UNIVERSITI PUTRA MALAYSIA

THE SAVING-INVESTMENT CORRELATION AND CAPITAL MOBILITY IN ASIA

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DEDICATION

To Sujahn and Vimal, my children,
for being my reasons to further my studies

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirements for the degree of Doctor of Philosophy

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Chairman : Professor Muzafar Shah Habibullah, Ph. D.

Faculty : Economics and Management

This study assesses financial integration and international capital mobility in the Asian region by adopting the Feldstein-Horioka criterion based on the relationship between saving and investment. The analysis is carried out in two stages. The initial part of the analysis follows the standard procedure by analysing the saving retention coefficient. Using the standard time-averaged cross-sectional regression model originally employed by Feldstein and Horioka as a benchmark, a number of alternative estimation regression models are employed in this study. Of particular reference is the panel regression model proposed by Kao and Chiang (1999) emphasized in this study. Panel unit root and panel cointegration tests that have been shown to have higher testing power are used to analyse the data. The second part of the study introduces an innovation by tracking the changes in the parameters over time to obtain evidence on whether capital mobility and financial market integration have increased over time.

The empirical analysis covers 20 Asian countries at different stages of financial and economic development over the period from 1980 to 1999. The sample countries are also divided into four sub-regional samples so as to enable a comparative view of regional differences in capital mobility. The findings indicate that the close association between saving and investment is a robust empirical regularity and is consistent with other studies reported in the literature. The results of the different estimation methods including the panel regression models, confirm that the saving retention coefficient is statistically and significantly different from zero. This shows that the Asian region as a whole rejects the notion of perfect capital mobility over the sample period.

Generally capital mobility is low in the Asian countries although there has been a gradual increase in capital mobility over time as shown by the changes in the saving retention coefficients. However there are regional differences with the ASEAN 5 region including Japan and Korea showing relatively higher capital mobility than the other regions.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

KORELASI SIMPANAN-TABUNGAN DAN MOBILITI MODAL DI ASIA

Oleh

SARINDER KUMARI

Mei 2004

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Kajian ini mengkaji integrasi kewangan serta mobiliti modal antarabangsa di rantau Asia dengan menggunakan kriteria Feldstein-Horioka yang berdasarkan kepada hubungan di antara tabungan dan pelaburan. Analisa dijalankan melalui dua peringkat. Analisa pada peringkat pertama mengikut prosedur yang biasa digunakan yang berdasarkan penganalisaan koefisyen simpanan tabungan (saving-retention). Beberapa model regresi digunakan dalam kajian ini dengan menetapkan model yang telah digunapakai oleh Feldstein-Horioka dalam kajian mereka sebagai satu piawaian bagi kajian ini. Sehubungan dengan ini, kajian ini telah menitikberatkan model panel yang telah dicadangkan oleh Kao dan Chiang (1999). Ujian-ujian panel punca satu (unit root) dan kointegrasi digunakan dalam analisa data kerana ujian tersebut mempunyai kuasa yang lebih tinggi. Peringkat kedua kajian ini telah memperkenalkan satu innovasi di mana perubahaan dalam

parameter-parameter tertentu diperhatikan untuk mendapatkan maklumat terhadap mobiliti modal dan integrasi kewangan.

Kajian ini melibati 20 negara Asia yang mempunyai peringkat pembangunan ekonomi dan kewangan yang berlainan dalam tempoh masa dari tahun 1980 sehingga tahun 1999. Negara-negara tersebut dalam sampel kajian ini juga dibahagikan kepada empat rantau kecil untuk membolehkan perbandingan dibuat terhadap perbezaan mobiliti modal di antara rantau tersebut. Hasil rumusan daripada pelbagai kaedah anggaran yang digunapakai termasuk regresi panel mengesahkan bahawa koefisyen simpanan tabungan adalah signifiken. Ini menunjukkan bahawa hubungan rapat yang terdapat di antara tabungan dan pelaburan adalah suatu perkara empirikal yang lazim berlaku serta konsisten dengan hasil kajian lain. Berdasarkan ini rantau Asia secara keseluruhan menolak tanggapan mengenai mobiliti modal yang sempurna.

Secara am negara-negara Asia pada keseluruhannya, mempunyai mobiliti modal yang rendah. Walaubagaimanapun, berdasarkan perubahan-perubahan yang diperhatikan dalam koefisyen simpanan tabungan, mobiliti kewangan tersebut telah meningkat secara beransuran. Di samping itu juga terdapat perbezaan dalam tahap mobiliti modal di antara rantau-kecil. Dalam hubungan ini diperhatikan bahawa secara relatif, rantau kecil ASEAN 5 termasuk Jepun dan Korea Selatan mempunyai mobiliti modal yang lebih tinggi daripada rantau kecil yang lain.

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LIST OF ABBREVIATIONS/GLOSSARY OF TERMS

AFTA	Asian Free Trade Area
AMU	Asian Monetary Union
ASEAN	Association of Southeast Asian Nations
ECB	European Central Bank
EMU	European Economic and Monetary Union
ERM	Exchange Rate Mechanism
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
IMF	International Monetary Fund
NAFTA	North American Free Trade Area
NIEs	Newly Industrialised Economies
OCA	Optimum Currency Area
OECD	Organisation for Economic Cooperation and Development
SAARC	South Asian Association for Regional Cooperation

CHAPTER 1

INTRODUCTION

1.1 The Concept of Financial Integration

There is no clear-cut definition of financial integration in the literature. In general terms, integration is essentially a market driven phenomenon where segmented markets become open and unified and the interests of consumers, investors and financial institutions are amalgamated (De Brouwer, 1999).

Financial market integration involves two interrelated elements, namely the deregulation of national markets and the liberalisation of controls on international capital flows. As a result, the integration of financial markets implies an increase in the trade of financial instruments and is associated with the equalisation of returns on similar financial assets across markets so that the law of one price holds (Obstfeld, 1993; Lemmen, 1998). Perfect financial integration implies an absence of barriers such as capital controls and other institutional barriers that prevent investors from changing their portfolios instantaneously (Lemmen, 1998). Market integration is therefore conducive to capital mobility and leads to increasing capital flows (Moosa, 1996). Conversely, a high level of capital mobility indicates a high level of market integration.

Perfect capital mobility or the equalisation of relevant interest rates or rates of return however is not a necessary condition for financial market integration because even if financial prices are fully equalised between two markets, the net or gross capital flows may be zero (Barro et al., 1995). In any case, financial integration is generally associated with increased capital flows and capital mobility is therefore a sufficient condition for market integration (Moosa, 1996). Capital mobility can therefore be used as a measure of the degree of financial integration.

Financial integration usually lies between the two polar cases of perfect capital mobility and an absence of capital mobility or financial autarky across borders. The degree of financial integration is determined by the combination of two factors, that is capital mobility and asset substitutability (Lemmen, 1998; Eijffinger and Lemmen, 2001). Capital is considered to be perfectly mobile if it can be moved into the preferred form of investment instantaneously without any problems. However, due to exchange rate risks, financial assets denominated in a domestic currency may not be perfect substitutes for financial assets denominated in a foreign currency. Asset-specific risks and political risks also make domestic and foreign assets less substitutable. Therefore, risk averse market investors will require risk premiums for exchange risks, political risks and asset-specific risks to hold foreign currency denominated assets. It is normally assumed that asset-specific risks are minimal and that assets are identical except for their currency of denomination.

1.2 Financial Integration in Asia: The Prospects

Since the 1970s, many developing countries have undertaken steps to liberalise and deregulate their domestic financial systems and remove restrictions on international capital flows. Although the timing and extent of liberalisation has varied across countries, domestic and foreign market forces have been allowed to play a greater role in the financial markets. For instance, in East Asia, Hong Kong and Singapore were the first to begin liberalising their financial systems by removing or relaxing interest rate regulations and abolishing exchange rate controls in the mid 1970s. Significant financial reforms have also been undertaken in Japan and Malaysia since the late 1970s and in the Philippines and Indonesia since the early 1980s. More recent movements toward liberalisation have occurred in Thailand, Korea and Taiwan.

The aim of these deregulation and liberalisation initiatives have been to increase the efficiency and competitiveness of the financial markets as this will in turn improve economic efficiency and growth. This can be done in three main ways (Fischer and Reisen, 1993). Firstly, it improves the allocative efficiency of capital as the deregulation of capital and price controls allows saving to be directed to the highest yielding investment. Secondly, it leads to higher operational efficiency as the transaction costs of financial intermediation are reduced due to increased competition. Finally, the financial reforms result in dynamic efficiency due to financial innovation in products and services.

The financial deregulation in both developed and developing countries has resulted in a breakdown of barriers to segmentation of financial and capital markets. This together with communication and technological advances and innovation of financial instruments has led to the globalisation of markets. The underlying force for integration appears to be the freedom to make economic decisions and to access different forms of finance, risk management techniques and investment and portfolio diversification opportunities.

However, it has also been argued that financial liberalisation and deregulation have increased the volatility in financial markets and introduced new elements of risk. These risks have been attributed to the volatility of real exchange rates, increased price volatility of financial assets due to speculation, a perceived loss of monetary independence and a greater emphasis on financial as opposed to productive investment due to the extremely high returns on financial instrument (Fischer and Reisen, 1993).

The Asian financial crisis in 1997 and the meltdown of financial markets in several Asian economies underlined the extreme vulnerability of domestic financial markets to external market forces. The crisis which began with the deterioration of confidence in the Thai baht, spread quickly to other markets in the region. There was a severe loss of confidence in the East Asian financial markets in the second half of 1997 and early 1998 (De Brouwer, 1999). The crisis pointed to the need for necessary reforms in the international financial arena and also a need to re-examine the rapid pace of financial liberalisation and associated globalisation of financial markets. This is especially pertinent, as the financial systems of most East Asian countries have not evolved in tandem with the rapid evolution of their real economies (Letiche, 2000).

The Asian financial crisis also acted as a catalyst for highlighting the need for more regional cooperation to realistically address the disparities in financial markets, infrastructure and degrees of financial liberalisation in the region. Regional initiatives are needed to address the specific circumstances and interests of the economies in the region as multilateral institutions like the International Monetary Fund (IMF) and the World Bank have been found lacking (Dutta, 2000). In fact none of these institutions foresaw the meltdown of the financial markets in Asia.

At its conference on the Global Development Network held in December, 1999, the World Bank concurred with the concept of economic regionalisation provided that there was concurrent emphasis on both the macroeconomic and microeconomic parameters in each region (Dutta, 2000). A number of policy options have been suggested to increase economic and monetary cooperation to reduce the vulnerability of the Asian region and to prevent the recurrence of another financial crisis in the region. These include the suggestion to form an Asian Monetary Union along the lines of the European Monetary Union (EMU), optimum currency areas, internationalisation of the yen and the formation of a yen bloc.

1.3 Momentum for Regional Integration

Regional integration can be defined as a process whereby various economies of a region undergo progressive removal of barriers to allow for the free and unrestricted movement of goods, services and factors of production such as capital and labour (Donghyun and Goh, 1998). There are various aspects or stages of integration and countries usually start off at a lower level of integration and move on to higher levels as conditions become more appropriate. The different stages include the formation of free trade areas (FTAS), customs unions, common markets and economic unions (Donghyun and Goh, 1998; Schroeder, 2000).

Generally, integration within the East Asian region or with other regions has been mainly driven by market forces rather than deliberate governmental direction (Sopiee, 1994; Dobson, 2001). The economies in the region have generally viewed themselves as global rather than regional traders. Although intra-regional trade has steadily increased in recent years, these economies have not relied much on regional markets per se but remain heavily dependent upon the global markets. In fact this outward looking perspective has been a reason why Japan and the newly industrialised economies (NIEs) in the region like South Korea and Taiwan have not shown much interest in regional cooperation.

However the rapid regional economic development and a number of international trends have shifted the focus towards economic and financial integration in the East Asian region. The threat of regional integration in other parts of the world has increased the momentum for cooperation and given the region a sense of common destiny. For instance, the formation of the North American Free Trade Area (NAFTA)[1] in 1994 and the Economic and Monetary Union (EMU) in 1999 together with the effects of a single market in Western Europe have made the East Asian economies very vulnerable to trade policies and protectionism in the developed countries. For example, the huge trade deficit of the United States with the East Asian export-led economies reflected the relative decline of trade with the United States and has led to increasing protectionism in North America (Liu, 1996). The East Asian economies will therefore have to increase the volume of intra-Asian trade to replace their traditional export market to the United States.

The effects of North America and the EMU becoming more protectionist has also increased the importance of Japan for the East Asian economies. Japan has not only been an important investor in the region but has also provided a large market for their exports (Liu, 1996). This economic cooperation marks a new phase of economic integration. Furthermore China has reiterated its reform and open door policy to the world implying that like Japan it will continue to promote Asia Pacific economic cooperation.

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[1] NAFTA includes Canada, Mexico and United States.

Besides the increased protectionism due to EMU and NAFTA, the occurrence of the Asian financial crisis pointed out the severe vulnerability of the region to external factors especially the exchange rate fluctuations. In an effort to face such external challenges, the East Asian economies have sought to form their own regional groupings. In fact, since the 1960s, partly in response to the progress of European integration, a series of initiatives have brought about economic cooperation and these have continued shaping economic integration in the Asian Pacific region. Some of these initiatives include the formation of the Association of South-East Asian Nations (ASEAN) in 1967, Pacific Economic Cooperation Conference (PECC) in 1980 and the Asia-Pacific Economic Cooperation (APEC) in 1989. In 1990, a proposal was also made for the formation of the East Asian Economic Group (EAEG).

These regional groupings have begun to move toward economic and financial integration. For instance, the Bogor Declaration at the APEC Summit in 1994 committed the APEC member countries to trade and investment liberalisation that would eventually lead to the emergence of a Free Trade Area by the year 2020. The pace towards further integration has also gained momentum in the ASEAN. As a whole, ASEAN has evolved over the years to focus more on the process of integration in contrast to the situation in pre-1990s when it was more apprehensive towards integration and concentrated mainly on promoting economic and political cooperation. At present deeper and wider integration is being discussed. A framework for cooperation in finance has also been established with the agreement of the Ministerial Understanding on ASEAN

Cooperation in Finance in 1997. The scope of cooperation covers banking and finance, financial and capital markets, customs, insurance, taxation and public finance and human resource development in finance (Chirathivat et al., 1999).

However, economic integration in the region is still at its infancy. Economic integration in ASEAN essentially means the expansion of intra-regional trade, as the ultimate aim of economic integration is to create a large market that would benefit all participating economies (Donghyun and Goh, 1998). At the ASEAN Summit meeting in 1992, leaders of the ASEAN countries agreed to form the ASEAN Free Trade Area (AFTA) by the year 2015. However, this plan was accelerated at the ASEAN Summit in 1994 so that AFTA would be realised by the year 2010 through the gradual reduction of tariff and non-tariff barriers under the Common Effective Preferential Tariff (CEPT) scheme (Chirathivat et al., 1999; ASEAN Secretariat, 2003).

The acceptability of AFTA has increased due to the developments in the economic arena (Chia, 1995). Firstly, the ASEAN economies have become more complementary and integrated due to their outward-looking growth strategies that are based on foreign direct investments and an increase in intra-industry trade. Since the mid-1980s, a number of ASEAN economies have had major economic reforms resulting in deregulation and privatisation coupled with trade, financial and foreign investment liberalisation. Secondly, there have been concerns over market access for ASEAN's rapidly growing export-oriented industries. This has been due mainly to the emergence of regionalism especially in Europe and North