EMPIRICAL RELATIONSHIP BETWEEN GLOBAL ECONOMIC VOLATILITY AND VIETNAM STOCK MARKET RETURN

By

Duong Thi Thuy An

THESIS

Submitted to
KDI School of Public Policy and Management
in partial fulfillment of the requirements
for the degree of

MASTER OF PUBLIC POLICY

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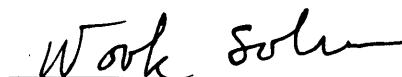
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ABSTRACT

**EMPIRICAL RELATIONSHIP BETWEEN GLOBAL ECONOMIC
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Emerging market stock returns have been described as having higher volatility than returns in the developed markets. However, prior studies give more attention to evidence of volatility than to the risk factors driving stock returns. This paper investigates whether dynamics in key global economic indicators such as the volatility of world emerging equity markets, interest rate, exchange rate, oil price significantly explains Vietnam stock market returns. Using multi-variable asset pricing model and high-frequently data from 2002-2008 periods, the thesis finds that the exchange rate and interest rate have significant impact on the Vietnam stock market while other variables are found to have modest effect to the market. These findings may have important implications for domestic and foreign investors in making decision of asset allocation and hedging their investment from risks, and for national policymakers in management the stock market.

ACKNOWLEDGEMENTS

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I. INTRODUCTION

Emerging equity markets provide a thriving land for testing financial theories. Although there have been numerous studies on emerging equity markets, there are still many areas need to be explored further. One of those areas is risks of investing in emerging market. The question whether there is a significant link between global risk factors and local stock return is still interesting to scholars all over the world.

The objective of this thesis is investigating whether changes in global economic factors are dispersed to local stock market returns at significant levels. While prior literature has mainly focused in several big economy countries such as Korea, China, India, etc., this thesis concentrates into Vietnam equity market.

Since the beginning of stock market in July 2000, Vietnam has opened more and more its economy to the world. The liberalization process has led to a rapid growth in market capitalization and trading value of its stock market as well as attracted international investors. Over the period of 2002-2007, foreign investors have continuously increased their holding proportion from 6% to 25% (05/2007, source: Hochiminh Securities exchange website). Therefore, it is reasonable to assume that

Vietnam equity market has distinguished features for international investors to take advantage of the benefits of diversification to allocate their funds. Such distinctions make it ideal for examining the relationships between global economic volatility and domestic market returns.

Using a multi-variable asset pricing model, this paper investigate whether key world risk indicators such as interest rate, exchange rate and oil price are significantly related to stock return. The Morgan Stanley Capital International Emerging Market (MSCI) index and the U.S. 3-month Treasury bill rate are also included to proxy the effects of global variables.

What I found is the MSCI EM excess return and oil price do not significantly impact on Vietnam market, while the interest rate and exchange rate are transmitted to the market returns. There is different result if the time spread of those two insignificant variables is changed.

This paper contributes to the knowledge of the dynamic relationship between stock returns and global variables in the context of a multivariable framework. The empirical relationships established may have important implications for decision-making by

investors and policy makers. Investors can improve their portfolio performance by taking

into account the variations in economic fundamentals. Especially, my finding on the

relationship between exchange rate, interest rate and local stock return is more

meaningful to foreign investors, who pay more attention to dollar return than dong return.

I start with the literature review and the analysis of the development process the

Vietnam stock market measured by the number of listed and trading volume on

Hochiminh Securities exchange. Then, I carry out quantitative analysis of global risk

factors explaining variation in Vietnamese stock returns. Finally, I summarize the

discussion by confirming the findings and provide some benefit of this paper to investor

and policy makers.

II. LITERATURE REVIEW

It is widely known in finance research that equities from emerging capital markets

have vastly different characteristics than equities from developed capital markets. There

are at least four distinguishing features of emerging market returns: higher sample

average returns, higher volatility, more predictable returns, and low correlations with

global risk factors and the world market returns (Bekaert and Harvey, 1997). My thesis focuses on the last feature.

A large literature is devoted to the issues of risk and predictability, integration in the emerging markets (e.g., Bekaert and Harvey, 1997; Claessens et al., 2000; Garcia and Ghysels, 1998; Harvey, 1995) but there is not much agreement about how to assess it. Bekaert and Harvey (1997) provided an approach that allows the relative importance of world and local information to change through time in both the expected returns and conditional variance processes. They used time-series and cross-sectional models to analyze the reasons that volatility is different across emerging markets, particularly with respect to the timing of capital market reforms. They found that capital market liberalizations often increase the correlation between local market returns and the world market. Their paper has set one of the first stones in doing research about risks in emerging market.

Following their result, Hanousek and Filer (2000) find in 1993–1999 almost no contemporaneous relation between stock returns in Poland, Hungary, and the Czech Republic and macroeconomic variables; yet demonstrate that these variables had

predictive ability in the first two countries, interpreting this as a rejection of the semi-strong efficiency. Sokalska (2001) argues that co movement of equity indices in the Czech Republic, Hungary, and Poland in 1993–2000 may be due to the common shocks in the "international investor sentiment." Later, Tiago Mateus (2004) found that stock markets returns in Bulgaria, Cyprus, Estonia, Lithuania, Romania, and Hungary were sensitive to global risk factors such as G-7 interest rates, the world excess return, global foreign exchange and inflation rates, whereas local factors were more important for the Czech Republic, Latvia, Poland, and Slovenia during the 1997–2002 period.

Empirical studies investigating financial integration have been likely to focus on developed markets (e.g., [Bekaert & Harvey, 1995 and Campbell & Hamao, 1992]; [Carrieri et al., 2002]). Recently, more papers have focused on emerging markets, and several studies have documented the high returns and low correlations of these markets with the rest of the world (e.g., De Santis & Imrohoroglu, 1997; Bekaert and Harvey, 1997). In fact, there are several theoretical justifications to exist between macroeconomic variables and stock returns (e.g., [Boudoukh and Richardson, 1993] and [Mandelker and Tendon,1985]).

Vietnam equity market has just started eight years ago but it is one of the interesting destinations of international investors. Domestic market participants are likely to follow closely the release of announcements of policy changes and economic data, both local and global changes. However, there exists a large gap in the empirical identification of the international risk factors affecting returns. Moreover, although there are many research papers in financial field, but so far there is no empirical research particular in risk of investing in Vietnam stock market. Therefore, this thesis tries to bridge that gap by examining the link between global variables and stock returns in Vietnam equity market.

III. OVERVIEW OF VIETNAM STOCK MAKET

It has been 20 years since Vietnam started its well-known "Doi Moi" policy, which means "renovation", to open its economy to the rest of the world. So far, the country has made considerable achievements. GDP has surged around 7 percent annually while productivity and international trade have increased as reforms to transition into a market economy have been adopted. High economic growth commonly leads to accompanying changes in the economic structure, especially the financial markets. The banking system

in Vietnam, formerly meaning only the central bank and its four affiliates, first underwent

fundamental reform, signaling the change towards market mechanism. These affiliates

were separated during 1986-1990 period and renamed the state-owned commercial banks.
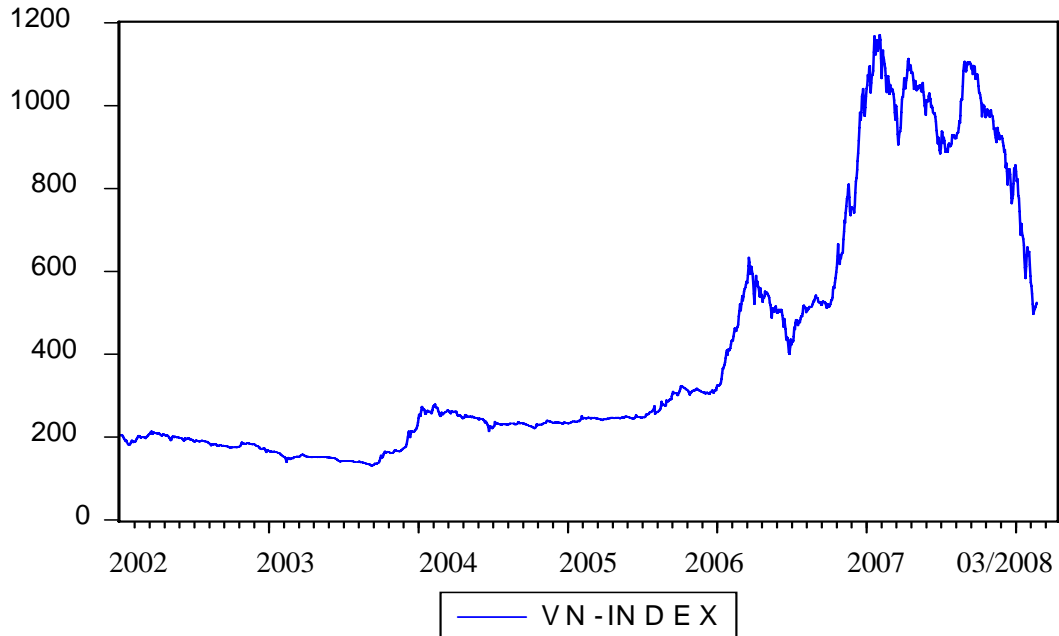
Figure 1: Vn-Index from January, 2002 to March, 2008
(Source: Hochiminh Securities Exchange www.hsx.org.vn)

Following that, the financial sector began to develop with tens of private and joint-

stock banks. These new banks have been improving and diversifying their services to

catch up with modern banking facility and services required by Vietnam's integration

into the world economy. However, recently the domestic capital market has reached a

critical juncture where the supply of domestic bank loans cannot meet the growing

demand for medium to long-term finances. Meanwhile, even though the country has been running small current account and budget deficits, the imperative to raise more funds to support economic growth may, however, result in an increasing budget deficit in the near future. Furthermore, the equalization/privatization process requires the parallel emergence and development of a more user-friendly equity market.

As a result, Vietnam Stock Market (VSM) came into being as a matter of course. The preparation process for the birth of the stock market started with the establishment of the State Securities Commission (SSC) in the middle of the 1990s. The first securities trading center of VSM was launched in July 2000 in Ho Chi Minh City (hereinafter called HoSTC) as a pilot project. The second securities trading center was established in Hanoi (herein after called HaSTC) five years later in March 2005.

From July 2003, foreign investors were allowed to buy up to 30 percent of the value of a newly privatized enterprise. This figure was then raised by 19 percent to 49 percent at the end of the third quarter of 2005. It is the determination to speed up the process of privatization in terms of both pace and scale that financial liberalization was undertaken.

Likewise, in the domestic market, more state-owned enterprises are being urged to submit

legal documents to start the process of going public.

Table 1

Summary statistic for Vietnam stock market

Annual Summary statistics of the VN Index						
	2002	2003	2004	2005	2006	2007
End of period	183.33	166.94	239.00	308.00	752.00	927.02
Change	n/a	-8.9%	43.2%	28.9%	144.2%	23.3%
Average	193.63	152.99	243.33	264.00	516.17	1006.95
Change	n/a	-21.0%	59.1%	8.5%	95.5%	95.1%
Min	177.61	136.21	210.46	233.00	312.00	907.95
Max	208.48	173.38	277.44	311.00	752.00	1137.69
Difference	17.4%	27.3%	31.8%	33.5%	141.0%	25.3%
Market capitalization (million USD)	na	239	125	460	9,400	21,000

Annual returns of Vietnam stocks						
	2002	2003	2004	2005	2006	2007
Mean	11.1%	-6.2%	41.9%	26.6%	104.9%	32.1%
Median	26.7%	140.0%	-4.8%	12.5%	142.1%	-27.7%
Min	-78.5%	243.7%	-57.6%	-30.1%	-218.6%	-165.1%
Max	56.8%	383.6%	312.8%	160.0%	346.8%	461.7%
Standard deviation	43.9%	89.0%	121.7%	50.1%	175.5%	172.1%
Skewness	0.292	1.773	1.634	1.656	-0.351	1.344
Kurtosis	-0.835	4.971	1.564	3.107	-1.144	1.725
# stocks	14	22	25	34	106	138

Although the stock markets in Vietnam are relatively young and much smaller than those of the other Asian markets in terms of market capitalization, the HOSE has attracted great attention from international investors, especially after it delivered a stellar performance of 144 percent in 2006. Market capitalization is estimated to be roughly 40 percent of GDP in May 2007.

The high and rapid growth of the stock market is, of course, very appealing to domestic and foreign investors. Statistical sources report that there are about 298,000 accounts registered to make transactions in the stock brokerage companies at the end of 2007, and this figure is increasing daily (Hochiminh stock exchange). The presence of the foreign investors, the high growth potential of Vietnam economy, the idle public capital volume (estimated at USD8 billions), and the yearly remittance from the Vietnamese overseas workers and relatives amounting to around USD2-3 billions have all contributed to make VSM become really "hot" (Vietnam Ministry of Industry, 2007). However, the hefty inflow of foreign capital and the excess liquidity in the financial system have resulted in potential stresses in the economy. After VN-Index hit its historic peak of 1170.67 on March 12th, 2007, the market is corrected by 20 percent. Yet, the stock return

rate has not been stable for any extended period, and the market had more than once experienced a recession and then a spectacular recovery showing volatility clustering in the stock returns.

IV.   SELECTION OF VARIABLE AND DATA FOR ANALYSIS

1.   Selection of variables

Selecting variables in similar researches is usually depending on criticism on the ground of subjectivity. Fama (1981) has argued that such criticism is an unavoidable problem associated with this area of research. This study bases its selection of variables on theoretical propositions and existing evidence in the literature.

The Fisher effect theorizes that nominal interest rates observed in financial markets must compensate investors for (1) any reduced purchasing power on funds lent due to inflationary price changes and (2) and additional premium above the expected rate of inflation for foregoing present consumption. Moreover, changes in both short term and long term rates are expected to affect the discount rate in the same direction through their effect on the nominal risk-free rate (Mukherjee & Naka, 1995). Giovannini and Jorion

(1987) also found the negative correlation between stock market return and nominal

interest rates. Therefore, interest rates are expected to be negatively related to market

returns either through the inflationary or discount factor effect.

The link between exchange rates and equity returns is based on a simple and

intuitive financial theory. When a country's currency rises in value relative to other

currencies, meaning that the country's good are more expensive for foreign buyers and

foreign goods are cheaper for foreign sellers. The cost of imported goods, which in most

cases constitute a large part of the production inputs for emerging market countries, is

lower. According to Pebbles and Wilson (1996), an appreciating currency is generally

accompanied by increases in reserves, money supply and a decline in interest rates. The

resulting decline in cost of capital and/or imported inputs is expected to lead to an

increase in local returns. Such an expectation is also consistent with Bilson et al. (2001)

conclusion that a devaluation of the domestic currency has a negative relationship with

returns.

Stulz (1981b) and Stulz (1984) and Adler and Dumas (1983) provide conditions under which a single-beta CAPM based on a world market portfolio holds globally, which motivates the use of a world equity market risk factor. Empirical studies have used a similar risk factor with some success in a conditional asset pricing context (e.g., Giovannini and Jorion, 198; Harvey, 1991a and Harvey, 1991b). Therefore, I use the MSCI Emerging market excess return, which are the US dollar value less the U.S. Treasury Bill rate return and expect a positive sign.

Oil is a fundamental driver of modern economic activity and there is a general market perception that stock markets react to oil price shocks. Higher oil prices might affect the global economy through a variety of channels, which include transfer of wealth from oil consumers to oil producers, a rise in the cost of production of goods and services, and impact on inflation, consumer confidence and financial markets. Hamilton (1983) and Gisser and Goodwin (1986) indicate that oil price shocks have and adverse impact on the macro economy, and might even be a cause of economic recession. Salman Saif Ghouri (2005) found the inverse relationship between WTI oil price and oil stock returns.

Analyzing 35 data-stream global industry indices for the period from April 1983 to September 2005, Nandha and Faff (2008) has found that oil price rises have a negative impact on equity returns for all sector except mining, and oil and gas industries. Syed A.Basher and Perry Sadorsky (2006) find strong evidence that oil price risk impacts stock price returns in emerging markets. Generally, these results are consistent with economic theory and evidence provided by previous empirical studies. Therefore, I expect that the oil price have negative correlation with stock market returns.

2. Data for analysis

The weekly stock index data of Vietnam Securities Market was collected from the website of HoSTC over the period from January 2002 to March 2008. A total 75 observations were obtained. The VN-Index is employed as the local market index since HoSTC was launched first and has a history of 4 years longer than that of HaSTC. The weekly 3-month U.S. Treasury Bill rate is used as a proxy for risk free rate.

I employ four types of risk factors in my asset pricing model. The first risk factor is the global market risk measured using the global equity market portfolio. Global market

portfolio returns particularly emerging market are represented by the total return on the

Morgan Stanley Capital International Emerging Market index (MSCI EM). It has been

commonly used in earlier studies. The second risk factor is commodity risk measured by

oil price, I choose West Texas Intermediate (WTI) spot price FOB due to WTI oil is the

most popular oil imported into Vietnam. The 12-month London Interbank Offered rate

(LIBOR) is used to account for global interest rate risk because it is among the most

common of benchmark interest rate indexes used to make adjustments to adjustable rate

mortgages. As a proxy for the exchange rate risk, I choose the exchange rates of Vietnam

dong to US dollar. These variables represent global information that may influence

expectations about future equity returns in Vietnam All of these weekly data are based on

week-ending close value, denominated by US dollars (including Vietnam equity index[1]).

Most of data are available from 1980 till now. However, the stock market of

Vietnam has just starting from July 2000. Therefore, all of data are collected from

---

[1] VN-Index is calculated base on value weighted method. $VNIndex = \dfrac{\sum P_{1i} \times Q_{1i}}{\sum P_{0i} \times Q_{0i}} \times 100$,

where as P_{1i} and P_{0i} are the price of stock i at calculation period and base period, respectively. Q_{1i} and Q_{0i} are the quantity of stock i at calculation period and base period, respectively. Base on that method, applying either USD or VND return for VN-Index yield the same result.

January 2002 till March 2008. Consequently, I do not have the luxury of drawing

conclusions from long term empirically validated relations.

The VN-index data are collected from the website of Hochiminh Securities

exchange. The U.S. Treasury Bill rate data are from the Federal Reserve database. The

MSCI EM data are obtained from the MSCI Barra. Exchange rate data are from

OANDA.com. The WTI spot price data are from EIA. The LIBOR data are from BBA

(British Banker's Association).

3. Unit root tests

These unit root tests should be conducted first in order to determine whether the

series are non-stationary in the levels and whether they are stationary in the first log-

differences. The augmented Dickey-Fuller (ADF) test is used to explore for the existence

of unit roots. The result for the test shows that all the risk factor proxies (log-different)

levels are non-stationary, except risk free rate. However, it is stationary in the second

differences at the 1 percent levels. Therefore, I will construct weekly series of log-returns

on the stock indices and log-differences of weekly risk factor proxies (LIBOR rate, exchange rate and oil price).

Table 2

Summary of the unit root testing result.

Series	Augmented Dickey-Fuller test			
	t-statistic	Probability*	Critical value	
Vn-Index return	-8.3429	0.0000	-3.4503	at 1% level
MSCI EM return	-16.0272	0.0000	-2.8702	at 5% level
LIBOR	-15.3906	0.0000	-2.5715	at 10% level
Exchange rate	-13.0101	0.0000		
WTI oil price	-15.3906	0.0000		
T-Bill rate	-11.5829	0.0000		

Note: Null Hypothesis: Series have unit roots   *: One-sided p-value
ADF test includes a constant term. Lag length is chosen as 0 for all series
except T-Bill rate (lag length is 12) based on Schwarz Information Criterion

4. Description of data

We can see clearly how the behavior of the Vietnam market has differed from the global and emerging markets. Vietnam stock market has higher volatility and the peaks do not seem to happen at the same time in the world emerging market.
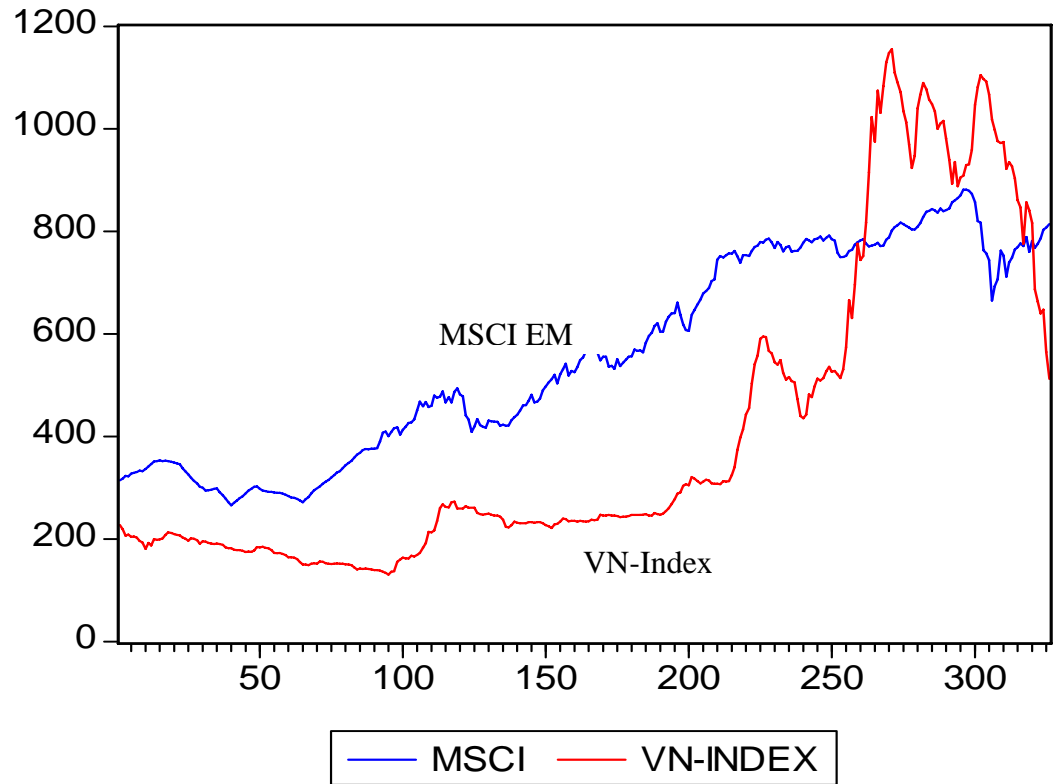
Figure 2: Development of Vietnam and Global emerging equity market indices from January, 2002 to March, 2008.

Table 3 contains summary statistics for the weekly risk factor and test asset returns.

Panel A in Table 2 reports mean, median, maximum, minimum, standard deviation, skewness and kurtosis. To check the null hypothesis of normal distribution, I also calculate Jarque-Bera test statistic. The p-values are presented in the Table. Over the whole sample, the correlation coefficient between the emerging market return and Vietnam market is the highest (0.2). The correlations between the risk factors were relatively low.

Table 3

Descriptive statistics for the weekly asset return for all variables

Series	Mean %	Median %	Maximum %	Minimum %	Std. Dev. %	Skewness	Kurtosis	Jarque-Bera	Normality (p-value)
Panel A: Summary statistics									
VN Index	16.48	-14.67	833.45	-821.58	192.21	0.7600	6.6852	215.1910	0.0000
MSCI EM	16.22	23.10	415.02	-550.14	101.68	-0.8713	7.3777	300.6348	0.0000
LIBOR	0.50	2.90	900.40	-875.17	200.08	0.2553	6.3219	152.9608	0.0000
USD/VND	-0.47	-0.65	226.33	-219.29	52.11	0.0821	9.9612	656.5711	0.0000
WTI OIL	25.83	45.53	503.23	-963.41	195.99	-0.6292	4.3598	46.4845	0.0000
Risk free rate	-4.67	10.49	2338.64	-2617.63	274.95	-1.8076	46.9401	26,322	0.0000

Panel B: Pairwise correlations						
	VN Index	MSCI EM	LIBOR	USD/VND	WTI OIL	Risk free rate
VN Index	1	0.0602	0.0313	0.0064	-0.0534	0.1188
MSCI EM		1	0.0443	0.0225	-0.0049	-0.0028
LIBOR			1	-0.0428	-0.0195	0.3729
USD/VND				1	-0.0698	-0.0355
WTI OIL					1	0.0319
Risk free rate						1

Descriptive statistics are calculated for the weekly asset continuously compounded returns. The global market portfolio is proxied by the Morgan Stanley Capital International Emerging Market (MSCI EM) equity index. The Vietnam market return is proxied by the VN-Index. The risk free rate is proxied by the 3-month US Treasury Bill rate. USD/VND is the logarithmic difference in the USD value of one VND. The interest rate is proxied by logarithmic difference 12-month London Interbank Offer rate. The oil price is proxied by weekly logarithmic difference West Texas Instrument oil price. All returns are calculated in USD. The mean, median, max, min and standard deviation are annualized. The sample size is 325 weekly observations from January 2002 to March 2008. The p-value for the Jarque-Bera test statistic of the null hypothesis of normal distribution is provided in the table.

The mean USD return for the emerging markets 16.22% almost equals to that of

Vietnam equity markets (16.48%). However, the maximum value of USD return for

Vietnam market (833.45%) is as twice as that of emerging market (415.02%). Vietnam

seems to be a good land for international investors to gain extreme profit.

The negative values for the skewness indicate that the distribution of asset returns

of risk factor MSCI EM and WTI oil are skewed left and the left tails is long relative to

the right tail. Meanwhile, the positive value of skewness shows that data that are skewed

right and the right tail are long relative to the left tail for the left of risk factors in my

sample. The indices of kurtosis are positive for all the risk factors shows that the

distribution of asset returns has peak distribution. In addition, the Jarque-Bera normality

test completely rejects the assumption of normality for all of variables.

Panel B reports pair wise correlations among asset returns. All correlations in the

table are below 0.5, present the usual patterns. Moreover, I found the correlation between

the Vietnam equity markets and the USD/VND, that between the WTI oil and the world

equity markets return, and that between the T-Bill rate and the world equity markets

returns are very close to zero (0.0064, -0.0049 and -0.0028, respectively).

In summary, the descriptive statistics of my data set recommends that Vietnam

stock market has offered an attractive opportunity to international investors to diversify

their portfolios internationally.

V.   ECONOMETRIC METHODOLOGY

This study uses a multifactor model to investigate the potential interactions between

the selected variables and return in stock market. This model is widely used in measuring

the dynamic interactions among economic variables (e.g., C.M.Bilson et al., 2001;

A.Goriavev, A.Zabotkin, 2006).

$$R_t = \alpha + \sum_{m=1}^{N} \beta_m F_{mt}{}^W + \varepsilon_t \qquad (1)$$

Equation (1) models equity returns as a function of N-global factors and offers the

framework for the analysis in this paper.

A further complication is that consideration must also be given to time delays in the production of information concerning the macroeconomic variables. In particular, the transmission and incorporation of information contained in the variables into stock market prices is not always immediately. This fact may because of the lag between the observation of data concerning a global variable and the incorporation of that information into stock returns. Therefore, a simultaneous model in which variables are measured at time t would imply an assumption of simultaneous association and may not be appropriate. As a result, the empirical model in use in this paper lags the explanatory variables to incorporate delays in the release of information (see e.g., Schwert, 1990; Bilson et al., 2001; Ortiz& Arjona, 2001). As recommendations of International Monetary Fund (IMF) Data Dissemination Standards for Vietnam[2], interest rate, stock market index and exchange rate are lagged by 1 month, oil price are lagged by 6 weeks. Hence, using weekly return intervals, the model can be written as

$$
\begin{aligned}
R_t = \alpha &+ \beta_1 R_{wt-4} + \beta_2 \Delta \ln(LIBOR_{t-4}) \\
&+ \beta_3 \Delta \ln(WTI\_OIL_{t-6}) + \beta_4 \Delta \ln(USD\_VND_{t-4}) + \varepsilon_t
\end{aligned}
\tag{2}
$$

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[2] These general standards are provided in IMF's guide for subscribed and users-The Special Data Dissemination Standard; and these standards for Vietnam are obtained directly from IMF's website.

where R_t is the Vietnam equity excess return in week t; $R_{w, t-4}$ is the global market

excess return at time t-4; $\Delta \ln(LIBOR_{t-4})$ is the first log different of LIBOR at time t-4;

$\Delta \ln(WTI\_OIL_{t-6})$ is the first log different of WTI oil price at time t-6;

$\Delta \ln(USD\_VND_{t-4})$ is the first log different of exchange rate at time t-4; The error term

(ε_t) gauges a country-specific or idiosyncratic disturbance unexplained by the

multifactor model in month t.

VI.   RESULT

Table 4 reports the results from fitting the model as described in Equation (2) to

Vietnam equity market. A least squares procedure was used, with the standard errors

being adjusted where necessary for serial correlation and/or heteroskedasticity. I conduct

the serial correlation test and find the strong evidence that there is no serial correlation in

model's residuals (Durbin-Watson stat is 2.1 and Breusch-Godfrey test rejects the null

hypothesis that there is serial correlation significant at 1% level) .I also check

heteroskedasticity by using White heteroskedasticity test and find that there is no

heteroskedasticity phenomenon significant at 1% level.

The result indicate that Vietnam equity market show little sensitivity to the international risk factors. The intercept or alpha in the model is statistically equal to zero evidencing that the model work well. However, only two of four variables display a significant coefficient with Vietnam stock market.

The exchange rate variable is clearly the most influential global variable, with the returns for the period 2002-2008 being significantly. The signs of the coefficients on the exchange rate variable are positive; meanwhile I expected a negative relationship between exchange rate and stock return in Selection variables section. This result is still consistent with my expectation because I organized the data of exchange rate as USD value of VND and stock return is calculated by VND. According to the regression result, a raise in exchange rate or in other words, a raise in VND will lead to a raise in stock return. The strong VND will lower the cost of capital and/or imported goods, with in most cases constitute a large part of the production inputs, and yield an increase in stock returns as a result.

The interest rate, which is represented by LIBOR, also shows a significant coefficient with stock return. However, the positive sign of its coefficient with stock

return is contradict my initial expectation [3]. London Interbank Offered rate is denominated by USD in my data. An increase in USD interest rate will lead to an appreciating of USD in relative to a devaluation of VND, yields a higher cost of capital and/or imported goods and lower stock return as a result. However, the above empirical test in Vietnam equity market shows an unusual result, that a raise in USD interest rate yields a decrease in local stock return. This phenomenon may be the outcome of government's managed float exchange policy. The exchange rate does not adjust to changes in global interest rates. Then a lift in USD interest rate should lead to higher foreign interest rates which lead to lower foreign equity prices.

The MSCI EM fails to explain the variation in VN-Index return. This result supports the low correlation between Vietnam stock market and that of the world found in Table 3. It is easy to understand because Vietnam market has just emerged eight years ago, a modest age compare to other emerging markets such as Russia, Taiwan, Thailand, etc. Therefore, the shocks from the world emerging market have not affected much Vietnam. This result also suggests low financial liberalization and a low degree of capital

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[3] See "Selection of variables"

market integration with the world. Hence, there is a high probability that the related risk

that investors deal with is an asset's contribution to variance of a diversified portfolio

within Vietnam and not the portfolio's covariance with the world return. However, when

I try lagging MSCI EM variable for six periods instead of four periods, I find a significant

sign of that variable on local stock return[4].

The price of WTI oil is also fail to explain the change in local stock return.

However, again, this factor turns to be significant when I delay it three periods, instead of

six periods as recommended by International Money Fund (IMF)[5]. This incident can be

explained as oil price takes less time to spread in Vietnam than what IMF suggested.

As a result, the explanatory power is quite modest (10.1%) indicates that the

Vietnam stock return is not much sensitive to global economic volatility.

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[4] , [5]: See Appendix A

Table 4

Explaining stock return using lagged global variables- Regression result

Variable	Coefficient	S.E.
Constant	0.1380 (0.9620)***	0.143491
MSCI EM excess return (-4)	0.0707(0.6996)	0.101054
Interest rate(-4)	5.1787(1.8756)*	2.761051
Exchange rate(-4)	14.7608(1.6585)*	8.899863
Oil price(-6)	2.6409(0.9544)	2.766937
R-squared	10.1%	
Adjusted R-squared	8.64%	
S.E. of regression	1.8397	
Sum squared residual	1055.9530	
Log likelihood	-642.0459	
Durbin-Watson stat	2.1092	
Akaike info criterion	4.0758	
Schwarz criterion	4.1467	
F-statistic	6.9956***	
Breusch-Godfrey Serial Correlation LM Test	2.2323***	
White Heteroskedasticity Test	0.4921***	

*** , ** and * denote significance at the 1%, 5% and 10% levels, respectively.
The t-statistics appear in parentheses

Overall, the result in Table 4 suggest that the global economic variables representing world emerging equity excess return, interest rate, exchange rate and oil price have only limited ability to explain the variation in local returns.

VII.   CONCLUSION

In this thesis I investigate whether global variables affect Vietnam stock return using multivariable asset pricing models. I use weekly data from January 2002 to March 2008. I measure all returns in US dollars except that for local stock return.

I find that the among variables, exchange rate and interest rate have significant in their association with Vietnam stock market meanwhile the rest of variables, including the world emerging equity return and oil price are found to be no relevant to the volatility of local stock return. Interestingly, by setting the last two factors lagging different to what IMF recommends, they turn to be meaningful in explaining the change of local stock return. However, suppose that all of variables are found to be significant, the explanatory power is still low.

The finding suggests that when investing in Vietnam equity market, investors should not pay too much attention into global risk factors such as the performance of the world equity markets, interest rate, exchange rate, and oil price due to their low impact on local stock return. However, international investors should be cautious of volatility of exchange rate and/or interest rate. Suppose that foreign investors pay more attention to

the dollar return than dong return, my result on the relationship between the exchange rate and Vietnam stock return is more important to those investors. A change in exchange rate and/or interest rate will lead to a change in purchase power of USD and their USD stock return For example, international investors may become reluctant to invest in the VN market when dong is strong because they can buy less stock per dollar. However, they may expect to get very high return if a strong dong leads to higher dong return in the local stock market. Furthermore, international investors could diversify their portfolio between countries, which have differently impacted by global macroeconomic factors.

Since the markets are inherently linked to some of the global economic variables, weaknesses in the macroeconomic environment, poor policy making and implementation maybe transmitted to these markets as negative shocks. The implication is that well planned and implemented policies may help stabilize the stock market. In particular, responsible governance and macroeconomic management through monetary and fiscal policies are necessary for the creation of real economic growth and fundamentals that are necessary for financial market development and stability.

Although results are comparable to previous research, much variability is yet to be explained and a measure of integration is warranted, which points to the need for further research: for example, research at a degree of integration of Vietnam equity market or research about the impact of exchange rate policy to the local stock market.

APPENDICES

APPENDIX A

Regression result with different lag variables

Dependent Variable: RT_RF
Method: Least Squares
Date: 09/08/08   Time: 16:41
Sample (adjusted): 5 325
Included observations: 321 after adjustments
Weighting series: W

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.086933	0.094163	0.923219	0.3566
RM_RF	0.161479	0.069813	2.313025	0.0214
RT_RF(-1)	0.333112	0.068769	4.843919	0.0000
LIBOR(-4)	0.105736	0.045285	2.334909	0.0202
USD_VND(-3)	-0.321562	0.173885	-1.849282	0.0654
OIL_PRICE(-3)	-0.103527	0.045695	-2.265583	0.0242

Weighted Statistics

R-squared	0.122093	Mean dependent var	0.092758
Adjusted R-squared	0.108158	S.D. dependent var	1.704793
S.E. of regression	1.609962	Akaike info criterion	3.808813
Sum squared resid	816.473	Schwarz criterion	3.879307
Log likelihood	-605.3145	F-statistic	8.88191
Durbin-Watson stat	2.071387	Prob(F-statistic)	0.0000

Unweighted Statistics

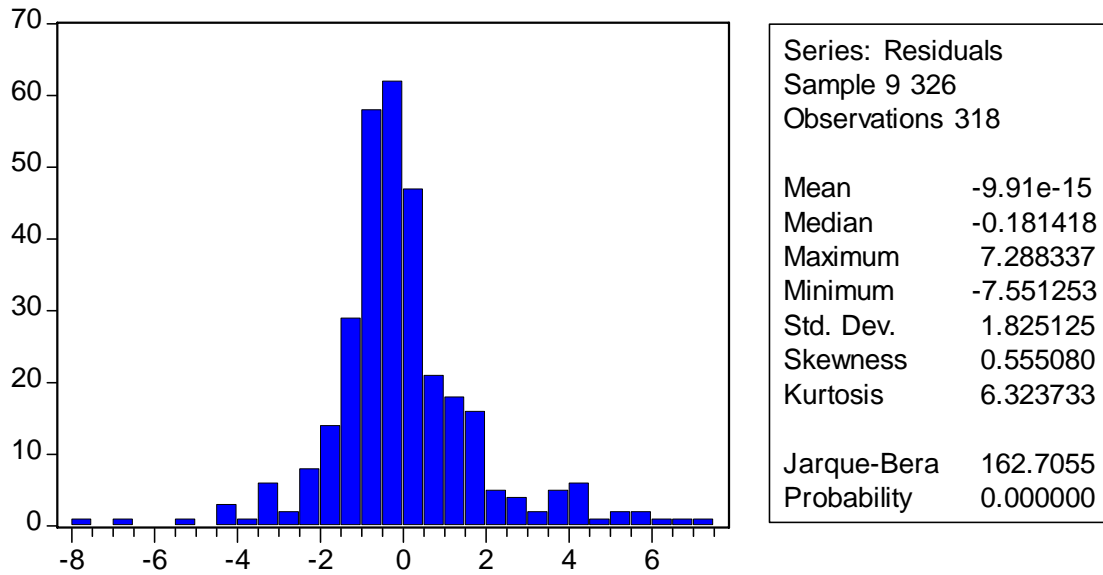|			
R-squared	0.129595	Mean dependent var	0.156932
Adjusted R-squared	0.115779	S.D. dependent var	1.918774
S.E. of regression	1.804281	Sum squared resid	1025.461
Durbin-Watson stat	2.216117		

Figure B1: Testing normality distribution of the Residual from Equation (2)
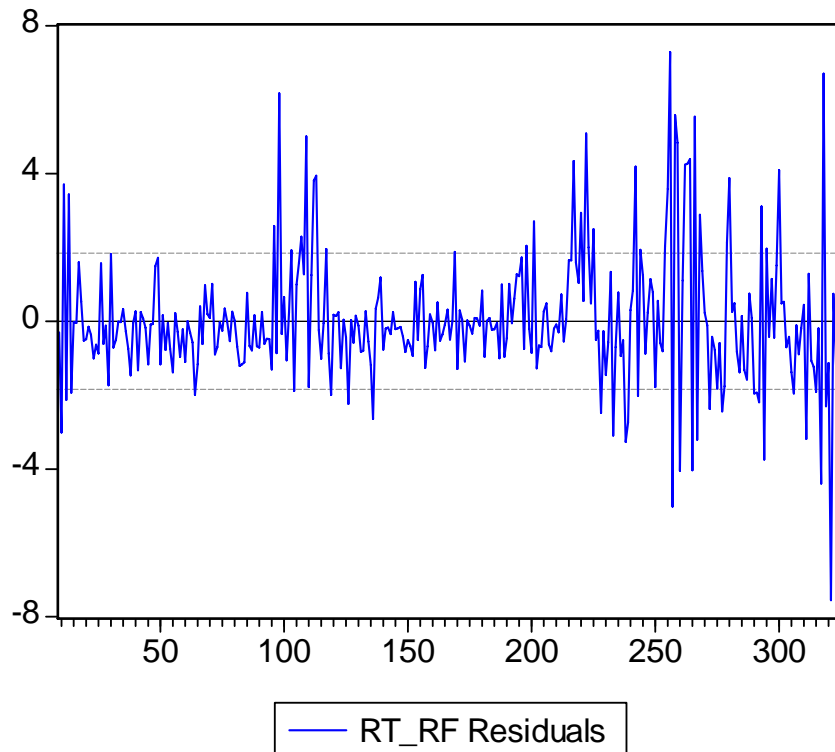

Figure B2: Residuals graph from the regression result of Equation (2)

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