is the most influential factor since it recorded the highest elasticity value among the four macroeconomic variables.

In long run, the stock prices and inflation rate moves in a same direction. A 1% increases in inflation rate, will increase stock price by 0.1473%. The movement is similar with findings by Feldstein (1983), Anderson *et al.* (2004), Farsio and Fazel (2008) and Singh *et al.* (2011). This is widely accepted since inflation is highly associated with prosperous economics in a country, reflected by increase in GDP growth. This result is also parallel with the estimated coefficient of the first independent variable, where increase in GDP will increase the share price, concurrently.

5.0   CONCLUSION AND RECOMMENDATION

In general, all the listed macroeconomic variables are significant at 1% significance level. Gross Domestic Product (GDP), Interest Rate (IR) and Inflation Rate (INF) have positive significant relationships towards stock price (STOCK), while it shows a negative significant relationship with the exchange rate (ER). Secondly, ER plays the most dominant role in determining the movement of Bursa Malaysia. For future studies, it is suggested to include any relevant qualitative variable. For instance, government policies such as Government Transformation Programme (GTP) and Economic Transformation Programme (ETP) can be taken into account in giving more holistic perception on the determinants of stock prices in Malaysia.

REFERENCES

Aisyah, A.R., Mohd Sidek, N.Z., & Tafri H.F. (2009). Microeconomic determinant of Malaysia stock market. *African Journal of Business Management.* 3(3): 95-106.

Alam, M.M., & Salah Uddin, M.G. (2009). Relationship between interest rate and stock price: Empirical evidence from developed and developing countries. *International Journal of Business and Management.* 4(3): 43-51.

Andersson, M., Krylova, E., & Vahamaa, S. (2004). Why does the correlation between stock and bond returns vary over time? *Applied Financial Economics.* 18(2).

Aydemir, O., & Demirhan, E. (2009). The relationship between stock prices and exchange rates evidence from Turkey. *International Research Journal of Finance and Economics.* 2009(23): 208-215.

Birz, G., & Lott Jr, J.R. (2008). The effect of macroeconomic news on stock returns: New evidence from newspaper coverage. *Journal of Banking and Finance.* 35(11): 2791-2800.

Cifter, A., & Ozun, A. (2007). Estimating the effect of interest rate on share price using Multi-Scale Causality Test in emerging market :Evidence from Turkey.*MPRA Paper No 2485.*

Dimitrova, D. (2005). The relationship between exchange rate and stock price: Studied in a multivariate model. *Issues in Political Economic.* 14: 1-25.

Duca, G. (2007). The relationship between the stock market and the economy: experience from international financial markets. *Bank of Valletta Review.* 36: 1-12.

Farsio, F., & Fazel, S. (2008). Can investors use inflation data to predict stock prices? *In the Proceedings of International Conference on Applied Economics.*

Feldstein, M. (1983). Inflation and the stock market. *NBER working paper no. 276*.

Foresti & Pasquale. (2007). Testing for Granger Causality between stock price and Economic growth. *MPRS paper no* 2962.

Geetha, C., Mohidin, R., Chandran, V.V., & Chong, V. (2011). The relationship between inflation and stock market: Evidence from Malaysia, United States and China. *International Journal of Economics and Management Sciences.* 1(2): 1-16.

Habibullah, M.S., & Baharumshah, A.Z. (1996). Money, output and stock prices in Malaysia: An application of the cointegration tests. *International Economic Journal.* 10(2): 121-130.

Libdeh, H.A., & Harasheh, M. (2011). Testing for correlation and causality relationships between stock prices and macroeconomic variables the case of Palestine Securities Exchange. *International Review of Business Research Papers.* 7(5): 141-154.

Mauro, P. (2000). Stocks return and output growth in emerging and advanced economies. *Journal of Development Economics.* 71(1): 129-153.

Patterson, B., & Lygnerud, K. (1999). The determination of interest rate. *Directorate-General for Research working paper 168.*

Roselee. S., & Fung, H. S. (2009). Does size really matter? A study of size effect and macroeconomic factors in Malaysian stock returns. *International Research Journal of Finance and Economics .* 2009(24): 102-116.

Singh, T., Mehta, S., & Varsha, M. S. (2011). Macroeconomic factors and stock returns: Evidence from Taiwan. *Journal of Economics and International Finance.* 2(4): 217-227.

Sohail, N., & Hussain, Z. (2009). Long-run and short-run relationship between macroeconomic variables and stock prices in Pakistan the case of Lahore Stock Exchange. *Pakistan Economic and Social Review.* 47(2): 183-198.

Somoye, Christopher, O.R., Akintoye, Rufus, I., & Oseni, Ezekiel, J.(2009). Determinants of equity price in the stock market. *International Research Journal of Finance and Economic.* 2009 (30): 177-189.

Staverek, D. (2004). Linkages between stock price and exchange rate in the EU and the United State. *EconWPA working paper (finance series – no. 0406006).*

Syaheera, M .(2011). The relationship between volatility of Malaysia stock price and the volatility of microeconomic variable for five Asian countries. *College of Business UUM working paper.*

Wesselink, B., Bakkes, J., Hinterberger, F., & Brink, T.P. (2007). Measurement beyond GDP. In the Online *Proceedings of International Conference on Beyond GD: Measuring Progress, True Wealth and the Well- Being of Nations.*