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Factors Affecting Kuala Lumpur Composite Index (KLCI) Stock Market Return in Malaysia

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Abstract

This paper studies the relationship between Kuala Lumpur Composite Index Stock Market Return with four macroeconomic determinants, namely interest rate, exchange rate, money supply and oil price from January 1997 to December 2015 on a monthly basis with a total of 228 observations. However, most of the studies are carried out in developed countries and large economic nations instead of in emerging markets such as Malaysia. Thus, this study aims to extend the existing studies to include the impact of several macroeconomics determinants namely interest rate, exchange rate, money supply and oil price on KLCI stock market return. This paper employed Multiple Linear Regression to examine the statistical relationship and to test the hypotheses. The data was analyzed using Statistical Package for Social Science, SPSS. For diagnostic checking, there is existence of autocorrelation problem which is typically found in time-series data. Results indicated that there is negative relationship between exchange rate and stock market return and positive relationship between money supply and stock market return. Interest rate and oil price are found to have insignificant relationship with stock market return.

Key words: Kuala Lumpur Composite Index stock market return, interest rate, exchange rate, money supply and oil price

1. Introduction

The stock market is a place where a firm's shares are issued and traded in the open market. This is an avenue for firms to raise capital for their businesses and indirectly stimulate a nation's economy and improve the overall lifestyle of a society. Investors have ventured into the stock market to seek greater returns and preserve their wealth since the significant increase in inflation combined with the depreciation of local currency against foreign currencies. Nevertheless, investors often fail to obtain their desired returns from their investments because trading in the stock market is unpredictable as the market often reacts to changes in macroeconomics determinants and sometimes for some illogical reasons.

1.1 Research Objectives

The main objective of this research paper is to identify and examine the factors that affect Malaysia stock market return. This paper emphasizes on the following:

- To investigate the relationship between interest rate and KLCI stock market return.
- To investigate the relationship between exchange rate and KLCI stock market return.
- To investigate the relationship between money supply and KLCI stock market return.
- To investigate the relationship between oil price and KLCI stock market return.

2. Literature Review

2.1 Stock Market Return

Stock market return refers to return from stock market particularly stocks listed in Bursa Malaysia and the main index used as the market return indicator is Bursa Malaysia KLCI which comprises 30 largest companies by full market capitalization (FTSE, n.d.). KLCI is calculated from the prices of the 30 largest company using the

market capitalization weighted method and the return is often determined by index variation from time to time (Bursa Malaysia, n.d.).

On the other hand, stock market volatility and returns also affected by non-fundamental factors such as investor's sentiment (Sayim and Rahman, 2015). In Malaysia, stock market tends to overreact to economic crisis which is inconsistent with the weak form of Efficient Market Theory as investors are able to reap substantial profit by buying losers in an oversold market and sell them later (Ali et al., 2010). They claimed that Bursa Malaysia tends to overreact to unexpected political events such as removal of Deputy Prime Minister and resignation of Prime Minister.

This is agreed by the studies done by Leow and Evelite (2015) which demonstrated the significant relationship between political cycles in Malaysia stock market volatilities due to portfolio adjustment by the investors to reflect their opinions towards political factors.. Despite that, the past researches may not be able to fully reflect the impact of different factors on Bursa Malaysia due to occurrence of significant events in local politics, economy and international trades recently.

2.2 Interest Rate

According to Ferrer, Bolós and Benıtez (2014), interest rate influences the stock market in two main ways. First, any changes in interest rate will affect the discount rate used in most of the modern valuation techniques. Following that, it alters the cost of borrowing which in turn affecting the anticipated cash flow of a firm.

Malaysia stock market return is found to be negatively related to interest rate (Kadir et al., 2011; Vejzagic & Zarafat, 2013; Heng et al., 2013) and this agrees with the studies done in China which demonstrated the similar negative relationship (Lv et al., 2015). Lv et al. (2015) investigated the response of China stock returns towards official interest rate changes under different economy condition (bull, medium and bear). Their study showed that changes in official interest rate have greater negative impact during bear markets compared to the other two and stock market tends to react stronger to the changes during bull markets compared to medium markets.

Conversely, study done by Yakob et al. (2014) failed to show any statistically significant return in days prior and immediately after the announcement of changes in interest rate which is in line with the work of Bernanke and Kuttner (2005) who observed that stock market only respond to unanticipated announcements.

The negative relationship does not apply to certain industries and sectors, Khan and Mahmood (2013) also found the relationship positive for financial institutions and insurance companies in Karachi Stock Exchange, KSE. The relationship is found significant by some (Kadir et al., 2011; Khan & Mahmood, 2013; Vejzagic & Zarafat, 2013) and insignificant by the others (Ab Rahman et al., 2013; Yakob et al., 2014).

2.3 Exchange Rate

The volatility in exchange rate has direct impact on firms' competitiveness and profitability where exporters are expected to benefit from depreciation of local currency and vice versa for importers (Tsagkanos & Siriopoulos, 2013). Generally, currency depreciation is a popular monetary tool among the central banks as it can be implemented easily. However, majority of the studies failed to show that poor implementation this policy will result in great repercussion to global economy such as during the beggar-thy-neighbour policy in 1930 where the international trades dropped substantially and worsen the Great Depression. Ayub and Masih (2013) on the other hand found that the relationship is dynamic and varying in both long term and short term using Wavelet filtering in the Islamic stock indices.

They showed that relationship between exchange rate and all FTSE Bursa Malaysia index are negative significant correlated at different time scales but the relationship is not fixed. Overall, only minority countries do not demonstrate significant relationship between exchange rate and stock market. The positive relationship in Japan may be distorted due to their unique economic environment as they have been hit by deflation for 20 years which is also known as the notorious The Lost Decades.

2.4 Money Supply

Emerging economies are constantly dealing with precarious economy and their stock market are vulnerable to sudden exchange rate depreciation and capital outflow (Aizenman & Sun, 2012). Thus, money supply is deemed as one of the most notable element in monetary policy instrument and it is often implemented together with interest rate policy. In Malaysia, it is governed closely by Bank Negara together with commercial banks' credits with monetary policy tools such as minimum liquidity requirement (MLR), interest rate and moral suasion, statutory reserve requirement (SRR) and volume and direction of credit (VDC) (Mohamadpour et al., 2012).

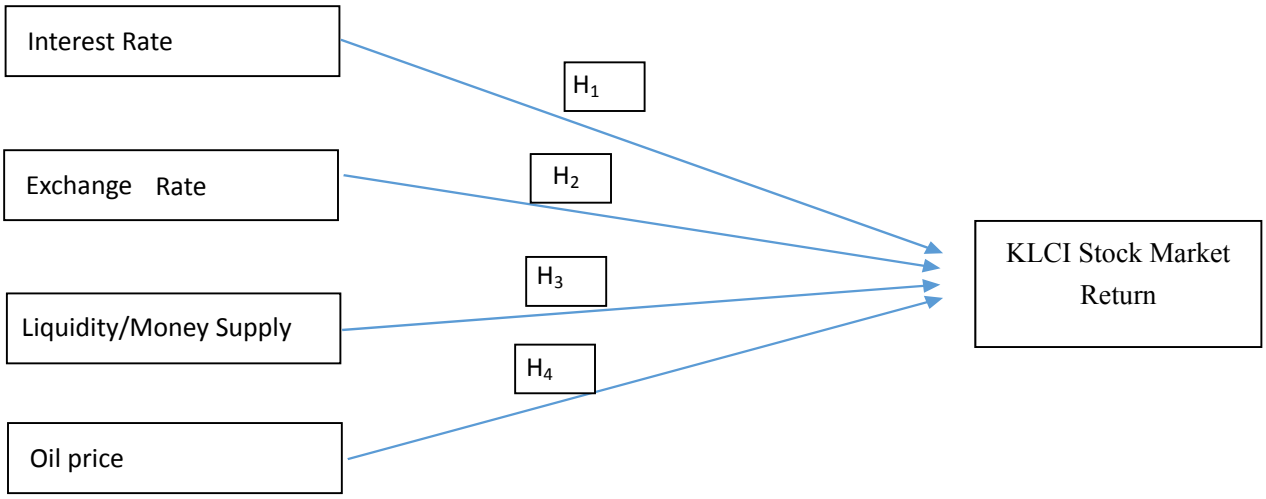
Despite the evidences of negative relationship between money supply and stock prices, most of the scholars

insisted that the relationship is held true only for unexpected changes in money supply by the market. Besides that, the negative correlation existed during crisis period may not be able to portrait the long term relationship accurately as the impact of money supply changes are overwhelmed by the fear of investors.

2.4 Oil Price

Dhaoui and Khraief (2014) found that oil price is negatively correlated to stock prices of developed countries. According to them, oil acts as a major input for most of the industries, increase in oil price will induce unemployment, cost-push inflation and uncertainties. Furthermore, the rise in production cost as the result of oil price hike forces firms to cut down on their production capacity and hence affecting the profitability and share price (Bjørnland, 2009). Dias (2013) shares the same opinion on the negative relationship as he found that 13% decrease in oil price in dollar term, depressive effect is expected on the level GDP of Portugal in long run with nearly half of the adjustment taking place as soon as in second year after the oil shock. Besides that, Reboredo (2010) suggests that oil price movement and stock market are significantly negatively correlated when the uncertainty is high based on four developed market namely US, UK, Germany and Netherland. As observed above, most of the studies showed negative relationship between oil price and economy or stock market are based on developed countries where majority of them are net importers of oil where the mechanisms are different compared to oil exporter nations.

3. Research Framework



3.1 Hypothesis

H_1: There is a relationship between interest rate and stock market return.

H_2: There is a relationship between exchange rate and stock market return.

H_3: There is a relationship between money supply and stock market return.

H_4: There is a relationship between oil price and stock market return.

4. Data Analysis and Discussion of Findings

Table 1. Descriptive

			Statistic	Std. Error
KLCI stock market return	Mean		3.01392161	.011376856
	95% Confidence Interval for Mean	Lower Bound	2.99150386	
		Upper Bound	3.03633935	
	5% Trimmed Mean		3.01910708	
	Median		2.98720089	
	Variance		.030	
	Std. Deviation		.171786752	
	Minimum		2.481314	
	Maximum		3.274783	
	Range		.793470	
	Interquartile Range		.303348	
	Skewness		-.229	.161
	Kurtosis		-.708	.321

$$\text{z-scores}=\frac{Skewness}{Std.Error}$$
$$=\frac{-0.229}{0.161}$$
$$=-1.422$$

For medium sample size of 228, z-scores of -1.422 fall within the range of -3.29 < z < 3.29 which correspond with Sig value > 0.05 and this indicates that the non-normality violation is not too serious.

The results in table 1 shows that KLCI stock market return has a positive correlation with money supply and oil price and a negative correlation with interest rate and exchange rate. This confirms the relationship between KLCI stock market return and other independent variables as shown in linearity test. According to the guidelines of Evans (1996), there is a weak, negative correlation between KLCI stock market return and overnight policy rare (OPR) with r = -0.292. In addition, there is a moderate, negative relationship between KLCI stock market return and exchange rate with r = -0.594. On the other hand, there are strong, positive correlations between KLCI stock market return and money supply and oil price with r = 0.883 and r = 0.840 respectively.

Table 2. Correlations

			BNM Interbank Weighted Avg Rates Overnight		Malaysia Money Supply M2	
		KLCI Index		Price of 1 USD in MYR		Brent Crude Oil Futures
KLCI Index	Pearson Correlation	1	-.292 **	-.594 **	-.883 **	-.840 **
	Sig. (2-tailed)		.000	.000	.000	.000
	N	228	228	228	228	228
BNM Interbank Weighted	Pearson Correlation	-.292**	1	-.108	-.391**	-.446**
Avg Rates Overnight	Sig. (2-tailed)	.000		.103	.000	.000
	N	228	228	228	228	228
Price of 1 USD in MYR	Pearson Correlation	-.594**	-.108	1	.-345**	-484**
	Sig. (2-tailed)	.000	.103		.000	.000
	N	228	228	228	228	228
Malaysia Money Supply	Pearson Correlation	-.883 **	-.391	-.345	1	.893**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	228	228	228	228	228
Brent Crude Oil Futures	Pearson Correlation	-.840 **	-.446	-484**	.893**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	228	228	228	228	228

** Correlation is significant at the 0.01 level (2-tailed).

4.1 Multiple Regression Analysis

Table 3. Model summary

					Change Statistics					
Model	R	R Square	Adjusted Square	RStd. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.936[a]	.876	.874	.060936040	.876	395.271	4	223	.000	.194

a. Predictors: (Constant), Brent Crude Oil Futures, BNM Interbank Weighted Avg Rates Overnight, Price of 1 USD in MYR, Malaysia Money Supply M2;

b. Dependent Variable: KLCI.

Coefficient of determination, R-squared determines how close can the data fits the regression line. R-squared of 0.876 indicates that 87.6% of the total variances in KLCI stock market return can be explained by the independent variables which are interest rate, exchange rate, money supply and oil price. The remaining 12.4% is accounted for errors or other factors which are not explored in the study. Durbin-Watson of 0.194 shows that there is evidence of positive serial correlation among data and H_0 should be rejected. Nevertheless,

autocorrelation is common in analysing time-series data and forecasts from a model with autocorrelation is still unbiased with larger prediction intervals (Douglas & Hibbs, 1973; Hyndman & Athanasopoulos, 2014).

Table 4. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.871	4	1.468	395.271	.000[b]
	Residual	.828	223	.004		
	Total	6.699	227			

a. Dependent Variable: KLCI stock market return.

b. Predictors: (Constant), Brent Crude Oil Futures, BNM Interbank Weighted Avg Rates Overnight, Price of 1 USD in MYR, Malaysia Money Supply M2.

The Sig value of 0.00 is lower than 0.05, thus we reject H_0 and this indicates that at least one of the population mean is different from at least one other population mean. The goodness of fit is acceptable for the entire research model and at least one of the hypothesis is significant.

As shown in table 5, the coefficient table, exchange rate and money supply have Sig values of 0.00 which is less than 0.05. Thus, we reject? And this indicates there is relationship between KLCI stock market return and exchange rate and money supply. Interest rate and oil price on the other hand do not have relationship with KLCI stock market return as their Sig values are 0.97 and 0.202 respectively which are greater than 0.05.

Table 5. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	.704	.167		4.209	.000			
	BNM Interbank Weighted Avg Rates Overnight	-.056	.034	-.048	-1.664	.097	-.292	-.111	-.039
	Price of 1 USD in MYR	-1.322	.113	-.357	-11.700	.000	-.594	-.617	-.275
	Malaysia Money Supply M2	.540	.036	.813	15.060	.000	.883	.710	.355
	Brent Crude Oil Futures	-.046	.036	-.080	-1.280	.202	.840	-.085	-.030

a. Dependent Variable: KLCI stock market return.

4.2 Hypotheses Results

H_1: H_1 is not supported as the Sig value is more than 0.05 (p = 0.097). This implies that there is insufficient evidence to suggest that interest rate can influence KLCI.

H_2: H_2 is supported as the Sig value is less than 0.05 (p = 0.00). This implies that there is sufficient evidence to suggest that exchange rate can influence KLCI.

H_3: H_3 is supported as the Sig value is less than 0.05 (p = 0.00). This implies that there is sufficient evidence to suggest that money supply can influence KLCI.

H_4: H_4 is not supported as the Sig value is more than 0.05 (p = 0.202). This implies that there is insufficient evidence to suggest that oil price can influence KLCI.

This paper found that exchange rate has negative relationship with KLCI stock market return while money supply has positive relationship with KLCI stock market return. However, interest rate and oil price are found to have insignificant relationship with KLCI stock market return. This paper has achieved its objectives in determining the relationship between macroeconomic determinants and KLCI stock market return.

5. Conclusions and Recommendations

The first research objective of this paper is to investigate the relationship between interest rate and KLCI stock market return. OPR which is the proxy of interest rate has extremely weak relationship with KLCI but the relationship is insignificant and this is backed by the results of Ab Rahman et al. (2012) and Kadir et al. (2011).

The second research objective of this paper is to investigate the relationship between exchange rate and KLCI stock market return. Exchange rate has negative relationship with stock market return and this is supported by

Chow et al. (1997), Roll (1992) and Solnick (1987). The negative relationship indicates when USD to RM exchange rate increases, KLCI decreases. In other words, KLCI declines when RM depreciates.

The third research objective of this paper is to investigate the relationship between money supply and KLCI stock market return. It is found that money supply has positive relationship with KLCI which is consistent with the findings of Mohamadpour et al. (2012) who concluded that KLCI will grow in long term with the increase in money supply. Money supply is traditionally used by the authority to induce changes in the economy through manipulation of interest rate.

The fourth research objective of this paper is to investigate the relationship between oil price and KLCI stock market return. It is found that oil has insignificant relationship with KLCI which is backed by the findings of Noordin (2009). Apergis and Miller (2009) also found that international stock market do not react significantly to oil market shocks.

Thus, future research is strongly encouraged to be carried in order to authenticate the findings of the study, and perhaps, to look into other remaining factors that may exert significant influences on stock market return. It may also be a great idea for future research to attempt widening the scope of the research to other contexts and to increase the sample size. These attempts may help to further authenticate the findings of the research and contribute new knowledge to the body of knowledge.

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