Faculty of Economic and Business

STOCK MARKET INTEGRATION BETWEEN THE PHILLIPINES AND ITS MAJOR TRADING PARTNERS

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Statement of Originality

The work described in this Final Year Project, entitled **"Stock Market Integration between the Philippines and Its Major Trading Partners"** is to the best of the author's knowledge that of the author except where due reference is made.

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ABSTRAK

INTEGRASI PASARAN SAHAM ANTARA FILIPINA DAN RAKAN PERDAGANGAN UTAMA

Oleh

Lai Yie Fung

Kajian ini mengkaji integrasi pasaran saham dan hubungan dinamik jangka pendek antara Filipina dan rakan perdagangan utama (Jepun, China, Singapura dan AS) menggunakan data mingguan dari Januari 2000 hingga Disember 2009. Kajian ini menggunakan Ujian Kopengamiran *Johansen and Juselius (JJ),* Model Vektor Pembetulan Ralat *(VECM)* dan Fungsi Tindak Balas *(IRFs).* Keputusan menunjukkan bahawa pasaran saham Filipina mempunyai hubungan jangka panjang dengan rakan perdagangan utamanya. Keputusan VECM pula menunjukkan bahawa Filipina mempunya hubungan dinamik jangka pendek dengan Singapura dan AS. Hasilnya, kajian ini mencatatkan bahawa perdagangan dua hala yang kuat dan kedudukan geografi menyumbang kepada kekuatan integrasi antara pasaran saham. Keputusan kajian ini memberi implikasi kepada pengurangan faedah daripada kepelbagaian portfolio di negara-negara tersebut.

Kata kunci: integrasi pasaran saham, Ujian Kopengamiran, VECM, rakan perdagangan, Filipina

ABSTRACT

STOCK MARKET INTEGRATION BETWEEN THE PHILLIPINES AND ITS MAJOR TRADING PARTNERS

By

Lai Yie Fung

This paper examines the stock market integration and short run dynamic linkages between the Philippines and its major trading partners (Japan, China, Singapore and US) by using weekly data spanning from January 2000 to December 2009. This study uses Johansen and Juselius cointegration test (JJ), Vector Error Correction Model Granger causality test (VECM) and generalized impulse response functions (IRFs). The results show that the stock market of the Philippines is cointegrated with its major trading partners in the long run. The result of VECM Granger causality test indicates that the Philippines stock market has short run dynamic linkages with Singapore and US. Thus, the strong bilateral trade and geographic proximity do contribute to the high co-movement between stock markets. Therefore, the benefit of portfolio diversification is limited.

Keyword: stock market integration, cointegration test, VECM, trading partners, the Philippines

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CHAPTER 1

INTRODUCTION

1.0 Introduction

Recently, there are a number of studies that have been done on stock market integration either regionally or internationally. Also, the interrelationship between developed and developing market become a major issue to debate off specifically during the event of financial turmoil. For instance, the stock market crash in 1987, Asian financial crisis in 1997 and the most current crisis that still gets peoples' attention which is the subprime crisis in 2009 that happened in United States. Goldstein and Michael (1993) point out that there is an increasing in international linkages decades ago particularly for the stocks that were traded in the main financial hubs. The financial or economy crisis that occurred has raised the interest of researchers to investigate, to examine as well as to study about the worldwide stock market integration.

Since 1970's until now, there is a mass amount of research on stock market integration that focused only in the advanced countries' stock markets. The examples of studies are Chang and Nieh (2001), Chen, Firth and Rui (2002), Balios and Xanthakis (2003), Yang, Hsiao, Li, and Wang (2005), Patev, Kanaryan and Lyroudi (2006), Liu, Lai and Lin (2006), Mavrakis and Alexakis (2008) and Gklezakou and Mylonakis (2009). Lately, the increasing investment opportunities and the economic development in several Asian emerging markets is growing enormously has gained the attention of investors and researchers. The current studies are Naeem (2002), Click and Plummer

(2003), Narayan, Smyth and Nandha (2004), Ibrahim (2005), Mukherjee and Mishra (2008), Arouri and Jawadi (2009), Majid, Meera Omar and Aziz (2009), Karim, Majid & Karim (2009) and Guidi (2010). According to Pretorious (2002), Asian emerging countries' stock markets in general become international investors' interest although the interrelation between these markets with advanced market would have an implication on the potential of diversification. Although there are many research done but the results of these research are mixed and sometimes contradictory which cause the inconsistency of results. Overall, the main idea behind of the study is to provide the essential implication of the degree of integration among stock markets towards the benefit of international portfolio diversification in both long term and short term.

A financial theory implies that the integrated stock markets are efficient compared to segmented market and thus raising the interest in studying stock market co-integration. On the other hand, a segmented market is said to be an inefficient market because it is an isolated market from the other markets which is an obstruction to the flow of capital, labour and information. Therefore, the analyses of stock market interdependencies between different countries are able to help international investors in risk diversification process (Karim and Gee, 2006). Through the analysis, international investors from different countries are then able to position their capital to the most productive places through the integrated stock markets (Click and Plummer, 2005). Yet, the rising of integration among the global stock markets have brought the international investors to seek new investment opportunities so that the possible risk of single investment could be reduced (Guidi, 2010). If a stock market was found not interlinked with other stock markets then this stock market is a best place for portfolio diversification (Karim and Gee, 2006).

According to Ibrahim (2005), the extent to which the stock markets are integrated has important implications on the potential benefit of international portfolio diversification as well as each country's financial stability. Previous studies have documented the evidence of low correlation amongst the return of national stock markets which enable international investors to gain benefit from diversification of portfolio (Grubel, 1968; Levy and Sarnat, 1970 and Solnik, 1974). International investors are able to search for good investment opportunities to diversified their portfolio in the countries whereby the stock market indices do not share the common trend among them (Guidi, 2010). Consequently, if evidence of integration was found amongst the stock markets then there is limited room for the investors to gain the benefit of international portfolio diversification. Whilst, if there is no evidence of integration exist between the stock markets then investors are able to gain the risk reduction by diversified their portfolios in the respective non-integrated stock markets.

Basically, previous studies are only focus on the issue of integration and the implication of the integration toward the long run gain of portfolio diversification. Yet, nowadays, the scopes of research have been broadened and widen to different perspectives and the aspects of financial and economy. What drives stock market integration? This is an issue where researchers are attempting to discover what economic factors that drive integration. There are many factors that may cause the stock markets of different countries move in similar pattern. According to Valadkhani and

Chancharat (2008), the stock prices of different countries have directly or indirectly interrelated over time due to the existence of economic bond, global capital mobility and the coordination of regional policy. The research about this issue is scant and there is no consistency of the research's results. Before the coming era of globalization, the dissimilarity of the international barriers avoids the mobility of capital inflow as well as the flow of information. Globalization has a major impact on today's global stock markets since early 1980's where revolutionize of institutional and technologies caused the close relationship between markets (Balios and Xanthakis, 2003). Thus, Darbar and Deb (1997) argued that globalization has diminished the barriers of capital transaction and thus result in the rising of linkages between countries. In addition, "the international market imperfection over the years by lowering the cross-border information flows and financial transactions cost had lessen due to the upgrading in communications technology (e.g. implementation of computerized trading system) and capital mobility (e.g. relaxation of capital control movement)" (Koch and Koch, 1991).

Nowadays, the rapid growth and development in global trade business had leaded the globe's economic and financial system integration in a rising trend (Kearney and Lucey, 2004). The trade relation among countries is believed to be the major contribution to the stock market integration. According to Lin, Liu and Lai (2006), the most essential economic determinant of stock market interrelation is trade relation whereby the degree of interdependencies among different stock markets could be explained by the dissimilarity of trade relation among countries. In contrast, it is being argued that the interrelationship between national stock markets is not related to economic fundamentals but the response from the shock in market (Von Furstenberg and Jeon, 1989).

Chang and Nieh (2001) and Karim, Majid and Karim (2009) indicated that Taiwan's stock market and Indonesian stock market is found to be integrated with its own major trading partners in the long run. The strong economic bond, policy coordination, and trade between respective markets are a result of the long run integration that exists between the different regional stock markets (Ratanapakorn and Sharma, 2002). Consequently, the stronger the bilateral trade bond between two countries, the higher the extent to which the co-movements of both countries (Masih and Masih, 1999; Bracker et al., 1999; Pretorius, 2002). Therefore, countries that reduced trade barriers and develop tight economies bond would expect a stronger cointegration amongst the countries (Taylor and Tonks, 1989; Chen and Zhang, 1997). In addition, Soydemir (2000) stated that the strong trade relations result in high degree of interrelation between both countries which enable the predictability of stock price response patterns.

However, Karim and Gee (2006) found that Malaysia's stock market are integrated with its major trading partners before the financial crisis while there is no cointegration was found during crisis. Liu, Lin and Lai (2006) point out that the trade correlation hypothesis is only applicable to the European stock markets but not in Asian stock markets. They also found that the export correlation is weak between US and its major trading partners. Valadkhani & Chancharat (2008) suggested that there is room for investors to be benefited from the possibility of long run gain thru international portfolio diversification because there is no cointegration found between Thailand and its major trading partners in the long run. Chowdhury (2005) point out that co-operation between the regional countries is crucial in order to reinforce the economic and financial sectors which at the same time improving the stability of politics and social co-operation. Investors should take into consideration the countries trade policies and coordination which is crucial in seeking the best available investment opportunities across countries (Karim and Gee, 2006). Entirety, the basis of the economic fundamental is to tell that trading activities are inter-connected with the cash flow of trading partners which result in the high interrelationship between countries (Chen and Zhang 1997, Bracker et al. 1999, Pretorius 2002).

Even though there is a great amount of studies examine the stock market cointegration amongst the developing and emerging markets yet there are scant studies that focused on whether the Philippines stock market is integrated with its major trading partners (United States, Japan, China and Singapore). These four countries were chosen to investigate the stock market integration because the importance of these economies to the Philippines as major trading partners. Hence, the analysis between the linkages of the Philippines with its major trading partners is essential. This is because if there is no evidence of cointegration found, then the Philippines can be a good place for portfolio diversification. Table 1 shows that the percentage of total volume of export and import are 51.16 (USD188, 437 million) and 47.89 (USD189, 479 million) respectively from year 2000 to 2008.

Table 1: International Trade between the Philippines and Its Major Trading Partners, 2000-2008

Panel A: % shares of exports to countries out of total exports

Year	US	JPN	SING	CHN	Total
2000	29.84	14.67	8.17	1.73	54.41
2001	27.97	15.73	7.18	2.47	53.35
2002	24.68	15.03	7.02	3.85	50.58
2003	20.08	15.92	6.71	5.92	48.63
2004	18.16	20.11	6.63	6.68	51.58
2005	18.02	17.47	6.56	9.89	51.94
2006	18.32	16.47	7.34	9.83	51.96
2007	17.04	14.47	6.22	11.39	49.12
2008	16.74	15.67	5.30	11.15	48.86
Average	21.21	16.17	6.79	6.99	51.16

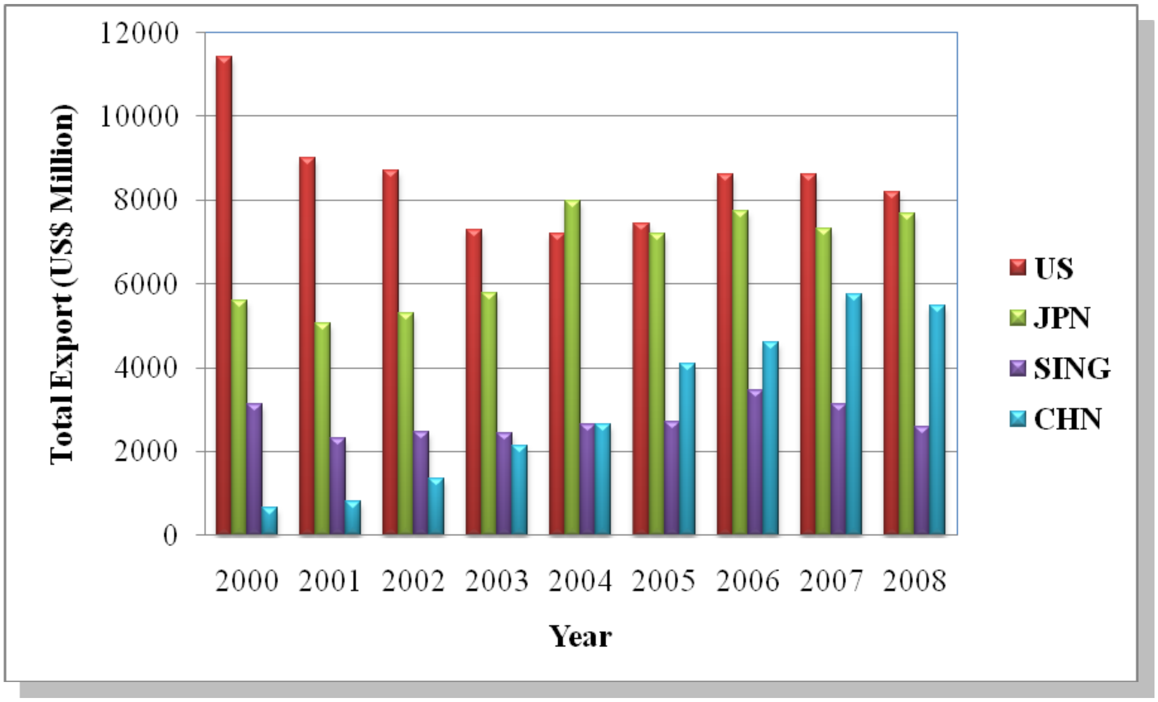
Panel B: % shares of imports from countries out of total imports

Year	US	JPN	SING	CHN	Total
2000	18.59	18.88	6.74	2.28	46.49
2001	19.40	20.06	6.27	2.95	48.68
2002	20.57	20.41	6.52	3.53	51.03
2003	19.75	20.37	6.78	4.79	51.69
2004	18.79	17.42	7.77	6.04	50.02
2005	19.20	17.02	7.86	6.27	50.35
2006	16.31	13.59	8.45	7.12	45.47
2007	14.13	12.32	11.20	7.21	44.86
2008	12.80	11.79	10.29	7.55	42.43
Average	17.73	16.87	7.99	5.30	47.89

Source: Asian Development Bank (2009)[1]

[1] www.adb.org

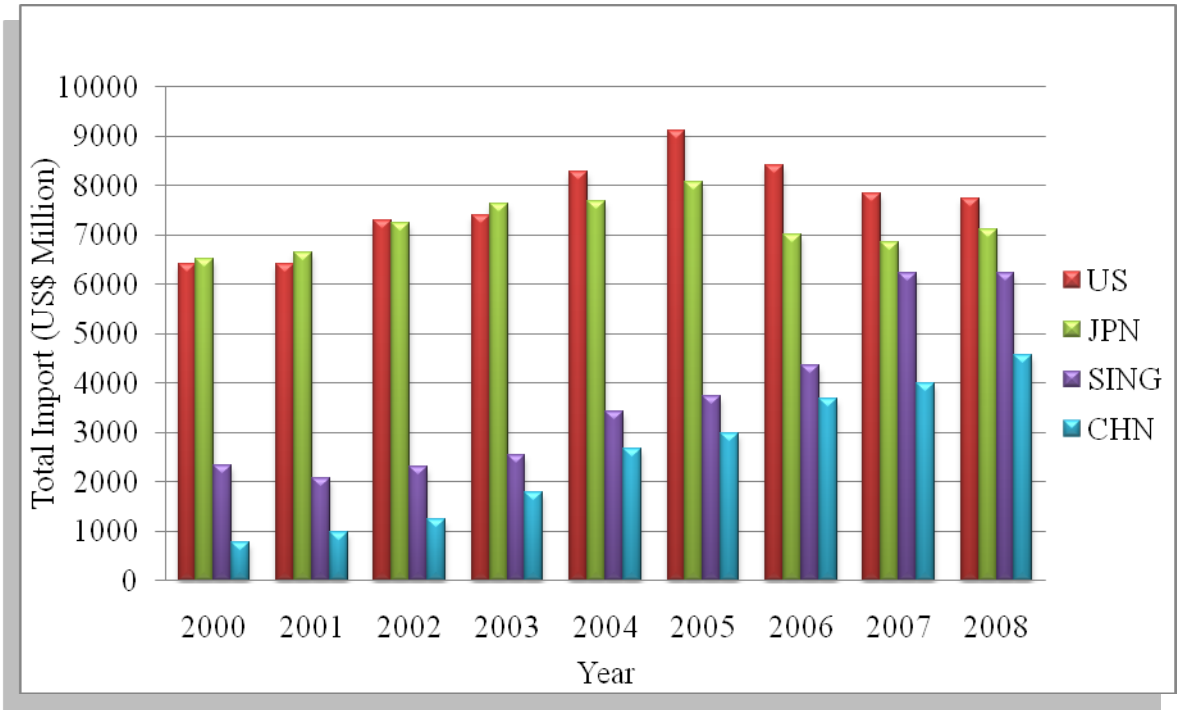
Figure 1: Exports of the Philippines to United States, Japan, Singapore and China



Source: Asian Development Bank (2009)[2]

[2] www.adb.org

Figure 2: Imports of the Philippines from United States, Japan, Singapore and China



Source: Asian Development Bank (2009)[3]

Economy or financial crisis that begins in a country will spread like a disease and hit other countries in the world. For instance, the Asian currency crisis that happened in Thailand on 1997 which had spread around its region and the subprime crisis on 2009 that begin from the sneeze of United States which had caused the whole world economies having flu. Accordingly, these crises have been witnessed by the people in the world that how the effects of economy or financial crisis that occurred have implications toward the countries in the globe. Recently, the progress of Asian countries of financial and economy development as well as other field has grown much

[3] www.adb.org

faster than expected. Also, the Asian economies such as China, India et cetera and even the Philippines are seen to recover from the strike of subprime crisis in a fast pace compared to the advanced economies. Investors can now sense the hidden potential diversification opportunity as the economy in the emerging markets has grow to a surprising level.

Different economic conditions such as the occurrence of financial turbulences result in different degree of worldwide stock market integration. Based on the previous empirical findings, some of the stock markets are found to be highly integrated before crisis while the interconnection of some stock markets are strengthen after crisis. Sometimes, the stock markets might be highly or non-highly interconnected during the occurrence of the crisis. Karim and Gee (2006) in their study found that the stock market of Malaysia is non-integrated with its major trading partners after the financial crisis. This is because Malaysia is attempting to restrain the speculative attack by imposing capital control in September 1998 which is quite successful from shielding Malaysia from foreign disturbances (Karim and Gee, 2006). The result is in accordance with the result of Karim, Majid, Isa and Jais (2010) and Ibrahim (2006). Therefore, the capital control can be used as a short term tool to protect Malaysia from foreign disturbances (Karim, Majid, Isa and Jais, 2010). The capital control is an obstruction to the flow of portfolio as well as to loosen the financial links between national markets which is pointed out by Ibrahim (2006).

On the other hand, Majid, Meera, Omar and Aziz (2009) found that the stock markets in ASEAN region are interdependent in both before and after the 1997 Asian financial crisis whereby there is high degree of interrelation between stock markets specifically after the crisis. Similar result by Yang, Kolari and Min (2002) stated that the extent to which the U.S., Japan and ten Asian developing countries correlated in the long run are higher during crisis and the cointegration between these stock markets even toughens after the crisis. Click and Plummer (2003) conclude that the stock market of Indonesia, Malaysia, Philippines, Singapore, and Thailand are found to be linked in the period of after the Asian financial crisis. These three studies have similarities whereby they focused on Asian stock markets and the result found on the degree of integration is strengthening especially after the 1997 Asian financial crisis. This shows that the Asian crisis has increased the cointegration among these countries' stock markets (Guidi, 2010). This is because these markets are caused by a common international factor where the country-specific factors have become insignificant (Cheng, Leng and Lian, 2003). Yang, Hsiao, Li, and Wang (2005) that focusing in the Russian 1998 crisis found that the relationship between United States and Eastern European stock markets is also getting strong especially after crisis.

United States is seen as a world market leader (Balios and Xanthakis, 2003) that have influence on the changes of other developed and developing countries. According to Cheung and Mak (1992), United States is considered as a 'global factor' that leads most of the Asian developing markets. Thus, Arshanapalli, Doukas and Lang (1995) and Ibrahim (2005) showed that the response of ASEAN markets to the shocks from

United States is quick. The subprime crisis in 2009 has caused the major stock markets in the world to decrease sharply which result in the problem of economy downturn. The crisis has caused these markets to expose to the external shocks from other markets. Gklezakou and Mylonakis (2009) found that the United States subprime crisis has increased the integration of the South Eastern Europe markets where developed market has the most influential towards emerging markets.

In a nutshell, trade relation, policies and coordination is vital in determine the international portfolio diversification. Although these major factors should take into consideration when designing the diversified investment yet there are still have other factors that should be concern with as the globalization and financial landscape keep moving forward and may change from time to time. Hence, the studies about the factors and elements that may affect or drive the stock market integration are still need to be deeply discovered and investigated. Moreover, the researches about the Philippines stock market integration still have more to investigate as the Philippines recent economy and financial development has gained its global position which draw people attention.

1.1 An Overview on the Philippines

1.1.1 Country Background

The official name of the Philippines is Republic of the Philippines. The Philippines is one of the countries in Southeast Asian and also one of the countries which its economy growing faster. The Philippines economy was ranked at 47th largest economy in the world as at 2008 and the 5th largest economy in Southeast Asia[4] which has strong position in the global electronics industry. The currency unit of the Philippines is peso. The former president of the Philippines is the President Gloria Macapagal-Arroyo which has been forced to step down from the politics. The election of the Philippines' new president was held on May 2009 and the one that successfully elected as the Philippines' new president is President Benigno S. Aquino III or also known as Mister Noynoy Aquino. Under the leadership of new President Benigno S. Aquino III, the economy of the Philippines has seen to be improved.

[4] www.economywatch.com/world_economy/philippines/