INTI INTERNATIONAL UNIVERSITY

MASTER OF BUSINESS ADMINISTRATION

The Random Walk Hypothesis for ASEAN Stock Markets

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Submission Date:	**28th April, 2014**
Ethics Number:	**Not Applicable**
Final Word Count:	**13182 words**

Abstract

The objective of this paper is to examine whether stock markets follow a random walk in nine selected ASEAN stock markets namely: FTSE Bursa Malaysia Kuala Lumper Composite Index (KLCI), Stock Exchange of Thailand Index (SET), Philippines Composite Index (PSEi), Jakarta Stock Exchange Composite Index (JCI), FTSE Straits Times Index (STI), Vietnam Stock Index (VN Index), Hanoi Exchange Index (HNX, Laos Stock Exchange Composite Index (LSX) and Cambodia Securities Exchange Index (CSX). The data consist of three kinds of market prices including daily, weekly, and monthly ones. Data are collected from DataStream and official websites of the indices.

Log returns of stocks are used for this study. Four kinds of test are used in this study including serial correlation, runs test, and unit root tests. The research suggests that for Malaysia, Thailand, Philippines, Indonesia, Singapore, Vietnam and Laos, their markets follow a random walk during their testing period, and thus investors cannot get abnormal returns in these markets. But for Cambodia, this research suggests that the market is inefficient.

Keywords: random walk hypothesis, ASEAN, efficient market

Acknowledgement

It would not have been possible to finish this thesis without the help and support of the people around me, to some of whom it is possible to give particular mentions here.

Above all, I would like to express sincere appreciation to my supervisor Mr. Chen. He has put a lot of focus on helping me finish this thesis and given me necessary guidance. His good advices and supports have been invaluable on a academic level, for which I am extremely grateful.

Secondly, I would like to thank my parents for supporting my study at all times. They have given me their unequivocal support throughout, as always, for which my mere expression of thanks likewise does not suffice.

Last but not least I would like to thank my close friends Ms. Nadia Leung and Cici Chen for their words of encouragement when times become challenging.

Thank you.

Pan Qi Qi

April, 2014

Declaration

The work presented in this thesis is the fruition of my own work and effort, never has this work been submitted for any other award but for the partial fulfillment of my MBA studies at INTI International University, Malaysia.
Any information used within this study from other sources has been acknowledged to their respective authors.

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Date: 28/04/2014

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List of Abbreviations

ADF	Augmented Dickey-Fuller
CSX	Cambodian Securities Exchange Index
DW	Durbin Watson
EMH	Efficient Market Hypothesis
FTSE	Financial Times Stock Exchange
GDP	Gross Domestic Product
HNX	Hanoi Exchange Index
IDX	Indonesia Stock Exchange
JCI	Jakarta Composite Index
KLCI	Kuala Lumper Composite Index
LSX	Lao Composite Index
NYSE	New York Stock Exchange
OLS	Ordinary Least Squares
PP	Philips-Perron
PSE	Philippine Stock Exchange
PSEi	Philippine Stock Exchange Index
RWH	Random Walk Hypothesis
SET	Stock Exchange of Thailand
STI	Strait Times Index
VN	Vietnam Stock Index
VR	Variance Ratio

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Chapter 1: Introduction

1.1 Research Background

In recent years, a critical role which is played by a financial system during economic development processes, has appeared and been widely emphasized. Many researches have underlined that financial institutions should try to change their capitals from savings to productive investments. Generally, investment is seen as a method of buying assets to gain profits due to their expected incomes and/or appreciations over a long term (Malkiel, 2007). And capital market, which is a market for purchasing and selling debts and securities, becomes a main channel that transfers wealth of individuals to capital institutions that can use the wealth on long-term productive investments.

Stock market, as a part of the financial market, is a well-organized platform for individuals to trade shares while making its listed companies able to raise money and expand their company scales. Stock market is usually seen as one of the major investment places due to its expected high returns. Commonly saying, stock market is seen as an effective way to generally enhance domestic financial system operations and to particularly enhance capital market operations (Kenny and Moss, 1998). The benefits that brought by stock market can be concluded as below: To attract interior portfolio investments, to increase domestic savings, to improve capital pricing and availability. The improving status of stock market is a noticeable feature in international financial market. On one hand, main purchasers and sellers in stock market were individuals at the beginning of its establishment. Then, with the development of the market, more and more institutional investors have appeared, such as some hedge funds and insurance companies. On the other hand, stock markets are established globally: They are not only established in developed countries, but also established in some emerging economies.

The emphasis on financial system performances in emerging economies is growing due to a much liberalized and integrated international financial network. International investors start investing in emerging countries in order to seek for portfolio diversification and high-expected returns. Increasing demands of international financial investment result in the rapid growth of stock markets in developing countries. Researchers have found that to diversify investment is beneficial for investors. A key benefit of global investment diversification is that returns of different stock markets are probably enough independent to offer benefits to international investors. Some researches showed that global diversification is able to help investors to reduce their systematic investment risks. The reason behind this is it decreases the risk of investing in one single country, and risk exposure is decreased through international diversification. For example, Solnik, Boucrelle and Fur (1996) indicated that when comparing with to make an investment portfolio only based on U.S. stock markets, to diversify the investment into around 40 securities evenly spread in both American and European markets is able to decrease over 50 percent of risk exposure. Except the positive effects brought by diversifying investment into different countries, some researches further argue that a significant factor to set up a successful diversified portfolio is: returns of stock markets in those invested countries should reflect a certain independence degree (Levy and Sarnat, 1970; Lessard, 1973). For instance, by using cross-country correlation to assess the diversifying international investment portfolio, Levy and Sarnat (1970) found that global money managers should continue monitoring such cross-country correlations, and change their investment strategies referring to the changes of the correlations. However, some researches showed that benefits brought by investment diversification are in a downward trend, and stock market conditions become more complicated due to the increasing integration between developing markets and developed ones (Serletis and King, 1997).

Complicated market conditions make investors have a strong willing to do evaluations for the equities they invest in. No matter they invest in an individual country or have a diversified investment portfolio, many investors try to evaluate stock performances in order to get a feeling that they invest money smartly. Different assumptions are used to do the evaluation, which include to evaluate index performances, to evaluate corporate performances, to analyze current business trends, to analyze political policies and political environments and to consult investment experts. For instance, investors like making decisions by using a technical analysis approach which forecasts share prices on the basis of past prices and trading volumes and basic trend concepts (Murphy, 1999). However, even investors think that to invest on some stocks can earn profits after doing various evaluations; many of them still make mistakes and lose money. Therefore, a question comes out: Whether stock market changes can really be predicted or not?

Some financial theories related to the predictability of stock prices have been established. One of them is the Random Walk Hypothesis (RWH), which states that stock prices have a randomness characteristic that makes the changes of prices unpredictable (Fama, 1965). This hypothesis closely links to the Efficient Market Hypothesis (EMH). The EMH asserts that stock prices entirely reflect all the available information in an efficient market, and thus investors are not able to make abnormal returns based on historical information of the stocks (Fama, 1970). Efficient market has three types: weak-form, semi-strong form and strong form. And the existence of a random walk means that the stock market is weak-form efficient. Besides this, market liquidity, capitalization and information asymmetry attribute to a weak-form efficient market (Charles and Darné, 2009). Many researchers have studied on EMH in recent years. The hypothesis is on the basis of an assumption that whether stock prices entirely reflect all the available information. If stock prices can be predicted on the basis of past movements and other information, then the market is not efficient. On the

contrary, if stock prices cannot be predicted, then the market is efficient. In other words, stock investors are not allowed to gain abnormal returns without taking abnormal risks under an efficient market (Malkiel, 2003).

1.2 Problem Statement

The problem of whether equity price changes follow a random walk or mean reverting has been examined in different regions. Most of the studies have been done based in developed countries. For instance, Narayan and Smyth (2005) and Murthy, Washser and Wingendar (2011) have done researches in America and G7 countries, and they argued that stock prices in these countries are non-stationary and support the random walk hypothesis. Some researchers also have done their studies in Asian region such as in China (e.g. Charles and Darne´, 2009; Lee, Chen and Rui, 2001), India (e.g. Hiremath and Kamaiah, 2010) and Korea (Ryoo and Smith, 2002).

However, there are very few studies that investigate market efficiency based on the whole ASEAN region. Most of the studies are based on one single country such as in Thailand (e.g. Islam, Sethopong and Clark, 2007), Malaysia (e.g. Kok and Goh, 1994; Lai, Nor and Guru, 2000) and Singapore (e.g. Saw and Tan, 1986). For instance, Islam, Sethopong and Clark (2007) applied non-parametric tests to examine market efficiency in Thailand. Their results showed that an autocorrelation is existed in market returns. And at the same time, the null hypothesis cannot be rejected, which argued that the market lacks of efficiency. Palac-McMiken (1997) indicated that various levels of risks and returns are existed in ASEAN stock markets. Among these stock markets, Indonesia is with the highest level of risks and returns while low level of risks and returns are beard by Malaysian and Singapore stock markets. Thirdly, each ASEAN country is in a rival competition with others in order to get more resources to improve its competitive advantages. Due to their adjacent geographic positions, ASEAN countries have similar kinds of natural resources and agricultural crops and

other products. As they have a large amount of exportation on these products, price competitions of these similar products are existed among ASEAN member countries. All in all, investing in different countries in ASEAN region may bring investors different levels of returns. So it is necessary to set this research based on the 8 ASEAN countries which have established stock markets.

1.3 Brief Introduction of The 8 ASEAN Stock Markets

1.3.1 Malaysia

With $303.53 billions of GDP in 2012, Malaysia is the third largest national economic entity in Southeast Asia. The one and only stock exchange in Malaysia is Bursa Malaysia, which was initially established in 1964. Currently, 818 companies are listed under the main market while 109 are under the Ace market. The total capitalization of the market is in an increasing trend. For instance, the market generated RM1,466 billions in 2012, which is much higher than that amount of RM1,285 billions in 2011 (Islamic Capital Market Statistics | Securities Commission Malaysia, 2014)

In 2009, Malaysia launched the FTSE Bursa Malaysia KLCI Index. The index includes the biggest 30 listed companies on main market. It is seen as a benchmark to indicate the whole stock market performance.

1.3.2 Thailand

The national exchange of the Thailand, which was originally established in year 1974, is named The Stock Exchange of Thailand (SET). Some regulations, such as Floor-and-Ceiling Limits and Circuit Breaker system, have been applied to prevent unusual volatilities. Because of the global financial crisis, the total capitalization of the market has largely dropped in 2008. However, from year 2009 on, the capitalization amount gradually recovered. The total capitalization reached $382.9 billions in 2013, which was much larger than the amount of