FIRM LEVEL STOCK RETURNS VOLATILITY: THE EFFECTS OF CAPITAL ACCOUNT LIBERALIZATION AND MACROECONOMIC FACTORS IN MALAYSIA

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ABSTRACT

There are a number of research that have been conducted in analyzing the impact of financial liberalization and macroeconomic factors towards stock returns volatility, but the results are somewhat contradicted. In examining the impact in the case of Malaysia, this research utilizes dynamic panel data analysis on firm level from 1995 until 2015 with stock returns volatility is estimated based on EGARCH (1,1) Model. In terms of the impact of macroeconomic factors, interest rate is identified to have positive relationship with volatility meanwhile economic development and exchange rate share lowering impacts. The Consumer Price Index and money supply are not significant in influencing volatility for most of the volatility models used. The effect of capital account liberalization on the other hand is mixed depending on model of volatility and liberalization index that are used. In analyzing how risk of stock returns volatility can be managed based on the Threshold analysis, it is identified that economic development and exchange rate are effective in offsetting the adverse impact of capital account liberalization towards volatility. Portfolio diversification strategy on sectoral basis is also effective in managing the risk of stock returns volatility in the short run as during that period of time, the volatility of economic sectors are mostly not correlated as shown by the Error Correction Modelling. However, the ARDL model shows that this strategy is not effective in the long run as volatility is transmitted from one economic sector to other sectors. The findings of this research are important not just in terms of its contribution towards the body of knowledge, but also in the development of accurate policy to manage the risk of stock returns volatility.

Keywords: Stock returns volatility, Capital account liberalization, Macroeconomic factors, Risk management.

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There are a number of research that have been conducted in analyzing the impact of financial liberalization and macroeconomic factors towards stock returns volatility, but the results are somewhat contradicted. In examining the impact in the case of Malaysia, this research utilizes dynamic panel data analysis on firm level from 1995 until 2015 with stock returns volatility is estimated based on EGARCH (1,1) Model. In terms of the impact of macroeconomic factors, interest rate is identified to have positive relationship with volatility meanwhile economic development and exchange rate share lowering impacts. The Consumer Price Index and money supply are not significant in influencing volatility for most of the volatility models used. The effect of capital account liberalization on the other hand is mixed depending on model of volatility and liberalization index that are used. In analyzing how risk of stock returns volatility can be managed based on the Threshold analysis, it is identified that economic development and exchange rate are effective in offsetting the adverse impact of capital account liberalization towards volatility. Portfolio diversification strategy on sectoral basis is also effective in managing the risk of stock returns volatility in the short run as during that period of time, the volatility of economic sectors are mostly not correlated as shown by the Error Correction Modelling. However, the ARDL model shows that this strategy is not effective in the long run as volatility is transmitted from one economic sector to other sectors. The findings of this research are important not just in terms of its contribution towards the body of knowledge, but also in the development of accurate policy to manage the risk of stock returns volatility.

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ABSTRAK

KEMERUAPAN PULANGAN SAHAM PERINGKAT FIRMA: KESAN LIBERALISASI AKAUN MODAL DAN FAKTOR MAKROEKONOMI

Terdapat beberapa kajian pernah dilakukan dalam menganalisis kesan liberalisasi kewangan dan faktor makroekonomi terhadap kemeruapan pulangan saham namun keputusan yang diperolehi adalah bercanggah. Dalam menganalisa kesan tersebut di Malaysia, kajian ini menggunakan analisis data panel bulanan bagi firma dari tahun 1995 hingga 2015 dengan kemeruapan pulangan saham dianggarkan menggunakan Model EGARCH (1,1). Dari segi kesan makroekonomi, didapati bahawa kadar bunga mempunyai hubungan positif dengan kemeruapan pulangan saham manakala pembangunan ekonomi dan kadar pertukaran matawang memberikan kesan penurunan. Impak Indeks Harga Pengguna dan penawaran wang adalah tidak signifikan dalam mempengaruhi kemeruapan bagi kebanyakan model kemeruapan yang digunakan. Kesan liberalisasi akaun modal terhadap kemeruapan pulangan saham pula adalah bercampur dan bergantung kepada model kemeruapan serta indeks liberalisasi yang digunakan. Dalam mengenalpasti bagaimana risiko kemeruapan pulangan saham dapat diuruskan berdasarkan analisis Threshold, didapati bahawa pembangunan ekonomi dan kadar pertukaran matawang berkesan dalam membatalkan kesan peningkatan kemeruapan akibat liberalisasi pulangan modal. Strategi pemelbagaian portfolio berdasarkan sektor ekonomi juga berkesan dalam menguruskan risiko kemeruapan pulangan saham pada jangka masa pendek kerana pada tempoh tersebut, kemeruapan sektor-sektor ekonomi majoritinya tidak berkorelasi seperti mana yang ditunjukkan melalui kaedah Error Correction Modelling. Bagaimanapun, model ARDL menunjukkan bahawa strategi ini tidak berkesan dalam jangka panjang kerana kemeruapan berpindah dari satu sektor ke sektor ekonomi yang lain. Hasil dapatan kajian ini adalah penting bukan sahaja berdasarkan sumbangannya terhadap ilmu pengetahuan, tetapi juga membantu dalam pembentukan dasar ekonomi yang tepat dalam mengurus risiko kemeruapan pulangan saham.

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LIST OF ABBREVIATIONS

ADF	-	Augmented Dickey Fuller
ADR	-	American Depository Receipts
AIC	-	Akaike Information Criterion
APT	-	Arbitrage Pricing Theory
ARCH	-	Autoregressive Conditional Heteroskedasticity
ARDL	-	Autoregressive Distributed Lag
AREAER	-	Annual Report on Exchange Arrangements and Exchange Restrictions
ASEAN	-	Association of Southeast Asian Nation
BLR	-	Base Lending Rate
BNM	-	Bank Negara Malaysia
CAPM	-	Capital Asset Pricing Model
CEO	-	Chief Executive Officer
CI	-	Chinn and Ito Index
CIA	-	Central Intelligence Agency
CMA	-	Conservative-minus-Aggresive
CPI	-	Consumer Price Index
ECM	-	Error Correction Term
EGARCH	-	Exponential GARCH
EMAS	-	Exchange Main All Shares
EMDB	-	Emerging Market Database
FDI	-	Foreign Direct Investment
FEL	-	Foreign Equity Liability Index
FOL	-	Foreign Ownership Limit
GARCH	-	Generalized ARCH
GCC	-	Gulf Cooperation Council
GDP	-	Gross Domestic Product
GLS	-	Generalized Least Square
GMM	-	Generalized Method of Moments

HML	-	High-minus-Low
IID	-	Independent and Identically Distributed
IMF	-	International Monetary Fund
IP	-	Industrial Production
IPO	-	Initial Public Offers
KLSE	-	Kuala Lumpur Stock Exchange
KLSEB	-	Kuala Lumpur Stock Exchange Berhad
LMF	-	Lane and Milesi-Ferretti Index
LSDV	-	Least Square Dummy Variable
M2	-	Broad Money Supply
MESDAQ	-	Malaysian Exchange of Securities Dealing and Automated Quotation
NAPM	-	National Association of Production Management
NEP	-	New Economic Policy
NSE	-	Nairobi Securities Exchange
OLS	-	Ordinary Least Square
PP	-	Phillips-Perron
QGARCH	-	Quadratic GARCH
REER	-	Real Effective Exchange Rate
RMW	-	Robust-minus-Weak
SC	-	Schwartz Information Criterion
SCH	-	Schindler Index
SEM	-	Stock Exchange of Malaysia
SMB	-	Small-minus-Big
SPF	-	Survey of Professional Forecasters
TGARCH	-	Threshold GARCH
VAR	-	Vector Autoregression
WIDER	-	World Institute of Development Economics Research
WLS	-	Weighted Least Square

CHAPTER 1

INTRODUCTION

Stock market volatility is an important aspect in the economy and primarily assessed by private sectors to represent stock market risk. Risk is the chance that the actual return may differ from what is expected where investment returns with higher volatility is riskier than investment with lower volatility level (Rohani, 2014).

Besides the private sectors, volatility is also analyzed by financial regulators as a way to examine the performance of stock market. Demirguc-Kunt and Levine (1996) said that stock market performance reflects future economic development. So by analyzing stock market volatility, policymakers are able to construct appropriate economic policies to accommodate forecasted economic development.

Previous literatures argue that stock market volatility is explained by innovations in the financial liberalization and macroeconomic factors. However, there are scarce literatures that attempt to study this relationship in the case of Malaysia and this leads to the difficulty in constructing relevant strategy to manage the risk of stock market volatility in the country. Alternatively, relying on the arguments of previous studies abroad in order to understand this topic is insufficient since the findings of previous research are somewhat contradicted.

So in an attempt to study the relationship between financial liberalization, macroeconomic factors and stock market volatility in Malaysia, this research firstly provides brief information of the Malaysian stock market volatility in Section 1.1. The rational of the study on the other hand is provided in Section 1.2 while the research problem is explained in Section 1.3 where contradictions of previous literatures in terms of the impact of financial liberalization and macroeconomic factors on volatility are elaborated.

The discussions on research objectives, in Section 1.4 and research questions, in Section 1.5 focus on determining the impact of financial liberalization and macroeconomic factors towards stock market volatility as well as assessing ways to manage volatility risk. The research significance is elaborated in Section 1.6 where this study explains the potential contribution of the analysis towards the body of knowledge and in the development of appropriate strategy or policy to manage the risk of stock market volatility.

In Section 1.7, this research explains the limitation of the study in terms of the time frame for the data collected and the scope of study while Section 1.8 explains the structure of the research and concludes the chapter.

1.1 The Stock Market Volatility of Malaysia

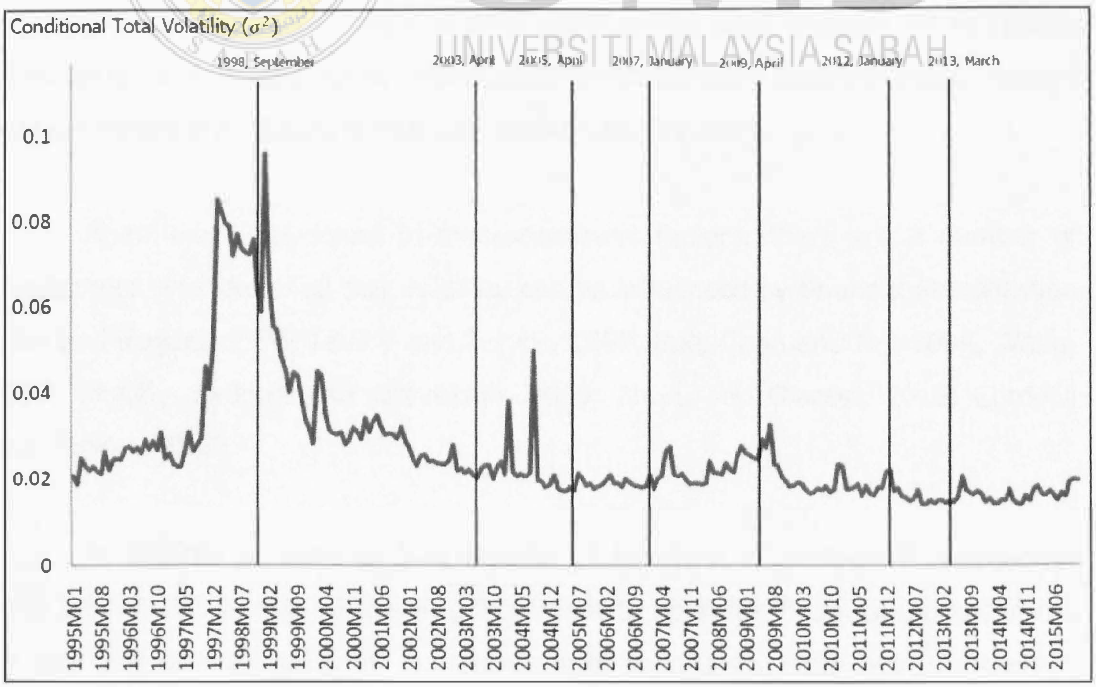

Figure 1.1: Stock Returns Volatility of Malaysia, Major Financial Liberalization and Reversals From 1995-2015

Figure 1.1 shows stock returns volatility of Malaysia that is represented by average stock returns volatility of 252 public listed firms in Bursa Malaysia. Stock returns volatility of each individual firm is analyzed based on EGARCH (1,1) Model from January 1995 until December 2015. The stock returns volatility of Malaysia is identified to reach its peak during the Asian financial crisis in 1997 to 1998 while volatility during the Dotcom Crash in early 2000 and the U.S. subprime mortgage crisis in 2008 are somewhat smaller. However, it is also demonstrated that volatility is not bounded by economic crises since volatility is experiencing ups and down or precarious throughout the time. In 2004 for example, stock returns volatility rose to an unprecedented level since the Asian financial crisis.

In examining source of stock market volatility, a number of previous literatures point that stock market volatility is connected to macroeconomic innovation. Corradi, Distaso and Mele (2013) for example conducted a study in analyzing the relationship between stock market volatility with business cycle in the United States and identified that nearly 75 percent of variations in stock volatility can be explained by macroeconomic factors. This is aligned with Arnold and Vrugt (2006) who believed that macroeconomic factors are powerful in predicting volatility. Široček (2013) meanwhile demonstrates that stock markets are extremely sensitive to any price-shaping information which includes macroeconomic factors that are relevant for future trends and market development.

Apart from movement in macroeconomic factors, there are a number of researchers who identified that volatility can be influenced by financial liberalization (Kim and Rogers, 1995; Levine and Zervos, 1998, Bae, Chan and Ng, 2004, Wang, 2007; Umutlu, Akdeniz and Altay-Salih, 2010; Ahuru and Olaposi, 2016; Cordella and Ospino, 2017).

In regards to financial liberalization of Malaysia, a number of approaches have been made by the Malaysian government to open the financial market of the country that can be seen from the relaxation of policies since the late 1980s which is mainly contributed by the introduction of Promotion of Investment Act in 1986 with the intention to increase foreign investment to the country. But the progress on liberalizing the financial market did not go as planned without hiccups since pronounced liberalization reversals were also made particularly during the period of Asian financial crisis in 1997 to 1998.

Malaysia tightened its financial market during the Asian financial crisis through what is known as the September 1998 Package where the authority prohibits the transfer of funds into Malaysia from foreign countries while all access to domestic Ringgit sources is closed to non-residents. Besides that, the government also requires the Malaysian residents to seek for approval to invest abroad in order to obstruct speculative outward capital flows as well as further protecting the Ringgit by requiring repatriation of export proceeds within six months from the time of export (Rajaraman, 2001).

As the Asian financial crisis receded, Malaysia accelerates the pace of its liberalization process where in April 2003, the requirement that foreign controlled companies obtain 50 percent of their local credit from Malaysian banks was lifted while the overnight limits on foreign currency accounts is relaxed (Bank Negara, 2003). Two years later in April 2005, domestic borrowing requirement was further liberalized where foreign controlled companies no longer face domestic borrowing requirement for any amount of Ringgit credits (Bank Negara, 2005).

Another milestone in the financial liberalization was marked in January 2007 with all licensed banking institutions that have the capacity that meet the supervisory standards set by Bank Negara are given the flexibility to determine their own internal policy governing their equity related activities. In April 2009, locally incorporated foreign insurance companies and takaful operators are allowed to establish branches nationwide while foreign equity participation increased to 70 percent for investment banks, insurance companies and takaful operators (OCED, 2013).

With a number of liberalization packages introduced in the following years after that, the latest major financial liberalization policies taken by the authority was in January 2012 where licensed onshore banks are permitted to trade foreign currency against another foreign currency with a resident while policy that restricts residents to invest in onshore foreign currency-denominated assets was lifted in March 2013 (Bank Negara, 2013).

Referring to Figure 1.1 to see the concurrence between stock market volatility and financial control policies, it is clear that there is a sharp increase in the level of volatility after the capital and currency restriction in 1998. However, this is not the case in regards to the relationship between financial liberalization and volatility as the impact of financial liberalization is unclear. When the government announce relaxation policies in 2003 until 2009, it appears that liberalization lead to the increase in the level of stock market volatility. But it is not coincided with the January 2012 and March 2013 liberalization announcements where the level of stock market volatility is either reduced or unchanged.

1.2 Rational of the Study

One of the reasons why it is imperative to identify the impact of financial liberalization and macroeconomic factors towards stock market volatility in the case of Malaysia is because the movement in the macroeconomic factors of Malaysia are distinctive from other markets as it is mainly driven by local economic factors. Based on Arteta, Eichengreen, and Wyplosz (2001), the variability of macroeconomic stability between markets cause the effect of financial liberalization across countries to be different. So this argument suggests that the findings based on analysis of the impact of financial liberalization and macroeconomic factors towards stock market volatility based on a particular market cannot simply be implied to other markets due to the differences in economic conditions that may existed between countries.

In the case of Malaysia, an innovation in the economy that is led by local factors can be seen by the current movement in the level of inflation. Bank Negara (2016) describe that the headline inflation of Malaysia is relatively volatile in 2015 which is largely reflected by a series of adjustment in domestic fuel prices. It is also estimated that price increases were more pervasive arising from the implementation of Goods and Services Tax (GST) in April 2015 and then compounded by higher price of fresh food items. This upward trend in price is also forecasted to be persistent in the near future with the headline inflation in 2016 is estimated to be higher and volatile due to the adjustment in the prices for several administered items in the country.

Apart from that, another major economic innovation led by domestic factors is also projected by the weakening of Ringgit. Bloomberg (2016) said that Ringgit is rated as the lowest performing currency in Asia in late 2016. In explaining this situation, Bank Negara (2016) believe that the downturn in the level of Ringgit is linked to domestic economic development especially the concerns over the impact of lower prices of crude oil and commodities on the domestic economy as well as the negative domestic sentiments. Throughout 2015, the Ringgit has depreciated by 18.6 percent against the US Dollar and this is the lowest since the Asian financial crisis hit Malaysia in late 1997 where the government was forced to peg the Ringgit to RM3.80 per US Dollar.

Another reason that warrants the analysis to be conducted is because Malaysia is anticipated to further relax its financial restriction for years to come as can be seen by the active involvement of this country in consolidating free trade agreements such as Trans-Pacific Partnership Agreement (TPPA), ASEAN Free Trade Area (AFTA) and the Regional Comprehensive Economic Partnership. It is imperative to foresee any potential impacts of these liberalization agreements towards stock market volatility of Malaysia by analyzing the effects of preceding financial relaxation attempts made by this country. The result from this analysis can become guidance for the authority to implement correct policies to cater any impact of financial liberalization that will be taken by the country.