UNIVERSITI PUTRA MALAYSIA

FINANCIAL INTEGRATION IN EAST ASIA

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Financial integration in East Asia was assessed in this study by examining the time-series stochastic behavior and cointegration of eight Asian countries exchange rates. The selected Asian countries were Indonesia, Malaysia, Philippine, Singapore, South Korea, Taiwan, Thailand, and Japan. It was found that (1) exchange rates of Singapore and Japan were cointegrated in the long run, and (2) exchange rates of Indonesia, Malaysia, Singapore, Taiwan, Thailand, and Japan were cointegrated in the long run.

The first finding maybe attributed to financial openness of Singapore financial markets to world financial markets. The second finding of financial linkages between East Asian countries is most likely caused by the investment-trade nexus in East Asia. These financial linkages were also found to be unaffected by Mexico "tequila" crisis, appreciation of U.S. dollar, severe glut in global semiconductor production capacity, and devaluation of the China yuan. The plausible reason for the exclusion of Philippine's peso may be due to its unstable political climates and natural disasters. The possible reason for exclusion of Korea rested on its late financial liberalization efforts.

However, the pattern of financial linkages identified in this study were found to be different from the contagion pattern of 1997 Asia financial crisis, whereby shock has also experienced by Korea, which was not financial integrated with Thailand. The divergence may be the result of the lost of confidence and herding behavior of the investors, rather than the functioning of financial mechanics and linkages. Although the finding of financial integration has strong implication for regional currency arrangement, the slow speed of adjustment between these cointegrated exchange rates has suggested otherwise. Coupled with the lack of political consensus between East Asian countries, the establishment of regional currency arrangement seems to be infeasible. Hence, other alternatives that could bring greater stability in East Asia region have been proposed in order to cope with the more integrated financial markets.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains.

INTEGRASI KEWANGAN NEGARA ASIA TIMUR

Oleh

GOH WEE KEAT

Februari 2001

Pengerusi : Profesor Dr. Ahmad Zubaidi Baharumshah

Fakulti : Ekonomi dan Pengurusan

Kajian ini telah menunjukkan bahawa (1) kadar pertukaran asing Singapura dan Jepun adalah saling berintegrasi, dan (2) kadar pertukaran asing negara-negara Indonesia, Malaysia, Singapura, Taiwan, Negara Thai, and Jepun adalah saling berintegrasi. Keputusan pertama mungkin adalah disebabkan oleh sifat pasaran kewangan Singapura yang bebas dan terbuka kepada pasaran kewangan antarabangsa. Bagi keputusan kedua, ia mungkina adalah disebabkan oleh neksus pelaburan-perdagangan Asia Timur. Neksus ini terbentuk hasil daripada aliran masuk pelaburan asing secara besar-besaran dari Jepun ke negara-negara Asia Timur, yang mana telah membawa kepada pembentukan rantaian perdagangan dan kewangan. Rantain kewangan ini kekal dan kebal terhadap renjatan daripada krisis Maxico, kenaikan nilai dolar, kelebihan kapasiti pembuatan penyalur elektrik terhad, dan kejatuhan nilal yuan.

Walau bagaimanapun, kadar pertukaran asing negara Filipina and Korea Selatan didapati tidak berintegrasi dengan kadar pertukaran asing negara-negara yang disebut di

atas. Ini juga bermakna negara Filipina and Korea Selatan adalah tidak termasuk dalam rantaian kewangan Asia Timur di sini. Bagi negara Filipina, ketidakstabilan politik dan bencana alam adalah dua faktor yang mungkin menyebabkannya tidak termasuk dalam rantaian kewangan Asia Timur. Bagi Korea Selatan pula, ini mungkin disebabkan pembukaan sektor kewangannya yang lebih lewat jika dibanding dengan negara-negara Asia Timur lain. Walau bagaimanapun, terdapat penemuan kajian awal yang menunjukkan bukti-bukti yang tidak kukuh tentang kewujudan integrasi kewangan antara Korea Selatan dengan negara-negara Asia Timur.

Corak rantaian kewangan yang dikenalpasti dalam kajian ini walau bagaimanapun didapati berbeza daripada keadaan yang berlaku semasa krisis kewangan Asia pada 1997 dimana Korea Selatan yang tidak berintegrasi dengan negara Thai telah mengalami renjatan sama sekali seperti yang dialami oleh Malaysia and Indonesia. Perbezaan ini berlaku mungkin kerana faktor penyebaran renjatan adalah lebih kepada faktor kemanusiaan, dan bukan melalui rantain kewangan yang dijumpai dalam kajian ini. Hasil kajian ini walaupun memberi sokongan kepada pembentukan kesatuan kewangan negara-negara Asia Timur, halaju pengubahsuain di antara mereka adalah lambat. Tambahan pula sokongan politik yang konkrit juga tidak wujud pada masa sekarang. Memandangkan sokongan untuk pembentukan kewangan adalah lemah, polisi-polisi lain yang dapat mengukuhkan kestabilan kewangan Asia Timur telah dicadangkan.

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LIST OF ABBREVIATIONS

ADF	Augmented Dickey-Fuller
AIC	Akaike Information Criteria
APEC	Asian Pacific Economic Cooperation
ASEAN	Association of South East Asia Nations
BOT	Bank of Thailand
CPI	Consumer Price Index
EU	European Union
FDI	foreign direct investment
IMF	International Monetary Fund
MAS	Monetary Authority of Singapore
NIC	Newly Industrialised Economies
OECD	Organisation For Economic and Cooperation Development
PPP	Purchasing Power Parity
RER	Real Exchange Rate
SITC	Standard Industrialised Trade Classification
UIP	Uncovered Interest Parity
US	United States
USD	United States Dollar
VAR	Vector Autoregression
VECM	Vector error Correction Model
VD	Variance Decomposition
WPI	Weighted Price Index

CHAPTER ONE

INTRODUCTION

Introduction of Study

In the early 1970s, most of the East Asian economies, especially South East Asia, did not have a close relationship with the world economy. Close linkage is only limited in exports of natural resources to developed economy such as the U.S. and Japan. However, the interconnectedness of East Asian economy with world economy became stronger and bonding starting from the middle of 1980s to the 1990s. This was due to the liberalisation of capital account transactions, current account convertibility, and opening of stock markets by the East Asian countries have intensified their economic relation with the world economy, especially with Japan. This was evidenced from the substantial inflows of Japanese direct investment, and increasing Japanese trade in East Asian countries. It has been argued that due to this increasing influence of Japan economy upon East Asian countries, the financial linkages between them have been strengthen.

This study attempts to empirically assess the financial integration of East Asian with Japan, by examining their exchange rates movements. This chapter is organised as follows. The research problem is documented in Section "Problem Statement". The purposes of this study are stated in Section "Objective of Study". The significance and contribution of this study are drawn out in Section "Significance of Study".

The development of East Asian exchange rate arrangement, foreign direct investment, and trade are reviewed in this study to lay down the study's groundwork. The overall exchange rate arrangement of East Asian and the detail descriptions on exchange rate system of Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan, and Thailand are documented in Chapter Two. Section "Foreign Direct Investment in East Asian" in this chapter documents the pattern of foreign direct investment (FDI) into East Asia. Section "Trade Pattern in East Asian" recorded the metamorphosis of East Asia production and export trade starting from 1970s to 1990s.

Problem Statement

In the early 1980s, most Asian economies, especially East Asian, have taken major steps toward deregulation and liberalisation of their financial market. This was to promote greater economic efficiency, increase the pace of economic development, and to integrate with global financial markets. This liberalisation process was one of the direct consequences arising from intensified commerce relation between developing Asian with the industrialised economies. The areas being liberalised included exchange rate, interest rate, capital control, and current account convertibility (Moosa and Bhatti, 1997; Mussa *et al*., 2000). For the exchange rate, it has been viewed as one of the instruments many developing and transition countries, especially those with substantial involvement in international trade and finance, used to accommodate or adapt the fluctuations from world's major currencies that are used in trading and financing (Mussa *et al*., 2000). In other words, exchange rate arrangement for developing countries tends to posses greater flexibility.

The extent of integration between or among countries has significant implications on domestic monetary policies. If countries are financially integrated, then the extent to pursue an independent monetary policies is greatly limited (Moosa and Bhatti, 1997). When countries are found financially integrated, they will no longer be able to insulate the economy from external shocks. Hence, the degree of integration within countries should be sought and addressed, as it provides pertinent information on the appropriate choice of monetary policies.

This study attempts to address the financial integration of East Asian economies with Japan by including more Asian countries and extent the analysis to include more recent data. The issue of East Asian financial integration with world economy has also been addressed by many other researchers (see Aggarwal and Mougoue, 1993, 1996; Chinn and Dooley, 1997; Frankel, 1993; Frankel and Wei, 1994; Moosa and Bhatti, 1997; Tse and Ng, 1997). For this study, the focus is placed on the linkage between Japan with seven Asian countries (Indonesia, Malaysia, Philippines, Singapore, South Korea, Taiwan and Thailand). Hong Kong was excluded from the analysis because Hong Kong dollar has been effectively fixed to the U.S. dollar after October 1983.

Both the multilateral and bilateral relationship between the individual East Asia's exchange rates with Japanese yen is examined through the vector error-correction model (VECM). It has been suspected that Mexico "tequila" crisis, rise of U.S. dollar, severe glut in global semiconductor production capacity, and devaluation of yuan during 1994-1996 may have affected any financial integration among East Asian countries with Japan. Hence, the analysis of data is separated in to two sample periods, with first sub-period spanning from 1978:1 to 1994:1, and the second sub-period from 1978:1 to 1996:2 in order to identify any possible differences in the pattern of financial integration of East Asia in these two sub-periods.

Objective of Study

The main objective of this study is to empirically examine the extent of financial integration in a set of seven developing East Asia countries' exchange rates with Japanese yen. The seven East Asia countries under scrutiny are Indonesia, Malaysia, Philippines, Singapore, South Korea, Taiwan, and Thailand. All these countries, except Singapore, have been adversely affected by the recent Asian financial crisis.

Under the main objective, there are three specific objectives being addressed in this study. The first is to examine the extent of financial integration between seven East Asia's exchange rates with Japanese yen. The second objective is to examine the bilateral relationship between the individual East Asia's exchange rates with Japanese yen. Whilst for the third specific objective, it is to compare the pattern of integration in period form year 1978 to year 1994, and from year 1978 to year 1996. This attempt is made as it has been suspected that several international macroeconomic shocks happened during 1994-1996 would have affected any financial integration among East Asian countries with Japan. The first shock was the Mexico "tequila" crisis happened in late 1994. The second shock was the sustained rise of U.S. dollar starting from the second half of 1995, which led to the rise of East Asian currencies that effectively peg to dollars (World bank, 2000), against Japanese yen and others currencies. The third shock was the severe glut in global semiconductor production capacity in 1995, and the eventual deep and protracted cyclical declined of semiconductor prices from the end of that year. This has seriously affected the East Asia countries that had jointly produced 38 percent of global production of semiconductors (World Bank, 1999). The fourth macroeconomic shock was the devaluation of Chinese yuan in 1994. The analysis of data is separated in to two sample periods, with first sub-period spanning from 1978:1 to 1994:1, and the second sub-period from 1978:1 to 1996:2. The unit root tests, cointegration test, and vector error-correction model are employed to address these specific objectives.

Significance of study

The findings of this study would contribute to the existing knowledge and findings on currency bloc or financial integration in East Asia. In particular, researchers or policy makers that concern upon formation of “yen bloc”, and East Asia central bankers would be benefited from this study. For this study, the “yen bloc’ is defined as a group of East Asia countries and Japan that are concentrating their trade and financial relationships with one another, in preference to the rest of the world (Frankel, 1993).

The arguments upon evidence or formation of “yen bloc” have been evidenced in early 1990s, which reflected in studies on impact of Japan’s trade and investment on East Asia, and its implication upon formation of trade or currency bloc. The statistical approach taken mostly resorted to measures of the relative size of the blocs, such as shares of world trade, and measures of the extent of intraregional trade, such as the fraction of countries' trade conducted with others in the region (Frankel and Wei, 1993). The more explicit intention of seeking possibility of "yen bloc" formation has been identified in writings of Aggarwal and Mougoue (1993, 1996), Frankel (1992), Frankel and Kahler (1993), Frankel and Wei (1993), Sato *et al.*(1994) and Tse and Ng (1997). The approaches taken in these studies included embellished gravity model and cointegration analysis of exchange rate movement. The study of financial integration rather than narrowing to seeking evidence of "yen bloc" has performed by Moosa and Bhatti (1997), and Chinn and Dooley (1999) with implicit implication upon currency bloc or trade bloc. The findings of this study would provide more evidence in relation to the studies above.

The second group that would be benefited from this study is the East Asia central bankers. The significant of financial integration to central bankers have been marked by the meeting of world central bankers for the annual symposium of the Federal reserve Bank of Kansas City in August 2000 to discuss upon global economic integration. If East Asia is found to be financially integrated, this has significant implication upon existing financial management and conduct of monetary policies. Specifically, presence of financial integration means that monetary conditions in one country are now increasingly affected by developments abroad (The Economist, September 2nd – 8th, 2000, pp. 74). This has been shown in the first half of 1990s, whereby interest rates in rich economies (i.e. U.S. and Japan) caused investors to seek higher returns in East Asian economies. In addition, financial integration affects monetary policy by changing the channel through which interest rates affect demand. The impacts interest rate made on economy via exchange rate has became more important relative to their direct effect on borrowing. As trade expands as a proportion of gross domestic product, so a given movement in the exchange rate has a bigger impact on demand and inflation. Financial integration has blurred the geographic boundaries between markets and between financial institutions, which has deterred the ability of financial markets regulatory bodies (central banks and etc). To summarise, financial integration signals the increase of exchange rates dynamics and change of capital market structure. This calls for reforms of existing financial systems that best match with these dramatic changes in the world financial markets.

Foreign Direct Investment in East Asian

This section concentrates on the FDI in East Asian from 1970s to 1990s. In the early 1970s, many of the Asian economies have suffered from restrained financial resources to gear for higher growth. Hence, most of their financial needs are met by external sources, which usually come from capital surplus countries such as OECD. The need of external financing for ASEAN-four (Indonesia, Malaysia, Philippines, and Thailand) was much greater than NICs, as they were still unable to meet their financial needs through domestic sources (Asian Economic Handbook, 1987, p.13).

In order to stimulate greater inflows of foreign capital, both ASEAN-four and NICs have adopted an open economic structure. The underlying reason for adopting such structure is however different between ASEAN-four and NICs. At that time, ASEAN-four countries were aiming at import substitution industrialisation, while NICs were pursuing on export oriented economic growth strategy (Yuichiro Nagatomi, p.267). Nonetheless, NICs South Korea and Taiwan have also passed through the phase of import substitution before switching to export-led in the early sixties. For Singapore and Hong Kong, they started as regional financial and marketing centre before engaging into manufacturing and exports (Lairson and Skidmore, 1997).

Among all form of external financial flows, FDI has been actively promoted by the ASEAN-four and NICs. This is because FDI posed potential contribution in development of technology transfer, improved management knowledge and expansion of export markets. The history of FDI stemmed from the colonial background of East Asian countries, which associated with primary resource exploitation and trading. The earlier inflows of FDI has mainly come from U.S. Investment by the Japanese companies grew rapidly only after 1970s.

The significant surged of Japan's investment was by no mean accidental or unintended. In November 1974, MITI published its first "long-term vision" for Japan that urged the shift of economy basis from heavy, resource-hungry industries to light knowledge-intensive industries. This plan was focus on a shift from industrial to a post-industrial economy (Johnson, 1982, p.291). Hence, Japanese MNCs were encouraged to invest abroad to (1) find and develop cheap and reliable sources of natural resources, (2) shift labour intensive production and processes to low wage countries, (3) adapt to yen appreciation by using cheap foreign labor, and (4) 'house clean' Japan of pollution intensive industries (Terutomo Ozawa, 1978, p.128). In addition, Tokyo in view of reducing dependence on single sources of markets and materials has tried to diversify its sources. Subsidies have been given by the government to those that explored new markets and sources. Loans and aid were also provided to countries that produce raw materials in exchange for guarantees of supply (Kosaka, op., Cit., in Scalipino, p.209). East Asian countries instantly appeared as the most suitable candidates in fulfilling Japan's intentions.

Apart from MITI's plan mentioned above, several other factors have also significantly sustained the continuos inflows of capital from Japan to East Asian countries. These factors could be divided into pull factors and push factors. The pull factors were associated with changed of ASEAN-four countries from import substitution policy to export oriented policy. The shift of policy was made to encourage production and nurture export-oriented industries, and to shift industry concentration from commodities to non-commodities goods. The push factors for the active Japanese FDI are (Nagatomi, 1996, p.267): (1) rapid and significant realignment of yen since Plaza Accord of 1985, (2) trade frictions with North America and Europe in the late 1970s and early 1980s, (3) current account surplus of Japan becomes chronic since first half of 1980s, (4) globalisation wave occurred among Japanese corporations and adoption of international strategies, (5) deregulation of Japan's financial and capital markets, and (6) lower interest rates and higher stock price lead to easier fund procurements.

Of all the factors mentioned above, yen appreciation was the main factor pertaining to massive influx of FDI into the East Asian countries. This was because the appreciation of yen has leads to surge in production costs and loss of competitiveness in Japan exports. As a result, many manufacturing industries relocated their plants overseas. The relatively lower prices of foreign assets, along with easier fund procurement methods, encouraged further direct investment through acquisitions of overseas assets (Nagatomi, 1996, p.261). The setting up of overseas production sites was in some extent to avoid high import tariffs imposed by East Asian countries (Ito, p.10). For example, the setting up of production sites by Japanese auto-maker in Thailand, Indonesia, and Malaysia were mainly to serve their respective host countries' market.

The surged of Japanese direct investment continued into the 1980s. This is shown in Table 1, whereby Japanese FDI has dominated over U.S. FDI in the ASEAN-four and NICs. In the early 1980s, the focus of Japanese FDI was placed on Asian NICS due to the central roles play by Singapore and Hong Kong in the regional finance, information and transport sectors. It then spreaded from Asian NICs to Thailand in 1986-87, Malaysia in 1988 and to Indonesia in 1989. This chain of investment has led to formation of an international network of production base in the region (Nagatomi, 1996, p.269).