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Economic freedom index and stock returns in Malaysia

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Abstract. *The objective of this study is to investigate the relationship between economic freedom index and stock return in the Kuala Lumpur Stock Exchange, Malaysia for the period, 1995 to 2013. The analysis is conducted within the framework of Capital Asset Pricing Model (CAPM), while using the pooled ordinary least square as the method of estimation. The findings show that economic freedom index does not have significant impact on stock returns in the long run. However, overall economic freedom index has significant impact on stock returns in the short run. We further consider the impact of five components of economic freedom index. It is observed that the components do not have significant long run impact on stock returns. The components-limited government and open markets- have strong short run significant explaining powers. The results are consistent across different levels of inflation and wealth in Malaysia. The results indicate that investors can obtain better mean-variance efficiency when a country exhibit greater economic freedom. This paper should be of interest to both investors and market researchers.*

Keywords: freedom index, capital asset pricing model, investor, investment, equity.

JEL Classification: G10; P1.

1. Introduction

Previous researchers had studied on the relationship between economic freedom and stock returns. Many studies illustrated significant positive relationship between economic freedom and stock returns (Porta et al., 1996; Lombardo and Pagano, 2000; Bekaert et al., 2001; Li, 2002; Stocker, 2005; Blau et al., 2014; Dewandaru et al., 2014). For instance, Lombardo and Pagano (2000) exhibit a positive correlation between stock returns and the quality of government's system across different countries. Li (2002) found that improvement in macroeconomic variables such as inflation and real interest rate are the key factors contribute to the growth of global equity markets. Blau et al. (2014) found limited government control in the home country leads to more stable American Depository Receipts prices. Dewandaru et al. (2014) investigate the determinant of stock market development for both Islamic and developed countries by using Economic Freedom Index as a proxy for quality of institution. The findings exhibited significant relationship between economic freedom index and stock market development only in developed countries.

As indicated by Henry (2000), emerging countries restrict foreigners to buy shares in its stock markets. However, from the theoretical perspective of international asset pricing model (IAPM), we should see an increase in equity price index (the discount rate of equity capital will fall) only if the country opens its stock market to foreigners. For example, Porta et al. (1997) claim that a country's legal environment is very important for investor protection and it affects market capitalization. Li (2002) confirms that greater economic freedom is always related to stronger shareholder protections and the relative market capitalization. Stocker (2005) investigates the relationship between economic freedom and stock returns for the period of 1970 to 2000. He claimed that investment strategy that based on the changes in economic freedom produces significant abnormal returns. In other words, for investors seeking superior returns from investment, countries that are undergoing greater economic freedom improvement should be chosen for their investment portfolios. In addition, Stocker (2005) points out that increases in economic freedom would provide investors with above-average investment returns. Lombardo and Pagano (2000) discover that there is a positive association between stock returns and the quality of legal systems across different countries. Bekaert et al. (2001) further conclude that financial liberalization improves economic growth. This study aims to fill the gap by investigating the relationship between economic freedom and the stock market returns in developing country such as Malaysia. A standard capital asset pricing model (CAPM) is employed to see whether the Malaysian stock returns can be explained by economic freedom.

1.1. Problem statement

It is still an on-going debate among academicians and practitioners that which model is the best to explain the risk and return of security due to the dynamic nature of the economy. Theoretically, CAPM states that "beta is stable over time". However, Groenewold and Fraser (1999) argued that beta is unstable and should only use to estimate expected returns for short term horizon for example, five years periods. Series of empirical test by researchers have brought out a number of anomalies in the asset pricing

model (Black and Scholes, 1973; Jensen and Meckling, 1976; Fama and French, 1996; Carhart 1997). They have conducted a series of testing and have found abnormal return situations explaining pricing anomalies and tracking error.

Throughout the years, there are limited studies have been carried out to test on the standard CAPM without modification of the model. However, the principle of it still hold an important role to guide investors in investing. According to Womack and Zhang (2003) and Javed (2010), CAPM provides nearly 85 per cent of explanatory power stock returns. In other words, it also emphasizes that there are remaining 15 per cent of variations of stock returns being unexplained by the model. Lately, the dynamism of various economies and markets due to economic globalisation has challenged the portfolio managers (International Economics, 2010). Thus, our main thoughts of the variation being unexplained is caused by beta do not include new information from different aspects such as economic factors. (Fraser-Jenkins et al., 2013). All these new information can bring great impact on a stock.

As evidence from previous studies done in developed countries, economic freedom is significant positive relationship with stock returns. Karthik and Kannan (2012) claim that emerging countries are experiencing the surge of share of capital flows in their economies due to the integration of global equity market. Mrak (2000) claims that some nationalists considered globalisation will reduce national sovereignty, and possibly reduced the freedom, rights, and liberty. Malaysia is one of the Asian countries (other than Singapore and India) that attract high rates of foreign direct investment. The process of international integration has become an important source of finance and at the same time, it poses a challenge to economic freedom (Maskay et al., 2006).

1.2. Objectives of the study

The objectives of this study are:
1. To examine the relationship between absolute value of economic freedom index and stock returns using CAPM.
2. To identify the relationship between the change of the economic freedom index and stock returns CAPM.

2. Literature review

Throughout these years, many researchers have identified number of different variables that predict the future stock returns. However, the variables that used to predict the stock returns were mostly company's fundamental. Although the literature covers a wide variety of variables that have an effect on stock returns done by previous researchers, this review will focus more on freedom indices throughout the literature review. Section 2.1 reviews the standard CAPM theory and the incorporation of different firm's fundamental variables into the standard model; section 2.2 reviews the economic freedom; section 2.3 highlights the increasing importance of freedom indices in stock returns.

2.1. Capital asset pricing model (CAPM)

The capital asset pricing model also denoted as CAPM, was developed by Sharpe (1964) and Lintner (1965). It gives the birth of asset pricing theory. CAPM shows the pricing of security by providing an expression that the expected returns of a security is depending on systematic risk. In other words, CAPM serves as a tool to calculate expected return of a stock to its systematic risk over a risk free rate. The calculation of expected return is based on the average covariance of asset return with the market portfolio which completely diversified and comprises all assets in world of finance market (Sharpe, 1964; Lintner, 1965).

2.1.1. Assumptions of CAPM

The CAPM is constructed on the portfolio choice model developed by Harry Markowitz (1959). An investor can hand-pick a portfolio by using the Markowitz's model, example in time t-1 that makes a stochastic return at t. Naturally, all investors are risk averse and they will focus on the mean and variance of stock at one period of time to reduce the risk and increase the expected return. Consequently, the Markowitz approach is repeatedly recognised as "mean variance model." The portfolio model offers an algebraic condition on asset weights in mean variance-efficient portfolios. The CAPM chances this algebraic statement relationship between risk and expected return by identifying a portfolio be useful if asset market prices are clear. Sharpe (1964) and Lintner (1965) intensified their idea with two key assumptions; the first hypothesis in concurrence that given market clearing asset prices at t - 1, investors would approve on the joint distribution of asset returns from t - 1 to t as in indicated by Fama and French (2004). Furthermore, they also highlighted that all investors perform the borrowing and lending activities at risk free rate without noticing the amount of money.

2.2. Economic freedom

The Heritage Foundation (2014) explains "economic freedom" as the "absence of government coercion or constraint on the production, distribution, or consumption of goods and services beyond the extent necessary for citizens to protect and maintain liberty itself. In other words, people are free to work, produce, consume, and invest in the ways they feel are most productive". Hristova (2012) indicated that "the Heritage Index, unlike the Fraser and the Freedom House indices, not only attempts to measure macroeconomic outcome variables for each individual country, such as inflation, tariff rates, government expenditure, etc. but it also qualitatively analyses the ability of the institutions currently in place in each country to foster and sustain economic freedom".

Kešeljević (2007) examined 24 countries which experienced a transition of economic freedom covering a period from 1995 to 2004. In another study by Peláez (2009), he employed the Economic Freedom Index of year 2007 for the regression model and found Islamic countries exhibit less free than the benchmark countries in eight out of the ten classifications: property rights, freedom from corruption, investment freedom, business freedom, financial freedom, trade freedom, labor freedom, and monetary freedom.

Economic Freedom Index

The home country's economic freedom is imperative as it mostly shows high economic freedom associates with economic growth as indicated by Easton and Walker (1997), Gwartney, Lawson and Holcombe (1999), and Haan and Sturm (2000)). Researchers such as Alfaro, Chanda, Kalemli Ozcan and Sayek (2004) mentioned that dependable financial markets are connected with greater economic growth. On examining the association between economic freedom and a measure for the functionality of financial markets, such as volatility, is a motivating study. Secondly, economic freedom suggests that greater political steadiness as shown by Graeff, and Mehlkop (2003)). Researchers such as Smimou and Karabegovic (2010) discovered that economic freedom helps to facilitate a country's financial market directly and indirectly. Subsequently, Gwartney, Lawson and Hall (2013) mentioned that an extreme level of economic freedom postures smaller restriction on capital flow and therefore, it responsively alters the investors to freely trade locally and internationally in financial instruments. Blau et al. (2014) claimed that political stability and government policy caused fluctuation in economic freedom which indirectly affect country's financial market. Researchers such as Haan and Sturm (2000) indicated that economic freedom will foster production and resources efficiency and positively affect economic growth and national competitiveness as well.

2.3. Economic freedom and stock returns

Pearce (1985) had thoroughly reviewed the literature on the role of stock prices on real economic activity in United States. He claimed that stock price movement appeared to be important but not a reliable leading indicator of business instabilities in the United States. The main effects of stock price changes are directly associated with the levels of household consumption and business investment spending. He also claimed that the rise in stock prices is resulting from the rise in consumption through household wealth. Stocker (2005) investigated the impact of economic freedom gauged by Fraser Institute's Economic Freedom of the World report on stock returns from 1970 to 2002. Results showed that cross-country stock returns were directly associated with percentage change in economic freedom. He found that 1 per cent increased in economic freedom was allied with a 2.7 per cent increase in stock returns. He encouraged selection of investment portfolio should be done in countries that experienced an improved in economic freedom and ideally for those countries with low level of economic freedom at starting period. Billmeier and Massa (2007) employed economic freedom index by The Heritage Foundation as a proxy for institution to examine the relationship with stock market capitalization in 17 panel countries in the Middle East and Central Asia from 1995 to 2005. The results suggested that economic freedom contributed significantly to stock market development.

Lawson and Roychoudhury (2008) found evidence that company's stock price that located in United States experienced higher stock returns when the economic freedom increased. Smimou and Karabegovic (2010) analyzed the association between economic freedom and stock returns in Middle East and North Africa (MENA) equity markets from 2000 to 2007. They found that overall economic freedom had positive effect on equity returns. All the five areas of economic freedom were statistically significant with stock

returns. Among all, legal structure and security of property rights showed the strongest impact on returns. The result was consistent with Gwartney and Lawson (2003) which supported that legal structure and property rights are important to stock returns.

3. The data and methodology

3.1. Data

This study examines the emerging stock market, Malaysia for two main reasons. The first reason is that Malaysia is one of the countries where the degree of freedom has shown more declines than gains in past seventh consecutive years (Puddington, 2013). Another reason is that Malaysia as one of the emerging Asian markets is deemed as one of the potential investment options for both developing and developed stock market investors. Thus, the feature of Malaysian stock market provides an appropriate framework in which to examine the market reaction to country's degree of freedom (Kawakatsu and Morey, 1999).

3.1.1. Data on economic freedom index

The economic freedom index is downloaded from the Heritage Foundation website. The measure of the Economic Freedom Index is an annual guide published by The Wall Street Journal and the Heritage Foundation. According to The Heritage Foundation (2014), the index includes 10 freedoms covering from property rights to entrepreneurship for 186 countries. The Heritage Foundation computes economic freedom based on 10 quantitative and qualitative factors, which grouped into four broad categories. *The 10 factors are averaged equally into a total score.* The total score ranges from 0 to 100. The higher the score, the more freedom the country is. A country that scores 0 is perceived as a 'Repressive' country. It is a country that having tight supervision and tight regulation to prevent the existence of private financial institution. A country that scores 100 is described as a country that is 'negligible government interference' (The Heritage Foundation, 2014).

3.2. Methodology

3.2.1. Excess returns measure

Let $R_{i,t}$ denotes the returns for security *i* at day *t*; $A_{i,t}$ as the excess return for security *i* at day *t*. For each security, the excess return for each day is estimated using the following procedures:

$$\ln(p_{i,t} / p_{i,t-1}) \times 100\% \quad (1)$$

Once the daily excess return for each security *i* is calculated, the average annual excess return for each security *i* is computed. It is the summation of daily excess returns for security *i divided by the* number of trading days of year *t. It is denotes as:*

$$\sum A_{i,t} / N \quad (2)$$

Last but not least, annualized excess stock returns for security *i* for year *t* is calculated as following:

((1+ Average Annual Return)^{365})-1) (3)

3.2.2. Risk premium measure

The daily opening and closing prices of the FBM KLCI is used as a proxy for market portfolio (R^m). On the other hand, risk-free rate (R^f) is based on the three months treasury bills. The market risk premium is the function of excess return of the market. It is denotes as:

$$RP = E(R^m) - R^f \quad (4)$$

3.2.3. The standard CAPM measure

The standard CAPM developed by Sharpe (1964) was adjusted to apply to emerging market (in Malaysia context). The expected returns on an asset of Bursa Malaysia can be written as:

$$E(R_{it}) - R_{ft} = \beta_1[E(R_{mt}) - R_{ft}] + \varepsilon_{it} \quad (5)$$

Where:

$E(R_{it})$ =Expected Return for Stock *i* at Time *t;*

R_{ft} = Risk free rate;

$E(R_{mt})$ = Expected Return on Market at Time *t;*

β_1, β_2 = Coefficients of Risk Premium, Aggregate Index of Economic Freedom;

ε_{it} = Error Term.

As mentioned above, this study is to test on both absolute value and change on the EFI. Thus, parsimonious sets of equations that incorporate the variables –Aggregated Index of Economic Freedom (COS), absolute value of Rule of Law (RL), absolute value of Limited Government (LG), absolute value of Regulatory Efficiency (RE), and absolute value of Open Markets (OM) are specified.

Since the above equilibrium relation of CAPM (Eq. 5) is stated in terms of expected returns, it is essential to transform Eq. (5) to the following estimating equation (Eq. 6 – Eq. 12) in order to test the model using historical data. The equations are written as:

$$R_{it} - R_{ft} = a_0 + a_1(R_{mt} - R_{ft}) + \varepsilon_{i1t} \quad (6)$$

$$R_{it} - R_{ft} = a_0 + a_1(R_{mt} - R_{ft}) + a_2 OS_{it} + \varepsilon_{i1t} \quad (7)$$

$$R_{it} - R_{ft} = b_o + b_1(R_{mt} - R_{ft}) + b_2 RL_{it} + \varepsilon_{i2t} \quad (8)$$

$$R_{it} - R_{ft} = c_0 + c_1(R_{mt} - R_{ft}) + c_2 LG_{it} + \varepsilon_{i3t} \quad (9)$$

$$R_{it} - R_{ft} = d_0 + d_1(R_{mt} - R_{ft}) + d_2 RE_{it} + \varepsilon_{i4t} \quad (10)$$

$$R_{it} - R_{ft} = e_0 + e_1(R_{mt} - R_{ft}) + e_2 OM_{it} + \varepsilon_{i5t} \quad (11)$$

$$R_{it} - R_{ft} = e_0 + e_1(R_{mt} - R_{ft}) + e_3 RL_{it} + e_4 LG_{it} + e_5 RE + e_6 OM + \varepsilon_{i6t} \quad (12)$$

where R_{it} denotes annualised excess return of stock *i* at time *t;* R_{ft} denotes risk free rate; R_{mt} denotes annualized return on market; OS denotes change of aggregate index of economic freedom; RL denotes absolute value of rule of law; CLG denotes absolute value of limited government; CRE denotes absolute value of regulatory efficiency; OM denotes absolute value of open markets; Ɛ's denotes the stochastic error term. Once the absolute value being tested, all the variables will be replaced by using the changes on the EFI.

Based on the Eq. (6) to Eq. (12), few hypotheses are formulated:
H_1: Risk Premium and Stock Returns
H_{1a}: There is a relationship between risk premium and stock returns.
H_2: Rule of Law and Stock Returns
H_{2a}: There is a no relationship between absolute value of rule of law and stock returns.
H_{2b}: There is a relationship between change of rule of law and stock returns.
H_3: Limited Government and Stock Returns
H_{3a}: There is a no relationship between absolute value of limited government and stock returns.
H_{3b}: There is a relationship between change of limited government and stock returns.
H_4: Regulatory Efficiency and Stock Returns
H_{4a}: There is a no relationship between absolute value of regulatory efficiency and stock returns.
H_{4b}: There is a relationship between change of regulatory efficiency and stock returns.
H_5: Open Markets and Stock Returns
H_{5a}: There is a no relationship between absolute value of open markets and stock returns.
H_{5b}: There is a relationship between change of open markets and stock returns.
H_6: Overall Score of Economic Freedom Index and Stock Returns
H_{6a}: There is a no relationship between absolute value of overall score of economic freedom and stock returns.
H_{6b}: There is a relationship between change of overall score of economic freedom and stock returns.

4. Analysis

4.1. Descriptive statistics

Table 4.1 depicts the descriptive statistics of the independent and dependent variables. Despite the absolute value of Rule of Law (RL), absolute value of Regulatory Efficiency (RE), absolute value of Open Markets (OM), absolute value of Aggregate Index of

Economic Freedom (OS) show positive mean values, all of the change in absolute value show a negative mean of -1.780128, -0.4018, -0.1823, and -0.4198 respectively. Thus, we can tentatively conclude that all these components (CRL, CRE, COM, and COS) are in the decreasing rate of growth. The absolute value of Economic Freedom Index and its absolute values of individual components exhibit greater standard deviation than the change of its absolute values.

Table 4.1. *Summary statistics of variables*

Variable	Mean	Standard Deviation	Minimum	Maximum
Excess Stock Returns (ER)	24.8698 (9.39)	98.3754	-101.3887	1582.956
Market Risk Premium (RP)	7.5023 (11.70)	33.0896	-70.6133	66.3023
Rule of Law (RL)	10.8632 (10.10)	1.4305	9.4000	14.0000
Change RL	-1.780128 (-0.50)	5.7954	-17.8862	4.9505
Limited Government (LG)	16.0832 (16.07)	0.3942	15.2400	16.6100
Change LG	0.2514 (0.72)	2.4244	-5.8288	4.5932
Regulatory Efficiency (RE)	23.1945 (22.82)	1.0434	21.8000	25.1250
Change RE	-0.4018 (-0.10)	2.8096	-8.1683	5.5963
Open Markets (OM)	15.4516 (15.68)	1.7666	12.6000	18.7000
Change OM	-0.1823 (0.40)	7.4050	-15.3226	14.7877
Overall Score (OS)	64.8632 (64.86)	3.3898	59.9000	71.9000
Change OS	-0.4198 (0.15)	3.0045	-8.7879	3.5714

Note: Reported in parentheses is median.

4.2. Pearson correlation analysis

Table 4.2 provides the correlation matrix for variables in absolute value. From the table, it depicts a negative correlation between RL and Y($r = -0.07$), $p < 0.10$. Besides, RE and Y ($r = -0.12$), RP and RL ($r = -0.14$), RE and RP ($r = -0.20$), LG and RL ($r = -0.27$), LG and RE ($r = -0.36$), LG and OM ($r = -0.24$), LG and OS ($r = -0.25$) are show a negative correlation with p-value less than 0.01 per cent. OM and RE are strongly correlated, $r = 0.56$, $p < 0.01$ as expected, thereby reiterating the notion that the better the regulatory efficiency, the more open the market is. The correlation between OS and Y ($r = -0.004$), OS and RP ($r = -0.03$) were statistically insignificant, $p > 0.05$.

Apart from the correlation analysis, the results in Table 4.2 could be inferred as there are few cases of multicollinearity among the variables. For instance, RE and RL (0.78), OS and RL (0.75), RE and OS (0.78) show slightly less than the 0.80 threshold of

multicollinearity (Gujarati, 1995). However, the correlation coefficient of OM and OS is facing the multicollinearity problem, is 0.91.

Table 4.2. *Correlation matrix for variables in absolute value*

Variables	Y	RP	RL	LG	RE	OM	OS
Y	1.00						
RP	0.46***	1.00					
RL	-0.07**	-0.14***	1.00				
LG	0.05*	0.08***	-0.27***	1.00			
RE	-0.12***	-0.20***	0.78***	-0.36***	1.00		
OM	0.05*	0.08***	0.43***	-0.24***	0.56***	1.00	
OS	-0.004	-0.03	0.75***	-0.25***	0.78***	0.91***	1.00

Notes: Y denotes stock excess returns; RP denotes risk premium; RL denotes rule of law; LG denotes limited government; RE denotes regulatory efficiency; OM denotes open markets; OS denotes overall scores. Significant at: *10, **5 and ***1 percent levels.

Table 4.3 provides the correlation matrix for variables in change of absolute value. From the table, it depicts a negative correlation between COS and CLG ($r = -0.08$), $p < 0.05$. Besides, CLG and CRL ($r = -0.14$), CRE and CLG($r = -0.54$), COM and CLG ($r = -0.11$) are showing a negative correlation with p-value less than 1 per cent. COS and CRL($r = 0.58$), CRE and COM($r = 0.56$), COS and CRE ($r = 0.59$) are positively strongly correlated at p-value less than 1 per cent. On the other hand, CLG and CRE are negatively strongly correlated with correlation coefficient of 0.54, $p < 0.01$. The correlation between OS and Y ($r = -0.004$), OS and RP ($r = -0.03$) were statistically insignificant, $p > 0.05$.

Apart from the correlation analysis, the results in Table 4.3 could be inferred as there is a multicollinearity problem between COM and COS with the correlation coefficient of 0.90.

Table 4.3. *Correlation matrix for variables in changes of economic freedom index*

Variables	Y	RP	CRL	CLG	CRE	COM	COS
Y	1.00						
RP	0.46***	1.00					
CRL	0.17***	0.36***	1.00				
CLG	0.12***	0.10***	-0.14***	1.00			
CRE	-0.04	-0.03	0.12***	-0.54***	1.00		
COM	0.22***	0.36***	0.31***	-0.11***	0.56***	1.00	
COS	0.19***	0.35***	0.58***	-0.08**	0.59***	0.90***	1.00

Notes: Y denotes stock excess returns; RP denotes risk premium; CRL denotes change of rule of law; CLG denotes change of limited government; CRE denotes change of regulatory efficiency; COM denotes change of open markets; COS denotes change of aggregate index of economic freedom.
Significant at: *10, **5 and ***1 percent levels.

4.3. Panel unit root test

Before we conduct the regression analysis the series are tested for possible unit roots. Levin and Lin (1993), Quah (1994), Im, Pesaran and Shin (1997), Pedroni (1999), Maddala and Wu (1999) had developed the framework for panel unit root test. With the use of panel unit root, it helps to overcome low power and large-size distortions in individual unit root test (Perman and Stern, 2003). The null hypothesis for panel unit root tests states the

autoregressive root for all cross section units, whereas an individual unit root tests has the null a unit root in that series, independently of what might be the case elsewhere.

In this study, two forms of panel unit root test statistics are performed, one similar in spirit to the Levin and Lin (1993) testing framework, and the other based on the group mean t statistic developed by Im, Pesaran and Shin (1997). In panel unit root test, hypothesis has been formulated as below:

H_0: Variable is non-stationary.

H_1: Variable is stationary.

Table 4.4 depicts the test statistics for regression with inclusion and exclusion of trends. Based on the table, it shows that panel unit root test rejects the null hypothesis of non-stationary (unit root) in all variables across stocks. Thus, it can be concluded that the variables is in zero order integration. Even though some LLC or IPS test statistics suggesting not to reject the null hypothesis on variables (limited government (LG), regulatory efficiency (RE), open markets (OM), overall score (OS) change of limited government (CLG)) but as overall the widespread to reject the null of non-stationary is ascribable to high power.

Table 4.4. *Panel unit root test statistics*

Variable	Method	Level	
		Individual Intercept	Individual Intercept and Trend
Y	LLC	-24.9873***	-22.9867***
	IPS	-21.5798***	-21.9119***
RP	LLC	-25.5748***	-35.8373***
	IPS	-22.0609***	-32.1636***
RL	LLC	-11.8952***	-10.0262***
	IPS	-5.86163***	1.24408
LG	LLC	-4.55814***	1.73948
	IPS	-13.0624***	-7.62401***
RE	LLC	-8.12299***	-7.17200***
	IPS	-4.38226***	5.05577
OM	LLC	-0.10792	-11.3332***
	IPS	-1.02966	1.16975
OS	LLC	-6.49125***	-5.74585***
	IPS	-4.17745***	4.50027
CRL	LLC	-18.6245***	-18.0952***
	IPS	-14.0738***	-11.3380***
CLG	LLC	3.82281	10.4444
	IPS	-7.15032***	-1.90637**
CRE	LLC	-18.0812***	-20.7843***
	IPS	-13.8681***	-13.8756***
COM	LLC	-22.6653***	-25.0166***
	IPS	-15.4868***	-14.7967***
COS	LLC	-18.8169***	-17.5671***
	IPS	-11.1422***	-8.51503***

Notes: Y denotes stock excess returns; RP denotes risk premium; RL denotes rule of law; LG denotes limited government; RE denotes regulatory efficiency; OM denotes open markets; OS denotes overall scores; CRL denotes change of rule of law; CLG denotes change of limited government; CRE denotes change of

regulatory efficiency; COM denotes change of open markets; COS denotes change of aggregate index of economic freedom.
LLC denotes Levin, Lin, and Chu t; Breitung denotes Breitung t-stat; IPS denotes Im, Pesaran and Shin W-stat; ADF denotes Augmented Dickey-Fuller Fisher Chi-Square; PP denotes Phillips-Perron Fisher Chi-Square.
***, **, and * indicate significance at 1%, 5%, and 10% levels respectively. Then, reject the null hypothesis of non-stationary.
Lag length selection criteria is based on Schwarz Automatic selection.

4.4. Regression: the pooled effect approach

Since the series are free of unit roots, we employ the Pooled Ordinary Least Square (Pooled OLS) regression approach, fixed effect, random effect and Hausman test are performed. However, the Hausman test results showed that the Random Effects of estimate of cross section variance is zero. In other words, it shows no evidence of individual effects (see Appendix 1.2 to Appendix 1.7). According to Glenn (2011), the model is not efficient for a computation of the Hausam test variance. Thus, all our analysis is based on the results by using the Pooled OLS regression approach.

Our key results are illustrated in the Tables 4.5 and 4.6. We estimated all models using White's correction for heterosckedasticity. Pooled OLS regression approach is used in this study. In all the models, we only include one institutional variable at a time to avoid multicollinearity issue. We started the presentation with the key variables of our interest: aggregate score of Economic Freedom Index and followed by all the individual components (rule of law, limited government, regulatory efficiency, open markets). It is to examine the impact of the freedom index on stock returns and to check whether the explanatory power of standard CAPM can be improved.

Based on Table 4.5, the adjusted R-square statistics range from 0.2094 to 0.2101. All models have F-statistics ranging from 54.2930 to 134.7580. Compare to the original CAPM model (Model 1), all the extended version of CAPM that incorporate freedom index (Model 2 to Model 7) yields low adjusted R-square and F statistics than the original model. The original CAPM model yields 0.2103 of adjusted R-square and 268.9354 of F-statistics. Besides, it can be noticed that no variables is significant to explain stock returns except for Risk Premium (RP), is supported that the expected returns of a security is derived from the summation of risk free rate and market risk premium (Sharpe, 1964; Lintner, 1965).Thus, hypothesis (H_{1a}) is supported.

In addition, it is noted in above texts that any absolute value of economic freedom index will not cause the change in stock returns. The results is consistent with Stocker (2005) whereby the absolute value of economic freedom index could not change the valuation of equity based on the concept of discounted cash-flow equity pricing model. The results in Table 4.5 confirm the hypotheses (H_{2a}, H_{3a}, H_{4a}, H_{5a}, and H_{6a}). Despite all the absolute value of Economic Freedom Index insignificant to explain stock returns, Rule of Law (RL) in Model 3, Regulatory Efficiency (RE) in Model 5 and Model 7 yields a negative

statistically insignificant coefficient of -0.3475, -2.2077, and -6.8880 respectively. Overall, all the extended version of CAPM that incorporate absolute value of Economic Freedom Index and its components show low R-square and low adjusted R-square than the original model.

Table 4.5. *Regression results: absolute value of economic freedom index and stock returns*

Explanatory Variables	Model 1 Coeffi-cient (Standard Error)	Model 2 Coeffi-cient (Standard Error)	Model 3 Coeffi-cient (Standard Error)	Model 4 Coeffi-cient (Standard Error)	Model 5 Coeffi-cient (Standard Error)	Model 6 Coeffi-cient (Standard Error)	Model 7 Coeffi-cient (Standard Error)
Constant	14.6219*** (2.4110)	-0.3868 (36.5151)	18.4127 (17.1888)	-45.4200 (79.0074)	65.9349 (54.7486)	2.3320 (18.3979)	75.5095 (162.9442)
RP	1.3660*** (0.0762)	1.3667*** (0.0763)	1.3638*** (0.0758)	1.3624*** (0.0759)	1.3518*** (0.0739)	1.3626*** (0.0754)	1.3233*** (0.0695)
OS		0.2313 (0.5675)					
RL			-0.3475 (1.4811)				2.3151 (2.8563)
LG				3.7349 (4.8652)			2.2538 (6.1885)
RE					-2.2077 (2.3372)		-6.8880 (4.8953)
OM						0.7970 (1.2561)	2.4463 (1.7767)
R2	0.2111	0.2112	0.2111	0.2113	0.2116	0.2113	0.2133
Adjusted R2	0.2103	0.2096	0.2096	0.2098	0.2101	0.2097	0.2094
F-statistic	268.9354***	134.3851***	134.3541***	134.5134***	134.7580***	134.4981***	54.2930***
Observation	1007	1007	1007	1007	1007	1007	1007

Notes: The data are in panel form. All the method are using OLS regression. Reported in parentheses is robust standard error using the option White (diagonal) in Eviews 6.0.
***, **, and * indicate significance at 1%, 5%, and 10% levels respectively.
Model 1 is the original Sharpe (1964) standard CAPM with RP as independent variable.
Model 2 until Model 7 is the extended model of Sharpe (1964) standard CAPM model. The independent variables of Model 2 are RP and OS; The independent variables of Model 3 are RP and RL; The independent variables of Model 4 are RP and LG; The independent variables of Model 5 are RP and RE; The independent variables of Model 6 are RP and OM; The independent variables of Model 7 are RP, RL, LG, RE, and OM. Since the OS is the overall score, it is not included to the model 7 as to avoid multicollinearity issue.

Table 4.6 exhibits the results using the change of absolute value of Economic Freedom Index on stock returns. From the table, the adjusted R-square statistics range from 0.2090 to 0.2183. All models have F-statistics ranging from 54.2372 to 254.0080. Risk Premium shows significant in all the models. Change of Limited Government (CLG) is significant in Model 4 with coefficient of 3.1713 ($p < 0.01$) and Hypothesis (H_{3b}) is supported. The result is consistent with Feldstein (1983). He illustrated how the increased in tax rates affect the total fall of equity prices. According to Dincecco and Katz (2014), the establishment of limited government could have given more state capacity to plan the policy that more suitable to local environment. Besides, Thaveesangsakulthai (2012) also pointed out that when the tax rate is cut and government decreases its share of

investment, the financial and operating cost will reduce and thus increase the free cash flows to a firm. Both of these will increase equity values.

Change of Open Markets (COM) is significant with coefficient of 2.7583($p < 0.01$) in Model 6. This result is consistent with Demirgüç and Lenine (1996), Gilpin and Gilpin (2000) saying that the more open the market is, the more 'wealth effect' of a country's stock market. Hypothesis (H_{5b}) is supported. In Model 7, Change of Limited Government (CLG) and Change of Open Market (COM) are significant with the coefficient of 2.7585 ($p < 0.01$) and 1.4122 ($p < 0.05$). According to Zirak and Mehrara (2013), Malaysia are ranked among the Top 23 countries that able to attract foreign direct investment due to appropriate economic and structures policies. When Malaysia practicing trade freedom, it allows foreign investors to set up their operation in Malaysia and also allows investing in Malaysian stock market. With this stock market liberalisation, more foreign funds will flow in to Malaysian stock market and will bring future vibrancy in stock market which will increase the equity value (The Edge, 2014).

On the other hand, COS (Model 2), CRL (Model 3 and Model 7), and CRE (Model 5 and Model 7) are not contribute significantly to explain the relationship with stock returns. Thus, the hypotheses (H_{6b}, H_{2b}, H_{4b}) are rejected. COS is not significant explaining the relationship with stock returns probably due to the reason that only few components of Economic Freedom Index are important to explain stock market in Malaysian context. Overall, most of the extended version of CAPM that incorporate absolute value of Economic Freedom Index and its components (Model 2, Model 4, Model 5, Model 6, and Model 7) show higher R-square and higher adjusted R-square than the original model. Among all, Model 7 yields the highest R-square (0.2224) and highest adjusted R-square (0.2183).

Table 4.6. *Regression results: change in economic freedom index and stock returns*

Explanatory Variables	Model 1 Coeffi-cient (Standard Error)	Model 2 Coeffi-cient (Standard Error)	Model 3 Coeffi-cient (Standard Error)	Model 4 Coeffi-cient (Standard Error)	Model 5 Coeffi-cient (Standard Error)	Model 6 Coeffi-cient (Standard Error)	Model 7 Coeffi-cient (Standard Error)
Constant	15.3154*** (2.5306)	16.0855*** (2.7243)	15.5249*** (3.1059)	14.6957*** (2.4434)	15.0005*** (2.3933)	16.0074*** (2.6667)	15.4411*** (2.9403)
RP	1.3603*** (0.0755)	1.3246*** (0.0691)	1.3547*** (0.0798)	1.3382*** (0.0723)	1.3584*** (0.0754)	1.2934*** (0.0661)	1.2217*** (0.0786)
COS		1.15 (0.7123)					
CRL			0.0922 (0.4007)				0.0730 (0.4303)
CLG				3.1713*** (0.9117)			2.7585*** (0.9561)
CRE					-0.8212 (0.7334)		-1.6962 (1.7574)
COM						0.8503* (0.4365)	1.4122** (0.7843)
R2	0.2106	0.2117	0.2106	0.2164	0.2111	0.2140	0.2224

Explanatory Variables	Model 1 Coeffi-cient (Standard Error)	Model 2 Coeffi-cient (Standard Error)	Model 3 Coeffi-cient (Standard Error)	Model 4 Coeffi-cient (Standard Error)	Model 5 Coeffi-cient (Standard Error)	Model 6 Coeffi-cient (Standard Error)	Model 7 Coeffi-cient (Standard Error)
Adjusted R2	0.2098	0.2100	0.2090	0.2148	0.2095	0.2124	0.2183
F-statistic	254.0080***	127.6648***	126.8893***	131.3235***	127.2724***	129.4864***	54.2373***
Observation	954	954	954	954	954	954	954

Notes: The data are in panel form. All the method is using OLS regression. Reported in parentheses is robust standard error using the option White (diagonal) in Eviews 6.0.
***, **, and * indicate significance at 1%, 5%, and 10% levels respectively.
Model 1 is the original Sharpe (1964) standard CAPM with RP as independent variable.
Model 2 until Model 7 is the extended model of Sharpe (1964) standard CAPM model. The independent variables of Model 2 are RP and COS; The independent variables of Model 3 are RP and CRL; The independent variables of Model 4 are RP and CLG; The independent variables of Model 5 are RP and CRE; The independent variables of Model 6 are RP and COM; The independent variables of Model 7 are RP, CRL, CLG, CRE, and COM. Since the COS is the overall score, it is not included to the overall short run model as to avoid multicollinearity issue.

5. Conclusion

The objective of this study is to examine the effect of economic freedom on stock return in the Kuala Lumpur Stock Exchange, Malaysia, for the period, 1995 to 2013. Within the framework of Capital Asset Pricing Model (CAPM), the pooled OLS is used in the estimation process. Besides, we have also decompose the index of economic freedom to examine relationship between economic freedom index and stock return. The findings illustrate that the aggregate index of economic freedom does not influence stock return in the country. Furthermore, the results suggest that the various components do not yield any significant effect on stock returns. The gist is different, when we conduct the short run analysis. The implication of these results is that the authorities may need to look beyond index of economic freedom, when attempting to improve stock market performance in the long run. Besides, existing and potential investors may not necessarily rely on the economic freedom index, when evaluating the possible long run returns on their investment.

References

Bekaert, G., Harvey, C.R. and Lundblad, C. (2001). Does liberalization spur growth? *Journal of Financial Economics.* 77(1). pp. 3-55.

Berk, J., DeMarzo, P. and Harford, J. (2012). *Fundamentals of corporate finance* (2nd ed). The United States of America: Pearson Global Edition.

Billmeier, A. and Massa, I. (2007). What drives stock market development in the Middle East and Central Asia-Institutions, remittances, or natural resources? *IMF Working Papers.* 1-21. Retrieved August 7. 2014. from http://www.mfa-2008.com/papers/Paper%20Billmeier-Massa.pdf

Black, F. and Scholes, M. (1973). The valuation of options and corporate liabilities. *The Journal of Political Economy.* pp. 637-659.

Blau, B.M., Brough, T.J. and Thomas, D.W. (2014). Economic Freedom and the Stability of Stock Prices: A Cross-Country Analysis. *Journal of International Money and Finance.* 41. pp. 182-196.

Booth, L., Aivazian, V., Demirguc-Kunt, A. and Maksimovic, V. (2001). Capital structures in developing countries. *The Journal of Finance.* 56(1). pp. 87-130.

Butt, B.Z., Rehman, K., Khan, M.A. and Safwan, N. (2010). Do economic factors influence stock returns? A firm and industry level analysis. *African Journal of Business Management.* 4(5). pp. 583-593.

Carhart, M.M. (1997). On persistence in mutual fund performance. *The Journal of Finance.* 52(1). pp. 57-82.

Demirgüç, A.K. and Lenine, R. (1996). Stock markets, corporate finance, and economic growth: An overview. *The World Bank Economic Review.* pp. 223-239.

Dewandaru, G., Rizvi, S.A.R., Bacha, O.I. and Masih, M. (2014). What factors explain stock market retardation in Islamic countries. *Emerging Markets Review.* 19. pp. 106-127.

Dincecco, M. and Katz, G. (2014). State capacity and long-run economic performance. *The Economic Journal.* Retrieved August 7. 2014. from http://mpra.ub.uni-muenchen.de/55275/1/MPRA_paper_55275.pdf

Econometrics of Panel Data (N.D.). Retrieved June 26. 2014. from http://www.econ.kuleuven.ac.be/public/ndbae06/courses/advanced_econometrics/panelshort.pdf.

Engle, R.F. and Granger, C.W.J. (1987). Cointegration and error correction representation: Estimation and testing. *Econometrica*. 55. pp. 251-276.

Fama, E. and French, K.R. (1996). Multifactor explanations of asset pricing anomalies. *The Journal of Finance.* 51. pp. 55-84.

Fama, E.F. and French, K.R. (2004). The capital asset pricing model: Theory and evidence. *Journal of Economic Perspectives.* 18. pp. 25-46.

Feldstein, M. (1983). *Inflation, tax rules, and the stock market. In Inflation, Tax Rules, and Capital Formation.* University of Chicago Press. Retrieved August 1. 2014. from http://www.nber.org/chapters/c11336.pdf

Freedom House (2012a). *Freedom in the World 2012.* Retrieved July 21. 2014. from http://www.freedomhouse.org/reports

Freedom House (2012b). *Freedom of the Press 2012.* Retrieved July 25. 2014. from http://www.freedomhouse.org/ reports

FTSE Bursa Malaysia KLCI Index Research Paper (2009). Retrieved June 23. 2014. from http://www.ftse.com/Indices/FTSE_Bursa_Malaysia_Index_Series/Downloads/FTSE_Bursa_Malaysia_KLCI_Research_Paper_0609.pdf

Gilpin, R. and Gilpin, J.M. (2000). *The challenge of global capitalism: The world economy in the 21st century*, Vol. 5, Princeton: Princeton University Press.

Glenn. (2011). Hausman test correlated random effects [Eviews forum]. Retrieved August 11, 2014, from http://forums.eviews.com/viewtopic.php?f=18&t=2688

Godlewski, C.J., Turk, R.A. and Weill, L. (2011). *Do markets perceive sukuk and conventional bonds as different financing instruments?* Retrieved August 2. 2014. from http://www.suomenpankki.fi/bofit_en/tutkimus/tutkimusjulkaisut/dp/Documents/DP0611.pdf

Granger, C.W.J. (1969). Investigating causal relation by econometric models and spectral methods. *Econometrica.* 37. pp. 424-438.

Groenewold, N. and Fraser, P. (1999).Time-varying estimates of CAPM betas. *Mathematics and Computers in Simulation.* 48(4). pp. 531-539.

Gujarati, D.N. (1995). *Basic econometrics,* 3rd edition, McGraw-Hill, New York: NY.

Gwarney, J. and Lawson, R. (2003). The concept and measurement of economic freedom. *European Journal of Political Economy.* 19(3). pp. 405-430.

Gwartney, J.D., Lawson, R. and Block, W. (1996). *Economic freedom of the world, 1975-1995.* Fraser Institute. Retrieved June 18. 2014. from http://www.fraserinstitute.org/research-news/display.aspx?id=12990

Gwartney, J., Lawson, R. and Hall, J. (2012). *Economic Freedom of the World: 2012 Annual Report.* Retrieved July 5. 2014. from www.freetheworld.com

Gwartney, J., Lawson, R. and Hall, J. (2013). 2013 Economic Freedom Dataset, published in Economic Freedom of the World: 2013 Annual Report, Fraser Institute 2013. Retrieved July 1. 2014. from http://www.freetheworld.com/datasets_efw.html

Haan, D.J., and Sturm, J.E. (2000). On the relationship between economic freedom and economic growth. *European Journal of Political Economy.* 16(2). pp. 215-241.

Henry, P.B. (2000). Stock market liberalisation, economic reform, and emerging market equity prices. *Journal of Finance.* 55(2). pp. 529-564.

Hristova, K.D. (2012). *Does economic freedom determine economic growth? A discussion of the Heritage Foundation's Index of Economic Freedom.* (Doctoral dissertation). Retrieved August 6. 2014. from https://ida.mtholyoke.edu/xmlui/bitstream/handle/10166/3197/Hristova_Thesis_Final.pdf?sequence=1

Im, K.S., Pesaran, M.H. and Shin, Y. (1997). Testing for unit roots in heterogeneous Panels. *Journal of Econometrics.* 115(1). pp. 53-74.

International Economics. (2010). What is globalisation? Retrieved Aug 1, 2014, from http://intl.econ.cuhk.edu.hk/topic/index.php?did=20

Javed, A.Y. (2010). Alternative capital asset pricing models: a review of theory and evidence. *Working Papers and Research Reports,* RR-No. Retrieved July 15, 2014, from http://www.pide.org.pk/pdr/index.php/wp/article/viewFile/2387/2360

Jenkins, F.I., Morris, A., Lee, S. and Murakami, A. (2013). Alternative beta: A primer (pp. 1-57). Nomura Equity Research.

Jensen, M.C. and W.H. Meckling (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics.* Vol. 3. pp. 303-360.

Jong R.A.P. and Haan, D.J. (2011). Political regime change, economic liberalization and growth accelerations. *Public Choice.* 146(1-2). pp. 93-115.

Kao, C. (1999). Spurious regression and residual based tests for cointegration in panel data. *Journal of Econometrics.* 90. pp. 1-44.

Karthik, R. and Kannan, N. (2011). Impact of foreign direct investment on stock market development: A study with reference to India. *International Journal of Management.* 2(2). pp. 75-92.

Kawakatsu, H. and Morey, M.R. (1999). Financial liberalisation and stock market efficiency: An empirical examination of nine emerging market countries. *Journal of Multinational Financial Managemnet.* 9(3). pp. 353-371.

Keseljevic, A. (2007). Indexes of Economic Freedom - An outline and open issues. Zbornik Radova Ekonomskog Fakulteta u Rijeci: Casopis Za Ekonomsku Teoriju i Praksu-Proceedings of Rijeka School of Economics. *Journal of Economics and Business.* 25(2). pp. 223-243.

Lawson, R.A. and Roychoudhury, S. (2008). Economic freedom and equity prices among U.S. states. *The Credit and Financial Management Review.* 14(4). pp. 25-35.

Levin, A. and Lin, C.F. (1993). Unit root test in panel data: New results. University of California at San Diego. *Discussion Paper*. pp. 93-56.

Li, K. (2002). What explains the growth of global equity markets? *Canadian Investment Review.* 15. pp. 23-30.

Lintner, J. (1965). The valuation of risk assets and the selection of risky investment in stock portfolios and capital budgets. *Review of Economics and Statistics.* 47. pp. 13-37.

Lombardo, D., and Pagano, M. (2000). Legal determinants of the return on equity 1. *Corporate and Institutional Transparency for Economic Growth in Europe.* 19. p. 235.

Luo, X., Gu, B. and Cheng, Z. (2013). IT applications, financial analyst recommendations, and firm stock market value. Retrieved August 1, 2014, from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2430028

Maddala, G.S. and Wu, S. (1999). Cross-country growth regressions: Problems of heterogeneity, stability and interpretation. *Applied Economics.* 32(5). pp. 635-642.

Maskay, N.M., Panta, R.K. and Sharma, B.P. (2006). *Foreign investment liberalization and incentives in selected Asia-Pacific Developing Countries: Implications for the health service sector in Nepal* (No. 2206). Retrieved August 5, 2014, from http://artnet.unescap.org/pub/wp2206.pdf

Miller, T., Holmes, K.R., Feulner, E.J., Gigot, P.A., Kim, A.B., Riley, B., Roberts, J.M., Foster, J.D., Anaraki, N.K. and Ezekwesili, O. (2012*). 2012 Index of Economic Freedom.* Washington, DC: The Heritage Foundation/The Wall Street Journal. Retrieved August 1, 2014, from http://www.heritage.org/index/pdf/2012/book/index_2012.pdf in Applied Economics.

Miller, T., Holmes, K.R., Feulner, E.J., Kim, A.B., Riley, B., Roberts, J.M., Walsh, C., Lieberman, B. and Bavetta, S. (2011). 2011 *Index of Economic Freedom.* Washington, DC: The Heritage Foundation/The Wall Street Journal. Retrieved August 1. 2014. from http://www.heritage.org/Index/pdf/2011/Index2011_Full.pdf

Mrak, M. (2000). *Globalisation: trends, challenges and opportunities for countries in transition*. UNIDO paper. Retrieved June 15. 2014. from http://www.unido.org/fileadmin/import/userfiles/puffk/mrak.pdf

Pearce, D.K., and Roley, V.V. (1985). Stock prices and economic news. *The Journal of Business*, 58(1). pp. 49-67.

Pedroni P. (1999). Critical values for cointegration tests in heterogeneous panels with multiple regressors. *Oxford Bulletin of Economics and Statistics.* 61(S1). pp. 653-678.

Pedroni, P. (2004). Panel cointegration: Asymptotic and finite sample properties of pooled time series tests with an application to the PPP hypothesis. *Econometric Theory.* 20(3). pp. 597-625.

Peláez, R.F. (2009). Economic freedom: A comparative study. *Journal of Economics and Finance.* 33(3). pp. 246-258.

Perman, R. and Stern, D.I. (2003). Evidence from panel unit root and cointegration tests that the environmental Kuznets curve does not exist. *Australian Journal of Agricultural and Resource Economics.* 47. pp. 325-347.

Pesaran, M.H. and Shin, Y. (1997). Long-run structural modeling. Unpublished manuscript. University of Cambridge. Retrieved July 25. 2014. from http:\\www.econ.cam.ac.uk\faculty\pesaran\

Pitlik, H. (2002). The path of liberalization and economic growth. *Kyklos.* 55(1). pp. 57-80.

Porta, R.L., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R.W. (1996). *Trust in large organizations*. National Bureau of Economic Research.

Porta, R.L., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R.W. (1997). Legal determinants of external finance. *Journal of Finance.* 52(3). pp. 1131-1150.

Puddington, A. (2013). *Freedom in the world 2013: democratic breakthroughs in the balance.* Retrieved June 4, 2014, from http://www.freedomhouse.org/sites/default/files/FIW%202013%20Booklet%20-%20for%20Web_1.pdf

Qadir, A.B.A. and Yaroson, E. (2013). Does corruption matter in the development of the stock market in Nigeria? *ESUT Journal of Accountancy, 4*(1). Retrieved August 8. 2014. from http://www.academia.edu/4763397/corruption_and_stock_market_development

Quah, D. (1994). Exploiting cross-section variation for unit root inference in dynamic data. *Economics Letters.* 44. pp. 9-19.

Reilly, F.K. and Brown, K.C. (2005). *Investment analysis and portfolio management.* 8th edition. USA. Thomson South Western.

Sharpe, W. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *Journal of Finance.* 19. pp. 425-442.

Smimou, K. and Karabegovic, A. (2010). On the relationship between economic freedom and equity returns in the emerging markets: Evidence from the Middle East and North Africa (MENA) stock markets. *Emerging Markets Review*. 11(2). pp. 119-151.

Stocker, M. (2005). Equity returns and economic freedom. *Cato Journal.* 25. pp. 583-594.

Thaveesangsakulthai, T. (2012). Will corporate tax cut impact discount rate, valuation? Retrieved August 8. 2014. from http://www.nationmultimedia.com/opinion/Will-corporate-tax-cut-impact-discount-rate-valuat-30183465.html

Taft, W.H., Kramer, D.J. and Puddington, A. (2012). *Freedom in the World 2012.* Washington, DC: Freedom House. Retrieved June 26. 2014. from http://www.freedomhouse.org/sites/default/files/FIW%202012%20Booklet_0.pdf

The Edge. (2014). Fund managers positive on Malaysia's capital market liberalisation. Retrieved August 10. 2014. from http://www.theedgemalaysia.com/business-news/294489-fund-managers-positive-on-malaysias-capital-market-liberalisation.html

The Heritage Foundation. (2014). *2014 Index of Economic Freedom.* Retrieved August 8. 2014. from http://www.heritage.org/index/fiscal-freedom

Tufte, K. (2013). *Economic freedom and stock market returns.* Published by Five Star Wealth Manager, Five Star Wealth Manager as published in Twin Cities Business Magazine. Retrieved June 26. 2014. from http://www.cherrytree.com/wealth/pdfs/ASA_nwsltr0213.pdf

Womack, K. and Zhang, Y. (2003). Understanding risk and return, the CAPM, and the Fama-French three-factor model. *Tuck Case.* (03-111).

Zirak, M. and Mehrara, M. (2013). Ranking of developing countries based on Economic Freedom Index. *International Letters of Social and Humanistic Sciences.* 2. pp. 32-38.

Appendix 1.1. List of company

No.	Name of Stock	Code
1	BIMB	5258
2	BJCORP	3395
3	BJTOTO	1562
4	CARLSBG	2836
5	CMSB	2852
6	DLADY	3026
7	DRBHCOM	1619
8	E&O	3417
9	GAMUDA	5398
10	GENP	2291
11	GENTING	3182
12	KLK	2445
13	PBBANK	1295
14	HLCAP	5274
15	IGB	1597
16	IJM	3336
17	IJMLAND	5215
18	KPJ	5878
19	KSENG	3476
20	KULIM	2003
21	HAPSENG	3034
22	CIMB	1023
23	TENAGA	5347
24	IOICORP	1961
25	GENM	4715
26	YTL	4677
27	MAYBANK	1155
28	TM	4863
29	MISC	3816
30	SIME	4197
31	LAFMSIA	3794
32	MAGNUM	3735
33	MAHSING	8583
34	MAS	3786
35	MBSB	1171
36	MMCCORP	2194
37	MRCB	1651
38	OSK	5053
39	PARKSON	5657
40	POS	4634
41	SPSETIA	8664
42	RHBCAP	1066
43	UMW	4588
44	AMBANK	1015
45	PETDAG	5681
46	BAT	4162
47	HLBANK	5819
48	PPB	4065
49	HLFG	1082
50	AFG	2488
51	TDM	2054
52	TROP	5401
53	TSH	9059

Appendix 1.2. Fixed effect model: absolute of economic freedom index and stock returns

Explanatory Variables	Model 1 Coeffi-cient (Standard Error)	Model 2 Coeffi-cient (Standard Error)	Model 3 Coeffi-cient (Standard Error)	Model 4 Coeffi-cient (Standard Error)	Model 5 Coeffi-cient (Standard Error)	Model 6 Coeffi-cient (Standard Error)	Model 7 Coeffi-cient (Standard Error)
Constant	14.6219*** (0.0772)	-0.3868	18.4127 (17.5461)	-45.4200 (82.8797)	65.9349 (55.8232)	2.3320 (19.1082)	75.5095 (164.5156)
RP	1.3660*** (0.0772)	1.3666*** (0.0773)	1.3638*** (0.0769)	1.3624*** (0.0770)	1.3518*** (0.0754)	1.3626*** (0.0765)	1.3233*** (0.0718)
OS		0.2313 (0.5896)					
RL			-0.3475 (1.5156)				2.3150 (2.8983)
LG				3.7349 (5.1088)			2.2538 (6.3462)
RE					-2.2077 (2.3842)		-6.8880 (4.9542)
OM						0.7970 (1.2980)	2.4463 (1.8161)
R^2	0.2400	0.2401	0.2400	0.2403	0.2406	0.2402	0.2423
Adjusted R^2	0.1978	0.1970	0.1970	0.1972	0.1975	0.1971	0.1968
F-statistic	5.6794***	5.5703***	5.5691***	5.5751***	5.5844***	5.5746***	5.3232***
Observation	1007	1007	1007	1007	1007	1007	1007

Notes: Reported in parentheses is robust standard error using the option White (diagonal) in Eviews 6.0.
***, **, and * indicate significance at 1%, 5%, and 10% levels respectively.
Model 1 is the original Sharpe (1964) standard CAPM with RP as independent variable.
Model 2 until Model 7 is the extended model of Sharpe (1964) standard CAPM model. The independent variables of Model 2 are RP and OS; The independent variables of Model 3 are RP and RL; The independent variables of Model 4 are RP and LG; The independent variables of Model 5 are RP and RE; The independent variables of Model 6 are RP and OM; The independent variables of Model 7 are RP, RL, LG, RE, and OM. Since the COS is the overall score, it is not included to the model 7 as to avoid multicollinearity issue.

Appendix 1.3. Random effect model: absolute of economic freedom index and stock returns

Explanatory Variables	Model 1 Coeffi-cient (Standard Error)	Model 2 Coeffi-cient (Standard Error)	Model 3 Coeffi-cient (Standard Error)	Model 4 Coeffi-cient (Standard Error)	Model 5 Coeffi-cient (Standard Error)	Model 6 Coeffi-cient (Standard Error)	Model 7 Coeffi-cient (Standard Error)
Constant	14.6219*** (2.4110)	-0.3868 (36.5151)	18.4127 (17.1888)	-45.4200 (79.0074)	65.9349 (54.7486)	2.3320 (18.3979)	75.5095 (162.9442)
RP	1.3660*** (0.0762)	1.3666*** (0.0763)	1.3638*** (0.0758)	1.3624*** (0.0759)	1.3518*** (0.0739)	1.3626*** (0.0754)	1.3233*** (0.0695)
OS		0.2313 (0.5675)					
RL			-0.3475 (1.4811)				2.3150 (2.8563)
LG				3.7349 (4.8652)			2.2538 (6.1885)
RE					-2.2077 (2.3372)		-6.8880 (4.8953)
OM						0.7970 (1.2561)	2.4463 (1.7767)
R^2	0.2111	0.2112	0.2111	0.2113	0.2116	0.2113	0.2133
Adjusted R^2	0.2103	0.2096	0.2096	0.2098	0.2101	0.2097	0.2094
F-statistic	268.9354***	134.3851***	134.3541***	134.5134***	134.7580***	134.4981***	54.2930***
Observation	1007	1007	1007	1007	1007	1007	1007

Notes: Reported in parentheses is robust standard error using the option White (diagonal) in Eviews 6.0.
***, **, and * indicate significance at 1%, 5%, and 10% levels respectively.
Model 1 is the original Sharpe (1964) standard CAPM with RP as independent variable.
Model 2 until Model 7 is the extended model of Sharpe (1964) standard CAPM model. The independent variables of Model 2 are RP and OS; The independent variables of Model 3 are RP and RL; The independent variables of Model 4 are RP and LG; The independent variables of Model 5 are RP and RE; The independent variables of Model 6 are RP and OM; The independent variables of Model 7 are RP, RL, LG, RE, and OM. Since the COS is the overall score, it is not included to the model 7 as to avoid multicollinearity issue.
The data are based on weighted statistics.

Appendix 1.4. Random effect Hausman test: absolute of economic freedom index and stock returns

Test Summary	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Chi-Sq statistics	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Chi-Sq. d.f.	1.0000	2.0000	2.0000	2.0000	2.0000	2.0000	5.0000
Prob.	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Appendix 1.5. Fixed effect model: change of economic freedom index and stock returns

Explanatory Variables	Model 1 Coeffi-cient (Standard Error)	Model 2 Coeffi-cient (Standard Error)	Model 3 Coeffi-cient (Standard Error)	Model 4 Coeffi-cient (Standard Error)	Model 5 Coeffi-cient (Standard Error)	Model 6 Coeffi-cient (Standard Error)	Model 7 Coeffi-cient (Standard Error)
Constant	15.3154*** (2.5975)	16.0855*** (2.7794)	15.5249*** (3.1611)	14.6957*** (2.5195)	15.0004*** (2.4727)	16.0074*** (2.7218)	15.4410*** (3.0035)
RP	1.3603*** (0.0769)	1.3246*** (0.0712)	1.3547*** (0.0814)	1.3382*** (0.0740)	1.3584*** (0.0767)	1.2934*** (0.0682)	1.2217*** (0.0800)
COS		1.1516 (0.7388)					
CRL			0.0922 (0.4203)				0.0730 (0.4493)
CLG				3.1713*** (0.9375)			2.7585*** (0.9980)
CRE					-0.8212 (0.7668)		-1.6962 (1.7483)
COM						0.8503* (0.4335)	1.4122* (0.7668)
R^2	0.2436	0.2447	0.2436	0.2494	0.2441	0.2470	0.2554
Adjusted R^2	0.1991	0.1993	0.1982	0.2043	0.1987	0.2018	0.2081
F-statistic	5.4692***	5.3922***	5.3626	5.5318***	5.3772***	5.4617***	5.3925***
Observation	954	954	954	954	954	954	954

Notes: Reported in parentheses is robust standard error using the option White (diagonal) in Eviews 6.0.
***, **, and * indicate significance at 1%, 5%, and 10% levels respectively.
Model 1 is the original Sharpe (1964) standard CAPM with RP as independent variable.
Model 2 until Model 7 is the extended model of Sharpe (1964) standard CAPM model. The independent variables of Model 2 are RP and COS; The independent variables of Model 3 are RP and CRL; The independent variables of Model 4 are RP and CLG; The independent variables of Model 5 are RP and CRE; The independent variables of Model 6 are RP and COM; The independent variables of Model 7 are RP, CRL, CLG, CRE, and COM. Since the COS is the overall score, it is not included to the model 7 as to avoid multicollinearity issue.

Appendix 1.6. Random effect model: change of economic freedom index and stock returns

Explanatory Variables	Model 1 Coeffi-cient (Standard Error)	Model 2 Coeffi-cient (Standard Error)	Model 3 Coeffi-cient (Standard Error)	Model 4 Coeffi-cient (Standard Error)	Model 5 Coeffi-cient (Standard Error)	Model 6 Coeffi-cient (Standard Error)	Model 7 Coeffi-cient (Standard Error)
Constant	15.3154*** (2.5306)	16.0855*** (2.7243)	15.5249*** (3.1059)	14.6957*** (2.4434)	15.0004*** (2.3933)	16.0074*** (2.6667)	15.4411*** (2.9403)
RP	1.3603*** (0.0755)	1.3246*** (0.0691)	1.3547*** (0.0798)	1.3382*** (0.0723)	1.3584*** (0.0754)	1.2934*** (0.0661)	1.2217*** (0.0786)
COS		1.1516 (0.7123)					
CRL			0.0922 (0.4007)				0.0730 (0.4303)
CLG				3.1713*** (0.9117)			2.7585*** (0.9561)
CRE					-0.8212 (0.7334)		-1.6962 (1.7574)
COM						0.8503* (0.4365)	1.4122* (0.7843)
R^2	0.2106	0.2117	0.2106	0.2164	0.2111	0.2140	0.2224
Adjusted R^2	0.2098	0.2100	0.2090	0.2148	0.2095	0.2124	0.2183
F-statistic	254.0080***	127.6648***	126.8893***	131.3235	127.2724	129.4864	54.2373
Observation	954	954	954	954	954	954	954

Notes: Reported in parentheses is robust standard error using the option White (diagonal) in Eviews 6.0.
***, **, and * indicate significance at 1%, 5%, and 10% levels respectively.
Model 1 is the original Sharpe (1964) standard CAPM with RP as independent variable.
Model 2 until Model 7 is the extended model of Sharpe (1964) standard CAPM model. The independent variables of Model 2 are RP and COS; The independent variables of Model 3 are RP and CRL; The independent variables of Model 4 are RP and CLG; The independent variables of Model 5 are RP and CRE; The independent variables of Model 6 are RP and COM; The independent variables of Model 7 are RP, CRL, CLG, CRE, and COM. Since the COS is the overall score, it is not included to the model 7 as to avoid multicollinearity issue.
The data are based on weighted statistics.

Appendix 1.7. Random effect Hausman test: change of economic freedom index and stock returns

Test Summary	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Chi-Sq statistics	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Chi-Sq. d.f.	1.0000	2.0000	2.0000	2.0000	2.0000	2.0000	5.0000
Prob.	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000