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Financial Liberalization and Economic Integration in East Asia*

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And

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I. Introduction

A number of studies on the European economic integration have shown that an expansion of trade among a group of countries over time could lead to synchronization of business cycles across the members of the group.[1] Synchronization of business cycles would be more pronounced, if intra-industry trade accounts for most trade. This finding suggests that regional trade integration between similar industries could then develop conditions favorable for establishing a common currency area for the regional trading partners. The ongoing trade liberalization has contributed to a substantial increase in intra-regional trade in East Asia, raising expectations that the continuing trade integration would generate market pressures for policy coordination for stable exchange rates of regional currencies and eventually for adopting a common currency for the region.

With the spread of liberal ideology of the Washington consensus, many countries in East Asia, in particular more advanced ones including Thailand, Indonesia, and Malaysia, have been reducing restrictions on capital account transactions and barriers to entry of foreign financial institutions into local markets and to trade in financial services since the early 1990s (Eichengreen and Mussa 1998). After the 1997-98 crisis, the speed and scope of penetration of foreign financial institutions, except for Malaysia, has increased in East Asia.[2] In removing restrictions on entry, these East Asian countries have been motivated by their desire to build efficient and stable financial systems resilient enough to forestall future crises. Befitting an open foreign trade and investment regime and according to the IMF (2000), the removal of entry restrictions have also been triggered by the need to help reduce the costs of restructuring and recapitalizing banks following a major crisis (p.158). If indeed this was one of their objectives of liberalization, it appears few of the crisis countries in East Asia have succeeded in this regard.

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[1] See, for example, Rose and Frankel (1998).

[2] The IMF(2000) argues, however, that the degree of foreign participation in domestic financial markets has been lower than originally expected in Korea and Taiwan.

In view of the thrust of financial liberalization that has been directed to market opening since the 1997-98 crisis, one would presume that greater capital mobility through capital account liberalization and opening of financial services industries may have tightened financial ties between individual countries, thereby promoting creation of integrated regional financial markets in East Asia. If this development has indeed taken place, financial liberalization combined with trade expansion may have brought the East Asian countries closer to monetary integration than before.

The purpose of this paper is to analyze East Asia's experiences with financial liberalization and innovation with a view to assessing the extent to which liberal financial policies have contributed to economic integration in East Asia. Section II discusses financial integration as a condition for an optimum currency area, Section III analyzes the progress East Asian countries have made in liberalizing and opening their financial markets. A priori, it is not clear whether financial opening could lead to financial integration at the regional or global level. Section IV then attempt to examine empirically whether East Asian countries have gravitated to regional or global integration. Our conclusion is that East Asian countries have developed stronger financial ties with advanced countries than with one another in the process of financial opening. Section V provides some of the reasons for East Asia's global financial linkages, the most important one being penetration of western financial institutions of East Asian financial markets. Section VI analyzes causes of the dominance of western financial institutions in East Asia. This is followed in section VII by a discussion of future prospects for regional integration in East Asia. Concluding remarks are in a final section.

II. Financial Liberalization and Common Currency Area (CCA)

Trade liberalization is likely to result in more closely correlated business cycles across countries, more so if liberalization promotes trade between similar industries. Therefore, countries with close trade ties are likely to be members of a CCA. Would financial liberalization lead to a similar development? To address this question, this

section first asks whether countries with close financial linkages, as in trade, would benefit from joining a common currency area.

Financial market deregulation and opening facilitate migration of capital in the long-run and cross-border financing of current account imbalances in the short-run, thereby reducing the costs of adjustment to shocks to demand and supply. Financial liberalization also allows extensive sharing of the risks associated with macroeconomic shocks across countries as it broadens the range of diversification by including foreign bonds and equities in individual portfolios. By lowering transactions costs and eliminating exchange rate risks, formation of a common currency area can help its members reap these benefits of financial liberalization. Therefore, countries with close international financial linkages would have incentives to join a currency union.

- Capital Mobility and External Financing

An increase in capital mobility (factor migration in general) between countries could relieve a country's external deficit as well as unemployment that reflects its internal imbalance. An adverse demand or supply shock in a given industry of a country may require shifts in labor and capital to other industries. After all adjustments have been made within the country including a fall in factor prices, some factors of production are likely to remain unemployed. In this case, migration of capital could mitigate the burden of adjustment through changes in factor prices and employment. That is, real capital mobility can be a partial substitute for price-wage flexibility. However, in the short-run, capital mobility is low and as a result only in the long-run could ease difficulties of adjustment to demand and supply shocks.

In the absence of price and wage flexibility, an adverse supply shock such as an oil price increase may result in a deficit on the current account in addition to both an increase in unemployment and decrease in factor prices. Countries with an open financial regime have a better access to both regional and global capital markets so that it would be easier and less costly for them to borrow to finance their current account deficits. External borrowing could make the real adjustment smaller or unnecessary if the deficit is

transitory and hence reversible.[3] Countries with close financial ties would therefore find it easier to give up monetary policy and are likely to be members of a CCA as the adoption of a single currency increase the gains from financial liberalization.

- Risk Sharing through International Portfolio Diversification

With financial market opening, domestic residents can diversify their asset portfolios internationally by holding securities issued by firms and financial institutions of other countries in addition to domestic ones. The possibility of portfolio diversification across a large array of assets means that a country suffering an adverse terms of trade shock could share some of the loss with its trading partners, to the extent that it holds claims on their output. The presence of currency risk under free floating, however, increases the cost of international portfolio diversification in terms of foreign securities designed to share default risk arising out of asymmetric supply shocks. That is, free floating would inhibit countries from cross-holding of securities, thereby bottling up the cost of the shock more in the country it is originated.[4]

International portfolio diversification calls in question some of the criteria for a successful CCA focusing on similarity of business cycles and labor market integration. In contrast to the earlier literature on the CCA, the risk sharing through asset diversification implies that larger currency unions with more heterogeneous countries would, other things being equal, be more successful than smaller ones with homogeneous members: countries with asynchronous macroeconomic shocks would make better candidates for a CCA. Contrary to the standard argument, countries with similar economic structures would not gain from joining a CCA not only because the scope of risk sharing is limited, but also because an adverse supply shock in one country could be much more contagious

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[3] If the deficit reflects changes in economic fundamentals instead, external borrowing would simply mask the imbalances that require real sector adjustments.

[4] Mundell (1973) showed, contradicting his earlier argument, that reserve pooling and international portfolio diversification could mitigate asymmetric shocks, and asset holding for the risk sharing could be better served by establishing a CCA that includes a large number of structurally different countries. A recent analysis on risk sharing through international portfolio diversification, see Mckinnon (2001).

to other countries than otherwise (Park and Song 2001).

One important implication of the risk sharing is that, as far as finance is concerned, globalization may be a better strategy than regionalization including forming a CCA for a large number of small countries. In searching for potential partners for a CCA, emerging market economies would prefer tying themselves up with advance countries whose bonds and equities are relatively more secure and carry high rates of return adjusted for default and liquidity risks, such as U.S. Treasury bonds. Focusing on finance alone, dollarization, or Eurorization, may make more sense to many emerging market economies than forming a currency union among themselves. Portfolio diversification may in part explain why smaller currency unions have not been successful, in particular when member countries share similar macroeconomic and structural characteristics so that the spillover effects on other members of a supply shock in one country would be greater than otherwise. Consideration of international portfolio changes the criteria for countries which could form a successful CCA: that is, structural similarity or dissimilarity appears to matter little as a condition for ideal candidates for a CCA.

How significant is then the benefit of the international risk sharing quantitatively? There are few empirical studies that shed light on this question. However, the well known home bias in asset holding suggests that the benefit would not be as large as the theory would predict. Despite the ongoing financial liberalization stretching over more than two decades, the increase in international diversification in assets, in particular bonds, across countries has been relatively small. Mckinnon (2002) points to the principal-agent problem as the main cause limited global portfolio diversification.

III. Financial Liberalization in East Asia

Financial liberalization often refers to: (i) domestic financial market deregulation such as decontrol of the interest rate; (ii) removal of restrictions on capital account transactions that will increase mobility of capital between countries; and (iii) opening of

financial services industry to foreign competition. In a recent paper, Kaminsky and Schmukler (2002) devise an index for overall financial liberalization which jointly evaluates the liberalization of the capital account, the stock market, and the domestic financial sector. The index takes values between 1 and 3: fully liberalized (1), partially liberalized (2), and repressed (3). To measure the extent of financial liberalization, the authors track the evolution of the regulatory regime covering all three sectors over the 1973-99 period. The East Asian countries covered in their study include: Hong Kong, Indonesia, Malaysia, the Philippines, Korea, Taiwan, and Thailand.

As shown in Figure 1, the indices for the East Asian countries show that they made considerable progress in deregulation their domestic financial sectors and the stock market, but only partially in liberalizing capital account transactions. To complement the Kaminsky and Schmukler's index, this study also relies on the three indices developed by Johnson et al. (1999), Miniane (2000) and also the ratio of the volume of capital flows (both inflows and outflows of direct and portfolio investment) to GDP as a long-run measure of financial openness.

Johnson et al. use a disaggregated classification of capital account transactions compiled by the IMF in its *Annual Report on Exchange Arrangements and Restrictions (AREAR)* for the measure. In Table 9, indices for the 1995-99 period are presented; the data for earlier years do not exist. As far as developments in individual East Asian countries are concerned, the Johnson et al. indices in Table 1-1 show that Indonesia had been leading the other crisis countries in removing capital controls before the crisis in 1997. Since then Korea has been most aggressive in liberalizing capital movements, whereas Malaysia has reversed its liberalization policy to return to a tightly controlled capital account regime. Both Indonesia and Thailand have made some progress in opening their capital markets, but they still maintain relatively a large number of restrictions on capital mobility than Korea and other emerging market economies.[5]

Miniane (2000) follows an approach similar to that of Johnson et al., using the

[5] Appendix I discusses developments in capital account liberalization in the four East Asian crisis countries, namely Indonesia, Korea, Malaysia, and Thailand before the 1997 crisis.

same data from the IMF's AREAR. Miniane's estimation, however, is based on 13 brode categories of capital account transactions, whereas Johnson et al. use more disaggregated data of 44 breakdowns. For the purpose of comparison, Table 1-2 reports estimates of the Miniane index for two benchmark years, 1989 and 1999. Miniane's indices suggests that over the ten-year period, East Asia made little progress in deregulating capital account transactions.

The two indicators developed by Johnson et al. and Miniane are likely to be biased in that an equal weight is assigned to all categories of capital account transactions without differentiating their relative importance. For example, deregulation of portfolio capital investment may have a greater impact on capital account transactions than removal of restrictions on foreign direct investment. In order to mitigate this bias, many authors have also used the ratio of the total volume of capital flows to GDP as a long-run measure of capital account deregulation.[6]

Baek and Song (2001) estimate the ratios for the 1985-89 and 1994-98 periods for 10 East Asian countries, and they are reproduced in Table 1-2. Increases in these ratios in all of the 10 countries in Table 2 are striking. In Indonesia, the average ratio during the 1994-98 was more than six times the average of the 1994-98 period. Philippines saw a fourhold increase in the ratio over the decade. In China, the ratio more than tripled, and in other countries more than doubled. Except for Miniane's, therefore, both the index of capital control by Johnson et al. and changes the capital flows-GDP ratios indicate that East Asian countries have been reducing-somewhat slowly but steadily-restrictions on capital mobility.

According to our estimation presented in Table 1-1, Indonesia had been leading the other crisis countries in removing capital controls before the crisis in 1997. Since then Korea has been most aggressive in liberalizing capital movements, whereas Malaysia has reversed its liberalization policy to return to a tightly controlled capital account regime. Both Indonesia and Thailand have made some progress in opening their capital markets since the crisis, but they still maintain relatively a large number of restrictions on

[6] See Krray (1998), Swank (1998), and Lane and Milesi-Ferretti (2001).

capital mobility than Korea and other emerging market economies elsewhere. Therefore, the experiences of Korea and Malaysia provide an interesting case study of the capital account management in East Asia in the 1990s: one country has lifted many control measure to open domestic capital markets, whereas the other country has reinstated many control measures it once removed before.

From the perspective of this study, usefulness of the indices of the degree of overall financial liberalization and capital account liberalization is rather limited in that these measures by themselves do not indicate whether capital account deregulation has been associated with financial integration at the regional level in East Asia or at the global level. A priori, one cannot determine whether financial liberalization would steer in the direction of developing closer financial linkages between East Asian and global financial markets than similar linkages among financial markets of individual East Asian countries. The issue is essentially an empirical one.

Before turning to this issue, conceptual clarification of regional versus global financial integration in the East Asian context may be in order. Suppose that financial markets of individual East Asian countries are being integrated into global financial markets as a result of financial liberalization. Does this development not bring about the concomitant financial integration in the region? In our view it does not in the sense that financial market liberalization in individual countries may not support the development of regionally integrated financial markets where financial instruments denominated in regional currencies are traded, while it may encourage and in fact expand financial transactions between these countries through global financial markets located in New York and London. In a graphic sense, New York and London are the financial hub whereas individual financial markets of East Asia are spokes.

IV. Financial Integration in East Asia

IV-1. Intra-regional capital movements in East Asia

For a measure of regional integration in East Asia, one would need information on intra-regional capital flows in East Asia relative to inter-regional flows between East Asia and the rest of the world. Reliable data on intra-or inter-regional capital flows are not available. East Asia as it is defined to include the ASEAN members, Taiwan, Hong Kong, China, Korea, and Japan has always been a net saver to the rest of the world. This balance of payment characteristic together with underdevelopment of financial markets, which we discuss in section VI, suggests that the level of financial transactions including bank lending and trade in regional securities between different countries in East Asia is likely to have been relatively small, in particular when a large Japanese bank lending to and direct investment in other East Asian countries are excluded.

Furthermore, since the outbreak of the 1997-98 crisis, Japanese banks lending and FDI to other East Asian countries have fallen dramatically (See Table 3and 4). So were Korea's and Taiwan's FDIs to other East Asian countries (See Table 5 and 6). Singapore's FDI data are rather sketchy, but its FDI to Malaysia and Indonesia declined during the post crisis period from 1997 to 1999 (See Table 7). As a result, it would be reasonable to assume that intra-regional financial flows in East Asia have been smaller than inter-regional flows between East Asia on the one hand and North America and Europe on the other. This feature of inter regional capital movements have become more visible with the increase in current account surpluses of Indonesia, Malaysia, Korea, and Thailand (see Table 2) and provides a piece of indirect evidence that East Asian countries have forged tighter financial links with North America and Europe than with their neighboring economies in the process of financial liberalization.

IV-2 Statistical Measures of Financial Integration in East Asia

Given the extent to which the East Asian countries have managed to liberalize their capital account transactions in recent years, one might expect that financial markets of these economies may have become more closely linked with one another than in the past. However, the available empirical evidence does not support this expectation. Regionally integrated financial markets are yet to emerge and prospects for further

financial liberalization in East Asia are not promising (Park and Song 2002).

A World Bank study (1997) uses three different measures to determine the extent to which countries are financially integrated. In constructing an overall index of integration the World Bank study uses the access to international financial markets, ability to attract private external financing, and the level of diversification of financing in terms of the composition of financial flows. The same study shows that changes in the degree of financial integration between 1992-94 were high in Indonesia, Korea, Malaysia, Philippines, and Thailand, but it does not examine whether these countries were more integrated financially with one another than before or with advanced countries.

- Cointegration Test

In a given region, financial liberalization and market opening would, other things being equal, lead to an increase in cross-border banking and securities transactions between the countries of the region as well as with the rest of the world. As a result of the increase in intra-regional capital flows, financial prices of different countries of the region would tend to move together more than before the liberalization. That is, one could argue that countries are highly integrated financially if their financial prices move together: the higher the degree of correlation of financial price movements, the higher is the degree of financial integration.

This measure of correlation is likely to be more reliable, if countries are on a fixed exchange rate system. When exchange rate regimes vary from country to country as in East Asia, the correlation of financial prices between countries may not be a good indicator of financial integration. Before the 1997 crisis, most of the East Asian countries pegged their currencies to the U.S. dollar and managed their dollar exchange rates to fluctuate within a relatively narrow band. Although most of the East Asian countries except for Malaysia moved to free floating in the aftermath of the crisis, in reality they have been de jure floaters, intervening extensively in the foreign exchange market to stabilize nominal exchange rates (Montiel and Hernandez, 2001).[7] McKinnon

[7] Since the 1997-98 crisis, however, it has been shown that variability of the nominal exchange rate has increased in free floating economies of East Asia, even though they may be classified as de facto peggers (Park and Song, 2002).

(2001) argues that all of the East Asian countries have more or less continued to peg their currencies to the dollar even though they have been classified as floaters since the 1997-9 crisis. In the following discussion, is would be reasonable to assure that financial liberalization would lead to grater congruity of movements of financial prices in East Asia, given to prevalence of foreign exchange market intervention in the region.

A recent study by Park and Song (2001) which estimates conintegrating relationships between the financial variables of East Asian countries finds little evidence of financial integration among the five Southeast Asian countries-Indonesia, Malaysia, Philippines, Singapore, and Thailand in the 1990's. In contrast, however, there are several empirical studies showing that the financial markets of the East Asian countries became increasingly integrated with the markets of developed countries in the 1980's (Glick and Hutchison, 1990, Cheng and Mak, 1992, Bekaert and Harvey, 1995, and Kuen and Song, 1996).

Using the cointegration technique, this section examines whether and how closely East Asian financial markets were integrated with one another before and after the 1997-78 crisis. If the financial markets of a given group of countries are integrated and interdependent, there are likely to be cointegrating relationship between the financial variables of these countries. Among several methods for estimating the cointegrating relationship, this study makes use of the maximum likelihood (ML) estimation proposed by Johansen (1988 and 1991).

Empirical studies on financial integration usually examine stock and bond markets. This study, however, investigates the stock market integration only since relatively small and closed bond markets in East Asia reduce the magnitude as well as likelihood of spillover effects through changes in interest rate. In order to examine the extent to which financial integration has proceeded with financial market liberalization this study focuses on interactions among the stock markets of Thailand, Indonesia, Malaysia, Korea and Japan. The frequency of the stock prices is daily and the sample periods run from January 1, 1994 to April 30, 1997 (pre crisis) and January 1, 1999 to

June 30, 2002 (post crisis). The equity price in each country is represented by a major stock prices index. The variables are in natural log form. The cointegration test is applied to a sample of five East Asian countries pairwise; that is, the existence of cointegration in the stock prices of pairs of the five East Asian countries is examined. If there exists a cointegration relationship between a pair of the sample countries, then there is a long-run relationship between the stock prices of the two countries concerned. The order of lag used in the ML estimation is 4.

Table 8 reports the trace statistics of ML estimation suggested in Johansen (1988 and 1991), which can be used to determine the number of cointegration vectors. According to the statistics, there was only one cointegrating relationship-that between stock prices of Thailand and Korea- before the crisis, which appears to be a spurious relationship because of the closedness of the two markets.[8] After the crisis, the estimation reveals no cointegration relationship between any pair of the sample countries, suggesting that there has been little progress in financial market integration in East Asia for the past four years.

- Variance Decomposition

As another test of the degree of financial integration, this study examines the extent to which the error variance of the stock market index of each of the six sample East Asian countries for one through four-week ahead forecasts is explained by domestic, regional, and global factors.

For this purpose, this study uses a vector autoregression (VAR) model *Let* $R_{j,t}$, $R_{US,t}$, and $R_{JP,t}$ be the weekly returns at time t of market portfolio of East Asian country j,

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[8] Since cointegration methods can be applied only to nonstationary variables, the Augmented Dickey-Fuller(ADF) test is applied in order to test existence of a unit root in each variable. Although the ADF test is widely used because it takes into account autocorrelation, it has been pointed out that the choice of a proper order of autocorrelation is arbitrary. We therefore conduct the ADF test on various orders of autocorrelation. The null hypothesis of the test is the existence of a unit root (i.e., nonstationary). A trend stationary process as well as a stationary process around a constant term is considered a an alternative hypothesis. The results reported in Table the stock prices of all Five East Asian countries have unit roots in the level term.

US, and Japan, respectively. Then, for each East Asian market, the following trivariate VAR model is constructed:

$$Y(t) = D(T) + \sum_{s=1}^{m} B(s)Y(t-s) + u(t), \quad t = 1,.....T \qquad (1)$$

where *Y(t)* is a 3x1 vector consisting of *R(t), V(t). D(t)* is a 3x1 vector of constants, *B(s)* is a 3x3 coefficient matrix, and *u(t)* is a 3x1 vector of serially uncorrelated random residuals with zero mean and finite variance.

The VAR specification defines *u(t)* as an innovation in *Y(t)* in that it is the component in *Y(t)* that cannot be predicted from past values of variables in the system. The moving average representation (MAR) is obtained by successive substitution on the right hand side of equation (1) as

$$Y(t) = F(t) + \sum_{s=0}^{\infty} A(s)u(t-s) \qquad (2)$$

where *F(t)* is the corresponding 3x1 vector of constants and *A(s)* is a 3x3 matrix of coefficients. The MAR represents *Y(t)* as a linear combination of current and past one-step-ahead forecast errors.

While the estimated coefficients *B(s)* of the VAR provide little insights into the dynamic interactions among the variables, equation 2 (MAR) presents the information equivalent to that contained in the original estimates, but in a form relatively easy to understand.

$$\sum_{s=0}^{\infty} A(s)u(t-s) = \sum_{s=0}^{\infty} A(s)(HH^{-1})u(t-s) = \sum_{s=0}^{\infty} C(s)e(t-s), \qquad (3)$$

where *C(s)=A(s)H, e(t)=H¹u(t)* and the matrix *H* is such that *HH'* is a factorization of the covariance matrix *u(t).* With the weekly data, the k-week ahead forecast error of *Y(t+k)* at time t is

$$C(k-1)e(t+1)+C(k-2)e(t-2)+.....+C(0)e(t+k)=$$
$$\sum_{s=0}^{k-1}C(s)e(t+k-s). \qquad (4)$$

The variance of the k-week ahead forecast error is $\sum_{j=1}^{n}\sum_{s=0}^{k-1}[C^{i,j}(s)]^2$. Then, $\sum_{s=0}^{k-1}[C^{i,j}(s)]^2 / \sum_{j=1}^{n}\sum_{s=0}^{k-1}[C^{i,j}(s)]^2$ is a component of the error variance in the k-week ahead forecast of Y^i, which is accounted for by the innovation in Y^i.

In the following analysis the MAR equation is used to compute the proportion of the forecasting error variance of an East Asian country index return, $R_{i,t}$ that can be attributed to innovations in the US and Japanese market returns, $R_{US,t}$, and $R_{JP,t}$. Equation 1 is estimated with two lags and a constant term for the deterministic part *D(t)*. In view of the cross-equation nature of the hypothesis, it is also estimated with alternative lags of one, three, and four. The results are qualitatively similar, however. ● Multivariate GARCH

VAR analysis does not provide information as to how our sample countries co-move over time and how their sensitivity to shocks in the US and Japan changes across time. To estimate time-varying correlations between US, Japanese, and East Asian equity markets, a trivariate-GARCH model, which is multivariate generalized autoregressive conditional heteroscedasticity (GARCH) model of Ding and Engle (1994), is estimated:

$$\underline{R_t} = \underline{\delta} + \underline{\varepsilon_t} \qquad \underline{\varepsilon_t} \mid \Omega_{t-1} \sim N(0,H_t) \qquad (3)$$

$$H_t = H_0 * (\iota\iota' - \alpha\alpha' - \beta\beta') + \alpha\alpha' * \underline{\varepsilon_{t-1}}\underline{\varepsilon_{t-1}}' + \beta\beta' * H_{t-1}, \qquad (4)$$

where $\underline{R_t}$ is the return vector, [$R_{US,t}$, $R_{JP,t}$, and R_{jt}]', between time *t-1* and *t*, and Ω_{t-1}, the set of market-wide information available at *t-1*. δ is a constant (3×1) parameter vector and $\underline{\varepsilon_t}$ is a vector of residuals that are conditionally distributed multivariate Normal with symmetric conditional covariance (3×3) matrix, H_t.

In the law of motion equation for the conditional variances, ι is an *3*-vector of ones, α, β are *3*-vectors of parameters (where $*$ is the Hadamard matrix product, element by element), and H_0 is an unobserved starting covariance matrix which we set equal to the sample covariance matrix of the returns. Under the assumption of conditional normality, the log-likelihood function can be written as follows:

$$\ln L(\theta) = -\frac{TN}{2}\ln 2\pi - \frac{1}{2}\sum_{t=1}^{T}\ln\left|H_t(\theta)\right| - \frac{1}{2}\sum_{t=1}^{T}\varepsilon_t(\theta)' H_t(\theta)^{-1}\varepsilon_t(\theta), \qquad (5)$$

where T is the number of time-series observations, N is the number of assets in the system (which is 3 in our case), and θ is the vector of parameters in the model. Estimation of the model uses the maximum likelihood and the Berndt, Hall, Hall, and Hausman (1974) optimization algorithm for the US, Japanese, and equal-weighted East Asian market portfolio returns. It is important to note that the Ding-Engle model does not impose a constant correlation, but rather guides correlations over time by means of a constrained law of motion for the conditional volatilities.

Empirical estimation of the model uses weekly market index price data of six East Asian countries (Indonesia, Malaysia, Philippines, Korea, Taiwan, and Thailand) plus US and Japan from Datastream International for the period of running from 1990.4.4 to 2002.4.24. In this estimation a weekly interval, instead of daily interval, was chosen, because daily prices data suffer from market frictions such as bid-ask bounce and trading hours are non-synchronous between the US and Asian countries. All prices series are adjusted for dividends and expressed in local currency. The same analysis is repeated in terms of the common currency (US dollar): the results are very close to the one with the local currency. Weekly compounded returns are estimated by taking the log of prices ratios.

Table 9 presents summary statistics and return correlations of our sample countries. Panel A of Table 9 shows that the best performer during our sample period is the US with an average weekly return of 0.24%, indicating strong performance in the US equity market during 1990s. The worst performer is Japan with an average return of –0.06%. Not surprisingly, the East Asian markets command higher standard deviations ranging from 4.95% (Thailand) to 3.76% (Philippines), while the standard deviations of US and Japan are only 2.18% and 2.82%, respectively. Panel B presents unconditional correlations among our sample countries. The average correlation of the US with the six East Asian markets is 0.24, while the corresponding figure for Japan is 0.20.

- Vector Autoregression Results

In order to find a measure of the overall relative importance of weekly returns of

the US and Japan in generating market returns of an East Asian market, say Korea, the variance of k-week ahead forecast error of the Asian market return is computed with the MAR and decomposed into innovations in the US, Japan, and the East Asian local market returns. To use "isolated" shocks, the innovations are orthogonalized. The orthogonalized innovations are uncorrelated both across time and across the equation.

Table 9 presents a decomposition of the error variance of the market index return of each Asian country for one-through four-week ahead forecasts. The first column is the forecast period. The second through fourth columns represent proportions of the forecast error variance of an East Asian country explained by innovations of market returns of US (global factor), Japan (regional factor), and the East Asian country itself (local factor), respectively. The explanatory power of each innovation is measured in percentage so that the horizontal sum of each row is 100. The results show that, in all six markets, forecast error variances of the market index returns are largely explained local markets' own innovations. However, there is a clear distinction between the proportions of forecast error variances explained by the US and Japanese factors.

The percentages of the error variances of the sample countries' index returns attributable to the return innovations in the US are 5.4, 7.8, 9.6, 8.3, 6.9, and 9.8 percent for Indonesia, Malaysia, Philippines, Korea, Taiwan, and Thailand, respectively. This indicates that the return innovation in the US plays a reasonably significant role in explaining the variations in East Asian market index returns over a four-week horizon. In contrast to this result, the Japanese innovation plays little role in the determination of the East Asian market index returns. The corresponding figures for the Japanese factors are 2.9, 1.3, 0.7, 3.8, 1.9, and 0.6 percent.

On average, 90 percent of forecast error variances in the East Asian market index returns is attributable to the innovation in the local markets, 8 percent to the US market, and 2 percent to the Japanese market respectively. These results suggest that the US market has a stronger influence on the East Asian stock markets than the Japanese market, supporting in part our argument that East Asian financial markets have closer tries with the markets of the U.S and Europe than with one another.

It is well known that the results of variance decomposition are sensitive to the choice of ordering of endogenous variables. The problem is that the choice imposes a recursive structure in the model. For example, if the equations in the model are ordered according to the vector of endogenous variables in the system as Y_t=[$R_{JP,t}$, $R_{US,t}$, and R_{jt}], then a recursive structure is assumed that starts with R_{JP} and ends with R_j. Such an ordering of equations is equivalent to imposing a structure that R_{JP} is not contemporaneously correlated with any other variables, R_{US} is only correlated with R_{JP}, and R_{jt} is correlated with R_{JP} and R_{US}. The last variable in the sequence is contemporaneously correlated with the rest of the variables. Once the ordering is changed, the recursive relationship changes accordingly (See Hamilton 1994,).

Table 11 shows the results of variance decomposition when the ordering of variables is changed to Y_t=[$R_{JP,t}$, $R_{US,t}$, and R_{jt}]. As expected, the percentage of the error variance attributable to US shocks decreases but not much. On average, 90 percent of the forecast error variance in the East Asian market index returns is attributable to its own market's innovation, 5 percent to the US market, and 5 percent to the Japanese market. The percentages of the error variances of East Asian country index returns attributable to the return innovations in the US are 2.4, 4.9, 7.4, 3.9, 3.8, and 7.4 percents for Indonesia, Malaysia, Philippines, Korea, Taiwan, and Thailand, respectively. The corresponding figures for Japan are 6.0, 4.2, 2.9, 8.4, 5.1, and 2.9 percents. These results show that even when the ordering of variables is altered so that Japanese market plays a more important role in the system of vector autoregression equation, the US market is as important as the Japanese market in affecting East Asian markets. For this reason, the ordering of variables as Y_t=[$R_{US,t}$, $R_{JP,t}$, and R_{jt}] is chosen.

To see if there has been a change since the East Asian currency crisis in the relative importance of the US and Japanese influences on the Asian markets, the sample period was divided into two sub periods, before and after 1998.01.01 and the same analysis is conducted for both periods. Table 12 present the results. Columns 2 through 4 represent the proportions of forecast error variances explained by the

innovations in the returns of the US, Japan, and an East Asian local market, respectively, for the pre-crisis period and columns 5 through 7 for the post-crisis period.

Table 12 also provides several interesting results. First, shocks originating in the US and Japan have become more significant in explaining the East Asian market returns. With the exception of Indonesia, which shows that the contribution of foreign market innovations in explaining the market index returns decreases to 7.5 percent in the second sample period from 10.4 percent in the first sample period, all other East Asian countries experience an increase in the foreign contribution to the forecast error variance which rose from 6.7 percent in the first period to 23.1 percent in the second period.

On average, only 7.9 percent of the foreign influence contributes to the forecast error variance of East Asian market returns by the forth week in the first period. The corresponding figure increases to 15.0 percent in the second period. The impact of the foreign influence or East Asian market returns therefore significantly increases during the second sample period.

Second, comparison of the US and Japanese contribution to the Asian market returns indicates that most of the increase in foreign influences comes from the US market. For instance, in the sample period before the currency crisis, the US contribution to the variation of Asian market returns averages 5.8 percent whereas Japanese contribution is only 2.1 percent. The corresponding figures in the post currency crisis period are 11.8 percent and 3.1 percent for the US and Japan, respectively. On average, out of the 7 percentage point increase, the 6 percentage point increase is due to the US. This development underscores the increasing importance of US market in explaining the Asian stock market returns.

- Multivariate GARCH results

In estimation a multivariate GARCH model, unlike the VAR analysis, an equal-weighted East Asian market portfolio from the six Asian market portfolio returns is used with US and Japanese market returns to estimate the trivariate GARCH model.

Table 13 shows the estimation results. The estimates of $\underline{\delta}$ are only significant and positive for the US market, which indicates the strong performance of the US stock

during 1990's. The estimated parameters for the GARCH process show that all elements in the vectors α and β are statistically significant at any conventional level. In addition, the estimates satisfy the stationary conditions for all the variance and covariance processes.[9] Not surprisingly, all processes show high persistence as they are typical in most studies using GARCH models. The estimates of β that link second moments to their lagged values are much larger in magnitude than those of α that link second moments to their past innovations.

Since the GARCH model provides estimates of conditional variance and covariance matrix at each point in *t*, correlation estimates at time *t* is computed. Figure 5 presents the conditional correlations across time between East Asian market, US, and Japanese market returns. The correlation figures are smoothed by taking one-year moving average.[10]

What is immediately obvious from the figure is that during most of our sample period, the correlation of the East Asian market portfolio returns with the US market return is larger than that of the East Asian market portfolio returns with the Japanese market return. On average, the correlation of the East Asian market with the US market is 0.36 whereas the corresponding figure with the Japanese market is 0.30. To the extent that a higher correlation is indicative of stronger integration, the East Asian stock market appears to be more integrated with the US market than with the Japanese market.

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[9] Theorem 1 in Bollerslev (1986) suggests that for each process in H_t to be covariance stationary, the condition $\alpha_i\alpha_j + \beta_i\beta_j < 1$ for all i, j has to be met.

[10] We also estimate the model using each of the six Asian market returns separately and average the estimated correlations. The results are similar.

V. Financial Liberalization and Penetration of Foreign Financial Institutions of East Asian Financial Markets

According to the definition of General Agreement on Trade in Services (GATS), financial services include all insurance and insurance-related services, and all banking and other financial services. Financial services industry is made up of activities in various fields of finance including commercial banking, investment banking (notably underwriting and trading), insurance, derivatives, merger and acquisition, financial leasing, management consulting, asset management, accounting and auditing, financial data processing, even law and telecommunication. Listing full range of financial services is almost an impossible task as new financial services are being created and provided. It will be shown that few of East Asian financial institutions appear to have comparative advantage in supplying these services.

● Banking Institutions

As shown in the IMF survey of international capital markets (2000), there has been a dramatic increase in foreign ownership of banks in most emerging market economies during the second half of the 1990's. Due largely to severe restrictions on entry, foreign banks penetration was traditionally low in East Asia. However, this has changed since the 1997-98 crisis (See Table 14). Notwithstanding the initial low degree of penetration, foreign bank control over assets of local banks jumped to 4.3 percent in 1999 from less than one percent in Korea in 1994. In Indonesia, it rose by more than ten times during the same period. On average, the foreign control in Korea, Malaysia and Thailand shot up to 6 percent in 1999 from 1.6 percent five years earlier.

A similar development can be found in the lending behavior of BIS reporting foreign banks in East Asia. Lending in both local and foreign currencies of BIS reporting foreign banks in the nine East Asian countries are shown in Figures 2 to 4. As shown in Figure 2, between 1991 and 2001, foreign banks' credit as a share of total bank credit more than doubled in Malaysia: it rose to more than 40 percent after the 1997 crisis

from an average of less than 20 percent over the 1990-96 period. In the Philippines the share jumped to 35.5 percent in 2001 after a sustained decline during the first half of the 1990s and in Thailand there has been a gradual increase in foreign banks share.

Figure 3 shows that foreign banks also made a substantial gain in terms of the loan market share, which reached almost the 30 percent level in Malaysia. Only in Taiwan and Korea, foreign banks have not able to increase their loan market shares. Much of the increase in the market share of foreign banks in the Southeast Asian countries has come from the large increase in their local currency lending as shown in Figure 4. Except for Malaysia, in all of the East Asian countries the absolute amounts of international claims of the foreign banks have declined, thereby lifting the ratios of local currency to international claims.

● Provision of Capital Market Services.

While foreign bank penetration in East Asia is still lagging behind that in other emerging market economies, Western investment banks, in particular American and European ones, have established a monopoly position in providing two major services in the capital markets in East Asia: 1) underwriting in the primary market and 2) trading and consulting in the secondary market. While there are many areas of financial services other than securities underwriting and trading, it is hard to quantify the value of financial services provided and in many cases relevant data are difficult to find. For these reasons, data related to the investment banking are presented to show the dominance of American and European financial institutions in providing financial services in East Asia.

Western financial institutions, in particular American ones, have been by far the largest providers of financial services in global investment banking. This was confirmed by Euromoney's 1996 poll of polls. According to this poll, by which the top 20 investment banks were selected based on a compilation of 70 Euromoney polls and league tables produced in 1995, almost all of the selected investment banks were either American or European. Six years later, this dominance remained unchanged; only one Japanese investment bank made the list (See Table 15).

Table 12 shows the dominance which American and European institutions held in providing the entire range of financial services. US-based financial institutions led in every category of services, followed by British-based ones. Not one single financial institution was based in Asia with the exception of Japan, and even then, the Japanese institutions were ranked dead last. The Euromoney polls in 2002 shows that American investment banks have solidified their dominance further; Japanese investment banks have been largely driven out of the market for capital market services since 1995.

From the perspectives of East Asia, a more pertinent issue to examine in regard to the role of western investment bank is their dominance in East Asian international financing. The amount of international financing for East Asian countries before the crisis grew rapidly (Table 16), but it was not local financial institutions but rather American and European financial institutions which managed to control the vast share of the market for underwriting and distribution of the new issues. Table 14 classifies the capital market instruments issued in the five Asian countries during the 1991-2001 period by nationality of the lead managers or book runners who sponsored the new issues. It can be seen that out of US$ 31.96 billion that was financed through capital markets for the 1998-2001 period by the six countries 74 percent was undertaken by American and European investment banks, and 6 percent by Japanese institutions. The cumulative figures for the 1991-1997 period show almost 70 percent of the capital market financing was managed by western institutions, compared to 30 percent by East Asian investment banks.

Table 17 also shows a very significant change in the structure of East Asia's international financing. Before the 1997 crisis the East Asian countries had heavily relied on syndicated loan financing. In the early 1990's, the six East Asian countries secured more than 70 percent of their total international financing from banking institutions. The proportion of loan financing had declined gradually, and after the 1997 crisis, all of their foreign financing has come from capital markets. In managing the syndication loan financing, East Asian banks maintained a loan's share of the market during the 1991-2001 period, reflecting the bank dominance of the East Asian financing systems.

Table 18 shows the distribution of lead managers by their parent country and each type of instrument issued in the six Asian countries during 1991-2001 period. American and European institutions accounted for more than 70 percent of all capital market financing, while Japanese institutions only 9 percent.

Table 19 lists top 20 lead managers or bookrunners in the management of debt and equity issues. The total amount underwritten shows a similar pattern of western dominance, the American and European institutions representing 90 percent and the East Asian institutions only 10 percent. Table 10 devides the list of top twenty lead managers into two sub periods before (1991-97) and after (1998-2001) the crisis; there was little change in the dominance of western lead managers.

Financial institutions and corporates worldwide are making increasing use of derivatives. Exchanges-traded derivatives are currently estimated to be in the magnitude of several trillions of dollars, compared with several hundred billion dollars in the late 1980's. Trading volume of over-the-counter derivatives is even larger than exchange-traded derivatives. Institutions and corporates in Asian countries are also increasingly relying on the use of derivative products to meet their diverse needs as their business activities are more and more internationalized and are becoming more complex.

It is, however, American and European institutions that dominate in the roles of brokers and dealers of derivative transactions. This is so even in the transaction of Asian derivatives including Asian interest rate swap, currency swap, currency options, etc., not to mention derivative products in more developed markets. According to the Risk Magazine (November 1996), most of first-tiered derivative brokers and dealers were either American or European institutions when evaluated based on pricing ability, market-making reliability and liquidity, and innovation and speed of transaction before the 1997-98 crisis.

In fact, it was reported that no local financial institution was ranked as active brokers or dealers of Asian derivatives. Moreover, the role of providing tailor-made derivative products according to customer's needs, which requires highly-developed financial expertise and sophisticated financial technology and becomes an increasingly important area of financial service industry, is entirely played by American and European

institutions. The East Asian financial crisis and the non-performing loan problems of Japanese banks which have curtailed their lending activities have consolidated further the role of western financial institutions in recent years in East Asia.

VI. Causes of Foreign Dominance in Capital Market Services in East Asia

VI-1. Overview

The discussion in the preceding section raises important questions as to how western financial institutions have been able to establish such a dominant position in East Asian finance and what effects this dominance would have on efficiency and stability of East Asian financial systems. Since the 1997-98 financial crisis, financial systems of many East Asian economies have been debilitated and the Japanese banking crisis has deepened further. Banks and non-bank financial institutions in the crisis-hit countries are still saddled with large amounts of non-performing loans (see Table 21). Shares of assets held by state-owned financial institutions were more than 70 percent in Indonesia and roughly 50 percent in Korea at the end of 2000 (World Bank 2001).

Prospects of these countries for privatizing the state-owned financial institutions are not promising because viable buyers, foreign or domestic, have yet to be found. Institutional reform for stability and soundness and corporate governance of financial institutions have been carried on intermittently and by and large at the snail's pace.

This dismal state of East Asian finance has combined with deregulation on entry of foreign financial institutions into East Asian financial markets and services industry and to expand their market shares. As shown in the preceding section, however, even before the crisis, western financial institutions had already controlled a commanding market share in the provision of a number of financial services, in particular capital market related ones.

From longer-term perspectives, therefore, one of the major reasons for the western dominance and the shallow financial integration in East Asia has been financial underdevelopment financial markets and institutions, in particular capital markets in an

environment of rapid financial globalization. A second reason was removal of restrictions on capital account transactions and entry into an industry where East Asian countries have not developed any comparative advantage vis-à-vis their western counterparts. A third reason is related to changes in the saving-investment profile of East Asia that gives an competitive edge to western financial institutions in providing financial intermediation and capital market services to East Asian savers.

VI-2. Financial Globalization

To western market participants, the growing presence of western financial institutions in East Asia may be a natural consequence of financial globalization. An overwhelming share of East Asia's international financial transactions is denominated in terms of key currencies, mostly the U.S. dollar, and conducted through international financial hub of New York and London. Except for Japanese banks, most of the banks in other East Asian countries have a limited access to international capital markets, relatively limited experience in international corporate banking, and a small regionwide branch network in East Asia. By and large, their customer bases are confined to domestic borrowers and lenders. Bond markets still remain relatively small in size and narrow in terms of maturity and issues. And the markets for financial derivatives have only recently begun to emerge. There are few domestic investment banks, securities firms, and mutual funds that are efficient enough to compete against their counterparts from the developed countries in international financial markets.

In the absence of these securities market institutions, therefore, it comes as no surprise that American and European investment banks have been able to dominate underwriting securities in international capital markets, organizing large syndicated loans, and negotiating multinational M&As and provision of other financial services in East Asia, and more so since East Asian countries took steps to open their financial markets in the early 1990s.[11]

[11] Even in banking, Japanese banks, which were active in lending to other East Asian countries and

Financial services industry is an industry that is very intensive in information, communication, and computation. The ongoing IT revolution has led to numerous innovations in financial technology; the costs of supplying financial services have in turned declined dramatically, thereby creating economies of scale and scope. In order to take advantage of scale and scope economics, financial institutions including banks and securities institutions throughout the world have come under increasing competitive pressure to capture a large market share, leading them to diversify their activities geographically and also to move into new service areas.

Financial market deregulation and opening in both developed and developing countries that began in the 1980's has also increased substantially the share of capital market financing relative to bank lending in global financial markets. Beginning in the early 1990s, emerging market economies in East Asia have increasingly sought to raise funds from capital markets rather than relying on syndicated loans or interbank short-term loans.[12] This change in the financing structure has led to a large increase in the demand for capital market services. Trade and financial liberalization in East Asian emerging market economies has also increased the demand for new financial services and products such as instruments for hedging exposure to currency and commercial risks and derivative products- options, swaps, and futures- for portfolio diversification and better risk management.

However, after long periods of financial repression, which had inhibited development of capital markets, East Asian emerging market economies did not have any comparative advantage in supplying capital market and other new financial services when their financial markets were opened. As a result, financial institutions in East Asian emerging market economies have been losing out in competition vis-à-vis their counterparts from the west despite the fact that they enjoy information and home bias

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accounted for the bulk of syndicated loans to these countries before the crisis, have withdrawn drastically their lending to Asian countries: East Asia accounted for less than 6 percent of their total external lending in 2001 (See Table 3).

[12] See Table 16-B.

advantage in local finance. Even in commercial banking where the home bias is of significant advantage, East Asian countries have seen their banking market share chipped away, albeit slowly, largely because East Asian banks have not been able to move out of traditional deposit taking and lending business into capital market, insurance, and other new services. That is, East Asian banks have been slow and inefficient in adapting to universalization of banking services. The vacuum of services created by this slow adjustment has been increasingly filled up by western financial institutions in recent years.

Under these circumstances, it is not suprising that large corporations with an investment grade rating in emerging market economies have migrated to the international financial hub where they could tap into wider investor bases and also obtain funds at lower costs and better terms. East Asian savers have also moved to New York and London markets as part of their international diversification strategy to add to their portfolios stocks and banks of advanced countries where financial markets are more open and legal systems protect share holder sights better than their own countries.

Several measures of internationalization of stock market activities-relative market capitalization of firms listed abroad, the ratio of value traded abroad to GDP, and the ratio of value traded abroad to value traded domestically-all show the growing trend of migration of issuance and trading of equities in emerging market economies (Claessens, Klingebiel, and Schmukler (CKS)2002). According (CKS 2002), migration of stocks of emerging market economies to international financial centers depends on overall development of the economy, the degree of shareholder protection and trading costs. Improvement in economic fundamentals of emerging market economies has therefore been the major driving force behind the migration.

Services offered by stock markets in New York and London are easily accessible from anywhere in the world. Large liquidity further increases the value of transactions at these markets. Global harmonization of accounting, auditing, disclosure, and corporate governance is likely to accelerate financial globalization. As CKS(2002) argue, in an age of financial globalization the functions and forms of stock exchanges in many emerging economies may need to be reconsidered.

VI-3. Underdevelopment of Capital Markets

One conclusion that emerges from the preceding discussion in that financial underdevelopment, in particular capital market underdevelopment, has led to the dominance of western financial institutions in providing capital market services in East Asia. What are then the causes of financial underdevelopment? They are well known and mostly pertain to the restrictive financial regulation, poor legal protection of minority stock holders, the financial intermediary-oriented financial system, nature of shareholder population, lack of skilled human resources, and insufficient infrastructure in information and telecommunication technology.

Postwar financial development in East Asia had been characterized by regulation of interest rates at below-market levels, restricted entry of new financial institutions, segmentation of financial markets, insularity of domestic finance from the world financial markets, and system safety at the expense of competition. This kind of financial repression had clearly discouraged the development of market-oriented and competitive financial services industry before East Asian countries embarked on financial liberalization in the early 1990s.

The deficiency of skilled human resources and advanced information and telecommunication technology has held up the development of the financial service industry. The increasing complexity and technological sophistication of financial services jobs is placing new demands on the labor force. A high quality and reliable information and telecommunications infrastructure is vital for competitiveness of financial services. Development of these essential factors to support a full financial service sector has been far behind the developed countries.

The lack of shareholder rights in most East Asian capital markets have made external reporting a low priority, which has in part be responsible for relatively low standards of accounting system and disclosure. Most East Asian countries have made a considerable progress in improving corporate governance and the legal system for protection of minority stockholders since the 1997-98 crisis. Yet, they have a long way

to travel before establishing western standards and legal and regulatory institutions. This institutional backwardness has been a major constraint on the development of bond and equity markets in East Asia.

- Regulatory Inefficiency

Although reform efforts have been made for modernization, over the last two decades, the regulatory system in many East Asian countries has been ineffective in keeping abreast of rapid innovations in the financial industry. As financial services become more complex and change rapidly, balanced and well-informed regulation and supervision is essential to the competitive needs of the industry. Reform efforts have been stepped up since the crisis, but regulatory agencies have not been able to develop the necessary skills to assess the complexity and potential risks associated with new financial services. This inability has discouraged the development of new financial services. Investment banking is one such service.

Investment banks assume full responsibility for selling entire issues of new stocks and bonds, thus bearing all the risks of potential price fluctuations. A successful underwriter therefore should be able to give advice as to which type of security should be issued, the size and pricing of the offering, and even its timing. In a financial environment dominated by bank lending, there is little room for financial institutions to develop the necessary expertise or to gain the type of experience required for the development of capital markets and related financial services.

- Paucity of Institutional Investors

The nature of shareholder population in East Asian countries also has contributed to underdevelopment of the financial services industry. In financial markets of developed economies, a large proportion of listed companies tends to be owned by a diverse shareholder population, in which institutional investors such as pension funds, mutual funds and insurance companies predominate. Such a diverse shareholder population facilitates the development of well-functioning capital market and related financial services, such as securities trading, consulting, merger and acquisition, and asset management.

In contrast, a large proportion of East Asian companies are owner-managed, or at

least feature a congruence of interests of shareholders and management in the form of ‘proprietor capitalism’. In Malaysia, Hong Kong, Thailand, and Indonesia, many companies are usually controlled by a family group -- often Chinese -- who staff many of senior positions and also own a large proportion, if not the majority, of shares. In countries such as Korea and Japan, listed corporate groups tend to be large conglomerates, often far too big to be controlled by a single family. However, although the founding family may no longer have a controlling stake, this does not mean that the shares are held by a floating population of institutional investors, as in the west. Rather, the bulk of a company's shares tends to be held for the long-term by friendly institutions with whom strong business ties exist, such as banks, life insurance firms and other industrial companies. This ownership concentration has been one of the serious obstacles to the development of the requisite institutional infrastructure for capital market and related services.

VI-3. International through global financial markets

Throughout the 1980’s and until the mid-1990’s, the ASEAN members and Korea were net borrowers as they were running deficits on their current accounts. China, Taiwan, and Japan were, on the other hand, accumulating huge amounts of current account surpluses, which made East Asia as a whole a net lender financing the bulk of U.S. and the rest of the world current account deficits. External financing for the East Asia’s deficit countries therefore ultimately came from the three East Asia’s surplus countries (on a net basis), but it was arranged and managed in part by Japanese banks, but mostly by western financial institutions. That is, East Asian savers and investors were intermediated by western financial institutions at New York and London markets.

Since the 1997 crisis, all four East Asian crisis countries (see Table 2) have generated large surpluses on their current accounts and are likely to continue to do so for the next several years. Together with China, Taiwan, and Japan, East Asia as a whole has become a larger net saver of the global economy than before. In investing their surpluses, East Asian countries have sought the services of western financial institutions

operating out of international financial markets in New York and London, simply because these institutions with a global reach and network are more efficient in allocating East Asian savings. And the growing surplus position in recent years has expanded East Asia's lending to the rest of the world through the international financial hub in New York and London. This lending increase is likely to have contributed to East Asia's tighter financial links with developed countries.

In diversifying their portfolios, East Asian savers must have been placing at least some of their savings in bonds and equities issued by other East Asian corporations and financial institutions. Again, it is reasonable to assume that the brokerage services for investing in foreign securities have been mostly provided by western financial institutions. This may be corroborated by the fact that equity markets have been expanding rapidly in terms of market capitalization and the variety of stocks listed in most of the East Asian exchanges and have attracted a growing number of investors from outside of the region since the early 1990s.

Hong Kong and Singapore have been two important regional financial centers in East Asia, but they do not appear to have played an important roll in advancing financial integration in East Asia with the onset of financial liberalization in the region. It should be noted that they were serving East Asian borrowers and lenders well before financial market opening got underway in the region. These two centers are essentially outposts of and hence tightly linked with major international capital markets in advanced countries. The crisis in 1997, which almost brought Hong Kong to the brink of collapse, has undermined their importance as regional centers as East Asian corporations and banks have increasingly migrated to New York and London markets for their financial service needs and transactions. In this process, Hong Kong and Singapore may have gravitated more toward linking financially East Asian economies with advanced economies than integrating them with one another.

Foreign financial institutions now receive a national treatment which provides a level playing field when they enter financial markets of East Asian countries. Many western banks have established a wide network of branches and subsidiaries throughout East Asia, and so have western securities firms, investment banks, insurance companies,

and other non-bank financial institutions. There are numerous emerging market funds operating out of New York to invest in East Asian securities. There is little doubt that the hold of western financial institutions in East Asian has increased since the early 1990s. This pervasive presence of western financial institutions is likely to expand and strengthen East Asia's financial ties with advanced countries with the continuing financial liberalization in the region.

Overtime, local investment banks and other financial institutions may become more competitive and new markets for financial derivatives may emerge to the extent that they enjoy advantage in collecting and assessing local information for their financial activities compared to western institutions. Such an advantage will diminish with advances in information and communication technology, while the gap in financial technology and expertise between East Asian and Western financial institutions remains. As a result, borrowers and lenders from East Asia will have more incentives to go to the New York and London markets than before, thereby speeding up integration of East Asian financial markets into global financial centers.

VII. Prospects for Regional Financial Integration in East Asia

VII-1. Implications of financial liberalization for regional economic integration

There has been a substantial increase in intra-regional trade in East Asia. Emergence of China as a major trading partner and its entry into the WTO are likely to accelerate East Asia's trade integration. The APEC agreement on trade liberalization and prospects for concluding a number of bilateral free trade agreements have also contributed to the expansion of trade in East Asia. This expansion in regional trade is therefore expected to produce market pressures for closer coordination or economic policies including exchange rate policy in the region.

In contrast, however, financial liberalization and innovation in East Asia do not appear to have strengthened financial linkages among financial markets of individual East Asian countries. Instead, financial market opening has led to diversification and

strengthening of East Asian financial ties with global financial markets. Trade liberalization has unleased market forces gravitating East Asian economies to regional integration; financial liberalization to global financial integration.

While individual East Asian countries have made considerable progress in deregulating and opening their financial markets, collectively they have not been able to coordinate their liberalization efforts. As a result, they have achieved very little in harmonizing the legal systems for the protection of minority stock holders, regulatory systems, tax treatments of cross-border financial transactions, and standards of banking, accounting, auditing, disclosure, and corporate governance at the regional level. This lack of cooperation in the regional harmonization of legal and regulatory systems and standard setting has been by far the most important cause of the slow progress in financial integration in the region.

While East Asian countries have been unable to coordinate their institutional reforms at the regional level, they have been pressured to adopt codes and standards for the financial sector regulation, accounting and corporate governance developed by advanced countries. Whatever its rationale, the effort of the advanced countries to graft the western systems and standards on East Asia has not been successful (see park 2001).

One implication of the preceding analysis is that financial market opening in East Asia in itself may not produce any incentives to create regional financial arrangements such as the Asian Monetary Fund and a common currency area in the long-run in East Asia. As far as finance is concerned, most of the East Asian countries may benefit more from joining the U.S. dollar bloc than forming an East Asian currency union. Realization of this possibility may in part explain the reason why the ASEAN+3 have not able to make much progress in their negotiations for contracting bilateral swap arrangements, casting clouds over the prospects for further expansion and consolidation of the Chiang Mai Initiative.

In the long-run, financial integration through liberalization would facilitate mobility of real capital between countries in East Asia as evidenced by a large increase in intra-regional foreign direct investment prior to the 1997 crisis, in particular Japanese

investment in China and ASEAN states. The increase in intra-regional capital mobility would contribute to integration of financial markets in East Asia. As opposed to this development, the growing dominance of western financial institutions and advances in financial globalization would diversify and deepen the region's ties with global financial markets. Combining these two developments, financial liberalization leaves uncertain as to whether it will generate incentives to market pressure for the East Asian countries to join and remain in a regional common currency area (CCA).

As in trade, however, causality may run from currency union to financial integration: that is, a political decision to form a CCA could anchor exchange rate expectation and create incentives to establish regional capital markets, thereby forging closer financial linkages among East Asian countries. However, the formation of a currency union is not likely to weaken East Asia's financial linkages with advanced countries. In deciding whether to join a CCA, East Asian countries may therefore have to examine closely whether monetary integration would help develop efficient regional financial markets that could survive competition vis-à-vis other global financial markets.

VII-2. Benefits and Costs of Establishing Regional Financial Markets

Although the odds are against them, countries in East Asia have been working together to develop regional financial markets where bonds and equities denominated in local currencies are issued and traded as part of their strategy to deepen economic integration in the region. The Chiang Mai Initiative reflects such regional efforts for integration. In contemplating establishing regional financial markets and also supporting multilateral banks specialized in regional finance, East Asian policymakers will be faced with two fundamental questions related to benefits and costs of regional financial institution and market building. Will regional financial markets help improve allocation of resources in East Asia? Will the development of regional financial markets reduce the likelihood of recurrence of financial crisis in the future?

As noted earlier, the lack of professional expertise on securities business, the

inadequacy of financial infrastructure including legal and regulatory systems, low standards of accounting, auditing and disclosure systems, an non-transparent corporate governance all have plagued the development of capital markets in East Asia. The cost of developing these legal, regulatory and informational infrastructures could be very high and hence may not justify the development of capital markets in small economies which are not likely to obtain scale economies and hence efficiency. The increasing migration of stocks to international financial and hub increases the fixed overhead cost of maintaining market regulation, clearing, and settlements systems; it also reduces an order flow for local brokerage houses and business for local investment banks, accounting firms and credit rating agencies.

This cost consideration has led to the proposals for establishing an East Asian regional stock exchange and an East Asian regional bond market. Although these market may enable some of the East Asian countries to borrow in their own currencies, there is no guarantee that a regional bond market based in East Asia will be large and efficient enough to survive competition against global bond markets. Furthermore, a viable East Asian bond market will require establishing beforehand a regional financial infrastructure that includes regional credit agencies, clearing and settlement systems, cross-border securities borrowing and lending mechanisms, credit enhancement and guarantee agencies, and regional trading mechanisms (ADBI, 2001). Tax treatments for securities transactions will also have to be harmonized at the regional level. It will take many years, if not many decades, for the East countries with diverse legal and regulatory systems and at different stages of financial development to resolve their institutional differences to establish the requisite financial infrastructure.

Bond issues in the proposed East Asian market would be denominated in regional key currencies. Tokyo is a candidate for the location of a regional bond market, and the Japanese yen could serve as a key currency. However, Tokyo does not have the infrastructure that could support such a market and the prospects for internationalization of the yen as an international transactions and reserve currency does not appear to be promising (ADBI, 2001). And many countries in East Asia will be hesitant in issuing bonds in their own currencies in such a regional market for fear that trading in these

bonds could complicate their macroeconomic management.

There is also the question of whether the East Asian bond market could be more efficient in diversifying sources of corporate financing and opening new investment opportunities than global bond markets. The presumption is that participants in this market would have better access to a large amount of more accurate information about prospects of economic and financial conditions of firms and financial institutions in the region than participants in global bond markets. However, this informational advantage may not be as significant as it may appear in view of the increased accessibility to not only macroeconomic but also sectoral and corporate information throughout East Asia as a result of the improvement in corporate governance, disclosure, and information technology.

There is also no reason to believe that the East Asian bond market will be better placed to safeguard the countries in the region from the recurrence of financial crisis in the future, unless it can be shown that this market will not be less susceptible to speculation, herding and other market failures as much as international financial markets have been. Finally, efficiency considerations may in the end require integration of the East Asian regional bond market with global bond markets. Given the size and efficiency disadvantages, it is difficult to argue that such a regional bond market could weather through the competitive pressure of global bond markets.

VIII. Concluding Remarks

One could argue that East Asia's integration into global financial market is a natural as well as desirable development, since the ultimate objective of economic liberalization is after all creation of globally integrated markets for goods and services and also for financial instruments. Why should then globalization of finance raise any consternation in East Asia, or for that matter, anywhere else? It does because globalization has raised a number of concerns to East Asian policymakers that have not been adequately addressed in the discussion of reform of the international financial

system.

One concern is that financial liberalization may not necessarily help improve efficiency and competitiveness of the financial service industry in East Asia through the process of learning and acquiring new and more sophisticated financial technologies, certainly not in the foreseeable future. Because the gap in financial technology and expertise between East Asian emerging market economies and advanced developed countries is so large and building legal, regulatory, and other financial infrastructures is cost by and takes so much time that the East Asian countries may never be able to catch up with their western competitors, and in fact may fall in a trap of low technology banking while the provision of other more sophisticated financial services is dominated by foreign financial institutions.

This specialization may not pose any serious problems to the East Asian countries, if efficiency and stability the global financial system could be enhanced so as to reduce the incidence of financial crisis and help emerging market economies withstand better both internal and external shocks by instituting an effective system of liquidity provision and prudential regulation of financial institutions and markets at the global level.

Despite the long and protracted discussion of reform of the international financial system, in the eyes of many East Asian policymakers not much has been accomplished in addressing the interests of emerging market economies.[13] There is no reliable global or regional lender of last resort, which could provide liquidity support to emerging market economies in case they suffer from a short-run balance of payments problem. It is also highly unlikely that the global community could agree to establishing a global regulatory authority. From the perspectives of East Asian emerging market economies, advanced countries with developed financial markets have not devoted much effort to expanding and strengthening cross-border financial supervision and regulation.

The absence of effective cross-boarder prudential supervision of foreign financial institutions operating out of East Asian financial markets has created a number of problems. As the IMF (2000) report points out, there is no effective mechanism of

[13] On limited progress on international financial reform, see Griffith-Jones and Ocampo (2002).

monitoring large foreign financial institutions providing a large number of different financial services to local customers in emerging market economies including those in East Asia. Many of the sophisticated derivative products developed by these foreign institutions could easily be used to evade taxes and regulations.

Most important of all, to East Asian policymakers, it is difficult to predict how branches or subsidiaries of foreign financial institutions and their parent institutions would behave in times of financial difficulties and crises in emerging market economies. Would they panic and move out all at once at the first sign of crisis as they did in the fall of 1997? Most of East Asian countries have not been able to borrow from international capital markets in their own currencies although they have been removing many restrictions on capital movements, and they are not likely anytime soon. This means that they will be continuously exposed to the currency and term mismatch problems that triggered the crisis in 1997. A macroeconomic policy framework focusing on free floating and inflation targeting has not been tested for its effectiveness in sustaining financial stability with robust growth in emerging market economies.

These concerns and competitive disadvantages in producing financial services together with the region's desire to build its own mechanism of defense against future financial crises led to the discussion of establishing regional financial arrangements in East Asia, culminating in the Chiang Mai Initiative in May, 2000. As long as these issues remain unresolved, they will continue to rally East Asia's ongoing movement toward financial integration.

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Appendix: Capital Account Liberalization in East Asia

I. Before the 1997 Crisis

I-1 Korea

During much of the period preceding the 1997 crisis, Korea had been characterized as one of the most hard line interventionist regimes in East Asia. Beginning in the mid-1980s, Korea, however, took a series of reforms that would transform it into a more market-oriented economy. With a large increase in current account surpluses over the 1986-89 period, the Korean government found a room in which a progressive liberalization of imports and deregulation of both current and capital account transactions could be carried out without disrupting the economy. Removal of restrictions on capital outflows was therefore given a higher priority than liberalizing inflows. In fact, the Korean authorities were compelled to impose various restrictions on capital inflows to mitigate the expansionary effects of the large current account surpluses in a managed floating system. For the first time, Korean institutional investors were allowed to undertake direct investment and purchase real estate abroad and to invest in selected foreign securities. The limit on the amount that domestic pension funds could invest in overseas securities was abolished, and domestic residents were for the first time allowed to hold overseas deposit accounts.

The favorable position of the current account did not last very long, however. By 1990, the current account recorded a significant deficit with little prospects for an early turnaround. In order to deal with the weakening current account, some of the earlier restrictions on capital inflows were lifted. Inbound foreign direct investment was further liberalized, banks were allowed to borrow from abroad, and the limits on the amounts of foreign exchange that could be brought in for lending to local banks were also raised.

As a result of these reform efforts in deregulating both current and capital account transactions, Korea had developed a relatively liberalized capital account by 1992.

Nevertheless, Korea was severely criticized by the U.S., European countries, and international financial institutions (IFIs) for being too restrictive in regulating the capital account by the OECD standard at a time when Korea was exploring the possibilities of joining the OECD.

The critics pointed out that the rigid controls undermined efficiency of the financial system and also acted as a constraint on sustaining rapid growth, because they kept domestic interest rates higher than interest rates in international financial markets (trading partners as well as export competitors). In response to these complaints and foreign pressure for further deregulation, the government began a gradual liberalization to be implemented over a five-year period in three stages with the actual speed of liberalization to be adjusted to the state of the economy. A focal point of the reform was the adoption of a negative list system in regulating capital flows.

At the initial stage of liberalization, there was considerable concern that a sudden deregulation of portfolio capital flows could destabilize the economy, while efficiency gains to the economy from the liberalization would be too small to justify such instability. Many skeptics of liberalization argued that the gains might even be insignificant and that they would only be realized over the long run. And at that time there was no way of really knowing how a small, semi-open economy such as Korea, where domestic interest rate were twice as high as those in the international financial markets, would move to a new equilibrium if the restrictions on capital flows were removed suddenly and completely, when the market supporting infrastructure and financial supervision were not well established to curve speculative activities in the foreign exchange and other financial markets. These concerns and debate on the speed and extent of liberalization delayed the actual implementation of the plan and only after accepting the IMF financial support, the Korean government began to undertake most of the reform measures they promised four years earlier.

I-2. Thailand, Malaysia, and Indonesia

In the early 1990s, Thailand, Malaysia, and Indonesia maintained a relatively

more open capital account than Korea as regard to both foreign direct investment and portfolio capital inflows. According to Lane et. al. (1999, p.73), "in Indonesia the capital account had been liberalized well before the crisis and the free foreign exchange system had been a pillar of economic policy for the past 30 years." Because of their relatively low saving rates, they needed large amounts of foreign capital to sustain rapid growth, and for this reason they actively deregulated inbound foreign direct investment (FDI) and cross-border financial transactions beginning in the early 1980s when capital inflows decreased sharply as a result of the Latin American debt crisis in 1982.

Foreign Direct Investment (FDI)

Thailand had lifted many restrictions on FDI inflows the 1970s, mainly through the Alien Business Law of 1972 and the Investment Promotion Act of 1977. These two acts basically introduced a negative list system of control. Most of the restrictions on FDI inflows in import-substitutions industries had been lifted in the 1970s. In the latter half of the 1980s, the Thai government broadened and accelerated the liberalization process by deregulating FDI inflows to export industries in order to support the launching of an export-led development strategy. In 1991, for example, foreign investors were allowed to own 100 percent of domestic firms that export all of their output. Additional incentives for FDI in export industries, such as tax breaks or exemptions, were introduced. With the help of these deregulatory measures, annual FDI inflows to Thailand increased from a mere U$0.4 billion in 1987 to U$2.4 billion in 1990.

In Malaysia, much of the liberalization of FDI inflows took place during the 1985-87 period. In 1985, as an incentive to encourage the transfer of advanced foreign technology to domestic industries, the Malaysian government permitted non-residents to own more than half of the capital of companies which were considered "high-tech". The Investment Promotion Act of 1986 provided various incentives for foreign investment in manufacturing, agriculture, and tourism. These included simplification of the investment process and raising the limit on the percentage holdings of joint ventures that non-residents could own.

Since 1987, non-residents have been allowed to wholly own companies that export at least 80 percent of their output and to purchase domestic real estate for business purposes with funds brought in from abroad. In 1989, non-resident firms were allowed to issue corporate bonds in the domestic securities market, and legislation was passed to protect the copyrights of non-residents for 25 years. These measures helped increase annual FDI inflows from U$0.7 billion in 1988 to U$2.3 billion in 1990, and to U$6.1 billion in 1994.

In Indonesia, from the early 1970s until the mid-1980s, the bulk of FDI inflows were concentrated in the oil and gas industry. The upshot to this was that the economy became increasingly dependent on these two industries. In an effort to develop a more balanced industrial structure and promote exports of manufactured products, Indonesia began to liberalize FDI inflows in industries other than oil and gas. In 1985, the approval process for FDI inflows was greatly simplified, and the following year, non-residents were allowed to establish joint ventures in non-oil/gas export industries. Initially, the maximum limit on non-resident ownership of joint ventures that export all of their products was 80 percent. The limit was raised to 95 percent in 1987. More importantly, a negative list system was adopted in managing FDI inflows in 1989. The minimum limit on FDI for a specific project was gradually reduced from U$1 million and then entirely abolished in 1994.

In 1994, FDI was allowed in previously restricted industries such as telecommunications, ports, railways, and nuclear power generation. During the early 1990s, most of the remaining restrictions on foreign ownership were removed so that by 1994, 100 percent ownership was possible in most industries. Afterwards, the total volume of FDI inflows increased from U$0.6 billion in 1987 to U$1.5 billion in 1991, and to U$2.1 billion in 1994.

Portfolio and Other Investment

Along with the deregulation of FDI, the three countries also accelerated the liberalization of cross-border financial transactions throughout the 1980s and early 1990s

for the purpose of supporting high levels of domestic investment, diversifying their sources of foreign capital and improving efficiency of their domestic financial markets.

Thailand took a major effort in accelerating liberalization of cross-border financial transactions during the 1985-97 period. The government created two funds for foreign investors in Thai securities, the Bangkok Fund in 1985 and the Thailand Fund in 1986, and allowed ten more funds to be launched between 1987 and 1990. In 1987, because the foreign-ownership limit was reached by so many companies, the Stock Exchange of Thailand established an Alien Board where foreign investors can trade such stocks among themselves. In general, foreign investors were permitted to hold up to 49 percent of the outstanding shares of any listed Thai companies except for some industries such as the banking sector, where a 25 percent limit was applied.

During the period under consideration, the Thai government also introduced various measures of liberalization to promote further capital inflows including portfolio capital such as tax incentives to foreign mutual funds, reduction of taxes on dividends remitted abroad, and lifting all restrictions on the repatriation of loan repayments, interest payments, and investment funds by foreign investors (Johnston et. al. 1997). When it became an article VIII country in 1990, Thailand also began to ease restrictions on trading in and cross-border transfer of foreign exchanges and uses of non-resident baht accounts and resident foreign currency accounts.

The Bangkok International Banking Facilities (BIBF) was launched in March 1993 with the purpose of expanding access to low cost of foreign borrowing and developing Thailand as a regional financial center. BIBF was Thailand's version of an offshore financial market, in which commercial banks with BIBF licenses are allowed to conduct lending (in-out) and engage in other international and investment banking operations as well as traditional offshore banking (out-out). In 1993, 47 commercial banks were granted BIBF licenses. These included 32 foreign banks, 12 that already had been operating in Thailand, and 20 newcomers (Tivakul and Svetarundra, 1993; and Vichyanond, 1994). Three years later, the Provincial International Banking Facility (PIBF) was created which was allowed extending loans in both local and foreign currencies with funds raised from abroad.

Malaysia became an article VIII country in 1968 and adopted a flexible exchange rate system in 1973.[14] Malaysia was a highly open economy and followed a development strategy that espoused liberalization of capital movements (Johnston et. al., 2000). Before the crisis Malaysia had taken a major liberalization of the capital account on two occasions in 1986-87 and 1994-96. Before the capital controls were reimposed in 1998, there were fewer restrictions on cross-border transactions in ringgit and financial transactions with non-residents.

Malaysia permitted foreign investors to participate directly in the domestic stock market from the beginning in 1973, when the Kuala Lumpur Stock Exchange was established. The Malaysian authorities allowed offshore over-the-counter trading in Malaysian equities and bonds and development of an offshore market in ringgit in Singapore. Malaysian banks were freely engaged in arbitrage between the domestic and offshore markets by providing forward cover against ringgit to non-residents. Foreign investors were relatively free investing in all types of Malaysian financial assets including bank deposits. As for portfolio outflows domestic corporations were subject to a relatively few limitations in remitting funds for overseas investments. Authorized dealers and Tier-I merchant banks were unrestricted in their borrowing from abroad and lending in foreign exchange both to residents and non-residents, although foreign currency borrowing by residents was subject to limits.

Up until the mid-1980s, Indonesia maintained a highly regulated regime with regard to portfolio capital inflows, although it had the most liberal policy for outflows among the four countries under consideration. Non-residents were not allowed to purchase equity in the domestic stock market and selective limits on foreign borrowings were in effect. It was not until 1985 when Indonesia became an article Ⅷ country that it took measures to liberalize payments and transfers for current international transactions and to develop the foreign exchange market. In the same year, non-residents were allowed to establish joint venture securities firms. Foreign banks were permitted to establish joint ventures with domestic banks.

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[14] Capital account liberalization in Malaysia draws on Johnston et. al, (2000, p.4-6).

While only one joint venture existed in 1988, there were 30 by the end of 1994. Altogether, during the same period, the number of branches of foreign banks and joint-venture banks increased from 21 to 83. In 1992, the purchase of bank shares by non-residents, initially banned, was raised to 49 percent, while domestic firms were permitted to list up to 30 percent of their equity on foreign stock exchanges. A year later, quantitative limits on banks' borrowing from abroad were lifted. Foreign investors were allowed to acquire up to 49 percent of the ownership of listed stock.

With the removal of restriction on capital account liberalization, a large amount of foreign capital began to flow in. According to Table 2, the net capital inflows in Indonesia and Thailand amount to 4.1% and 9.1% of GNP on average during 1992-96, while the corresponding figures are 1.9% and 7.2% in Korea and Malaysia. Concerned about the difficulties this inflow could create for macroeconomic management the Indonesian government reimposed quantitative restriction on borrowing from abroad by banks and state enterprises, which remained in place until 1996. Even during this period, however, Johnston et. al. (1997, p.23) suggest that the Indonesian policymakers continued to liberalize FDI and portfolio investment from abroad through the stock market as part of their financial sector development.

During the first half of the 1990s, the three countries saw the need to slow down, and in some cases reverse, the capital account liberalization. A number of measures were adopted to reduce the volume and volatility of short-term capital flows as governments became wary of the potentially destabilizing effects of massive and sudden flows of foreign capital in either direction. As noted earlier, Malaysia and Indonesia imposed quantitative restrictions on capital inflows, while Thailand chose to liberalize outflows rather than to restrict inflows. By liberalizing foreign exchange controls in three stages from 1990 through 1994, most restrictions on outflows were removed in Thailand. Previously, the outflow of capital was tightly controlled and there was almost no restriction on inflows. The first round of the liberalization process in May 1990 focused on deregulation of current account transactions. The second (April 1991) and third rounds (February 1994) saw most of the controls on capital outflows lifted.

The Malaysian government, in 1991, made outstanding ringgits received through

swap transactions with non-residents subject to a reserve requirement. In 1992, the total maximum amount of borrowing in foreign currency from domestic banks by a resident was limited to U$1 million; previously there had been no maximum. In early 1994, the government also implemented administrative controls to discourage the inflow of foreign capital, especially speculative short-term capital, "hot money". These included prohibition of the sale of short-term money-market instruments to non-residents, and ban on commercial bank swaps and outright forward transactions on the bid side with foreign customers unless trade-related. These measures proved to be successful in curbing the inflows of short-term capital (Ariyoshi et. al., 2000).

Indonesia adopted several measures in 1991 to discourage overseas borrowing. The Bank of Indonesia, the central bank, successfully reduced the volume of swap operations by lowering the limit for an individual bank from 25 percent to 20 percent of its capital, raising the swap premium by 5 percentage points, and announcing that future swap operations could be undertaken only at its initiative. Limits were imposed on offshore borrowing by government-owned enterprises and commercial banks, and all public sector overseas commercial borrowing was subject to government approval. In the same year, a debt management team was organized to supervise foreign loan transactions.

II. Capital Account Liberalization : After the 1997 Crisis

Korea

As part of the conditionality of the IMF rescue financing, the Korean government agreed immediately after the crisis broke out to shift to free floating and open wide financial markets including those for short-term securities. These measures of liberalization were aimed at stabilizing domestic financial markets by inducing foreign capital inflows. The Korean government also agreed to liberalize further the foreign exchange system over a three-year period divided into two phases beginning in April, 1999. The basic plan for the liberalization was announced in June, 1998, which was

similar in coverage to the 1993 plan.

During the first phase, controls of capital account transactions were converted into a negative system, removing all restrictions except for those limited by law or decree. In order to promote overseas investment by private corporations and financial institutions, residents' purchases of overseas real estate were deregulated and their overseas borrowing and issuance of foreign currency denominated bonds with maturity less than one year were also allowed. At the same time non-residents were permitted to make deposits and open trust accounts denominated in Korean won with maturity more than one year. The bona fide principle in forward and derivative transactions was abolished.

Beginning in January 2001, the foreign exchange liberalization entered its second phase with further liberalization for individuals and streamlining of remaining restrictions on corporations and financial institutions regarding their foreign exchange transactions.

Since the start of the second phase of the liberalization:

(i) Restrictions on obligatory repatriation of external claims have been eased;

(ii) Ceiling's on overseas payments and monetary possessions for residents when leaving the country have been eliminated;

(iii) The U$20,000 ceiling on foreign currency purchase by residents has been lifted;

(iv) The maturity restrictions on Korean won denominated deposits or trusts via domestic financial institutions by non-residents has been removed;

(v) Overseas borrowings by individuals and non-profit organizations have been allowed, if they are notified to the Bank of Korea (Central Bank). However, short-term overseas borrowings by domestic firms with financially unsound structure are still restricted; and

(vi) OTC securities transactions between residents and non-residents have been deregulated.

Indonesia

On August 29, 1997, immediately after the crisis touched off, the Indonesian

authorities imposed limits per customers on forward currency trading between non-residents and banks and on each bank's outstanding position in the forward market (U$5 million) to restore stability in the foreign exchange market. However, the Indonesian government agreed to phase out these controls as soon as possible in its letter of intent to the IMF.[15] At the same time, the Indonesian authorities allowed foreign investors to purchase unlimited domestic share except for bank shares as of September 4,1997 to encourage inflows of foreign capital.

In 1998, many restrictions on foreign direct investment were eased in order to stimulate domestic investment. Some of the deregulation measures include:

(i) Removal of all formal and informal barriers to FDI in palm oil plantation;

(ii) Lifting of restrictions on FDI in retail and wholesale trade; and

(iii) Reducing the number of activities heretofore closed to foreign investors in July, 1998.

In the following year, "Act on the Foreign Exchange Flows and Exchange system" was promulgated in which ownership and uses of foreign exchange were in principle liberalized. The Act also provides a legal basis for introducing prudential regulation on foreign exchange transactions. The Act gives the central bank authority to request information and data concerning foreign exchange transactions conducted by residents and to prescribe provisions for prudential regulations on various types of foreign exchange transactions conducted by banks.

Malaysia

When Malaysia came under speculative attacks in July 1997, it shifted to a tight monetary and fiscal policy to defend its currency. Unlike Thailand and Indonesia, Malaysia was able to weather the initial attack for almost a year after the Thai crisis erupted. By mid-1998, however, it was clear that the initial policy response was not

[15] Letter of Intent and Memorandum of Economic and Financial Policies, October 31, 1997.

working. Because of the expectation of a depreciation of the currency, interest rates in the offshore ringgit market rose relative to domestic interest rates. This increase triggered large capital outflows and led to an increase in domestic interest rates, which in turn accelerated contraction in the economy and exacerbated corporate debt build-up and non-performing loans problems at financial institutions.

Faced with a rapidly deteriorating macroeconomic situation, Malaysia decided to fend for itself by taking radical measures of its own, rather than accepting an IMF rescue package. On September 1, 1998, the Malaysian government announced capital-control measures to halt the movement of short-term capital and restore monetary autonomy. The ringgit was pegged to the U.S. dollar at the rate of M$ 3.80 the very next day. And the monetary policy was further relaxed.

The capital controls were targeted at eliminating the offshore ringgit market and restricting the supply of ringgit to speculators, and some of the specific measures introduced on September 1, 1998 included:

(i) Prohibition of repatriation of portfolio investment held by non-residents for 12 months;

(ii) Mandatory repatriation of ringgit held offshore by the end of September;

(iii) Restrictions on the transfer of capital abroad by residents;

(iv) Prohibition of granting ringgit credit facilities to non-resident corresponding banks and stock broking companies by residents;

(v) Prohibition of obtaining ringgit credit and facilities from non-residents by residents; and

(vi) Approval of investment abroad by residents.

About six months later, however, some of these controls were relaxed. For example, the 12 month holding period restriction on repatriation of portfolio capital was replaced with exit levies on the principle of capital investment made prior to February 15,1999 and also profits from investments made after February 15,1999.

Thailand

Deregulation of capital inflows combined with rapid growth brought in a large amount of foreign capital in excess of the absorptive capacity of the Thai economy. In 1995, restrictions on short-term capital inflows were introduced in the form of 7 percent reserve requirement on banks' non-resident baht accounts. These measures, however, did not slowdown capital inflows. Subsequently, growing concerns about the rapid deterioration of the current account, an overvalued exchange rate, and the insolvency of the financial system led to a sharp reversal of capital inflows and eventually touched off a major crisis.

In an effort to stave off speculative attacks against the baht, on May 1997 the Thai government introduced a number of capital controls aimed at breaking the direct arbitrage link between the domestic and offshore baht markets and restricting holdings of baht by non-residents. The control measures prohibited non-residents from obtaining baht credit facilities through swap and forward transactions and from transferring baht abroad. Foreign equity investors are not allowed to repatriate their funds in baht. In addition, non-residents were also subjected to use onshore exchange rate rather than the offshore rate when they were repatriating their portfolio investment in foreign currency. These measures remained in effect until the end of January of 1998.

Since then the Thai authorities have not taken any steps toward deregulating further portfolio capital flows. Instead, their liberalization efforts focused on encouraging new inflows of foreign direct investment in service industries such as brokerage services, wholesale and retail trade, and construction by converting the Alien Business Law into a new and more liberal foreign investment law.

In recent periods, there have been indications that the Thai authorities have intervened in the foreign exchange market to limit short-term volatility of the nominal exchange rate. For this intervention purpose, they have tightened foreign exchange reporting requirements, raising the concern that the tightening is a prelude to reintroducing some of the capital control measures they phased out before.

Table 1-1. Degree of Capital Control

Year	Indonesia	Korea	Malaysia	Thailand
1995	0.53	0.68	0.71	0.72
1996	0.53	0.67	0.71	0.72
1997	0.51	0.58	0.71	0.70
1998	0.48	0.48	0.76	0.70
1999	0.49	0.42	0.76	0.70

Source: Author's estimates.

Note: Following Johnston et al. (1999). we define the degree of capital control as $\frac{CC_i}{N}$ where N denotes the number of types for capital controls listed in the IMF's yearly publication, *Exchange Arrangements and Exchange Restrictions.* CC_i is the number of controls which an individual country i actually imposes on the capital movements. Capital controls refer to prohibitions, quantitative limits, approval and registration requirements, and restrictions on investors' opportunities. Higher values indicate higher degree of capital controls.

Table 1-2 Index of Capital Control and Capital Account Liberalization

	Miniane (2000)		Capital Flows (Ratio of GDP)	
	1989	1998	1985-89	1994-98
East Asia				
Indonesia	-	-	0.006	0.039
Malaysia	0.85	0.85	0.040	0.051
Philippines	0.92	0.85	0.013	0.059
Singapore	0.23	0.38	0.150	0.288
Thailand	-	-	0.025	0.048
Hong Kong	0.08	0.23	-	-
Korea	0.85	0.77	0.017	0.047
Taiwan	-	-	-	0.042
China	-	-	0.014	0.060
Japan	0.46	0.23	0.063	0.038
Average	0.57	0.55	0.041	0.075
Europe				
Austria	0.69	0.31	0.044	0.105
Bel-Lux[1)]	0.54	0.46	0.132	0.429
Finland	0.62	0.23	0.054	0.134
France	0.38	0.23	0.040	0.091
Germany	0.23	0.08	0.052	0.091
Ireland	-	-	0.116	0.774
Italy	0.46	0.23	0.019	0.109
Netherlands	0.23	0.08	0.109	0.239
Portugal	0.62	0.23	0.036	0.123
Spain	0.83	0.31	0.031	0.084
Average	0.51	0.24	0.063	0.217

Source: Miniane (2000), and author's estimates

Note: 1) Belgium and Luxemburg

2) -: not available

Table 2. Five Asian Economies(1): External Financing

(bi

Current account balance

External financing, net

Private flows, net

Equity investment. Net

Direct investment. Net

Portfolio investment. Net

Private creditors, net

Commercial banks, net

Nonbanks, net

Official flows, net

IFIs

Bilateral creditors

Resident lending/other, net(2)

Reserves (- = increase)

E = estimate, f = IIF forecast

Source: Institute for International Finance Data.
(1) Indonesia, Malaysia, Philippines, South Korea and Thailand.

(2) Including net lending, monetary gold, and errors and omissions.

1987	
1988	
1989	
1990	
1991	
1992	
1993	
1994	
1995	
1996	
1997	
	9.3
	12.1

-0.5
-16.8
-25.4
-16.1
-13.6
-22.3
-39.3
-54.6
-27.3

-6.5
1.8
17.2
26.9
29.8
33.9
55.3
54.8
98.3
119.8
42.2

-7.1
3
15.2
22.1
27.7
25.2
49.4
48.4
94.8
121.7
6.6

2.2
4.4
7.6
5.5
4.1
11.3
24.6
15
16.1
20
6.2

2.7
4.5
4.5
4.2
4.8
4.1
4.8
6.8

0.7
-0.3
6.9
20.4
10.2

12
15.2
-0.7

-9.3
-1.4
7.6
16.6
23.6
13.9
24.7
33.4
78.7
101.7
0.5

-8.9
-1.5
5.7
18.4
19.4
7.2
13.7
30
64.7
69.4
-16.9

-0.4
0.1
1.9
-1.8
4.2

6.7
11
3.4
14
32.3
17.4

0.6
-1.2
2
4.8
2.1
8.7
5.9
6.4
3.4
-1.9
35.6

0.7
-0.8
0.7
-0.7
0.6
2.2
1.1
-0.6
-0.4
-2.1
22.5

-0.1
-0.4

1.4
5.5
1.5
6.4
4.9
6.9
3.8
0.2
13

0.9
-4
-7.7
-3.7
5.3
1.2
-21.8
-27.9
-44.8
-46.8
-47

-3.7
-9.9
-9
-6.4
-9.6
-19
-19.9
-4.6
-14.1
-18.4
32.1

1997	-27.3
1998	69.9
1999	62.7
2000e	47.1
2001f	32
2002f	28.3
	42.2
	-13.8
	2.7

13.6
-2.4
7.6

6.6
-38.3
1.3
10.8
2.7
9

6.2
16.6
37.1
25.5
18.9
19.6

6.8
13.3
16.6
14.1
8.6
7.8

-0.7
3.3
20.5
11.4
10.2
11.8

0.5
-54.9
-35.8
-14.6
-16.2
-10.5

-16.9
-48.4
-32.2
-15.5
-9.1
-7

17.4
-6.5
-3.6
0.9
-7.1
-3.6

35.6
24.5
1.3
2.8
-5.1
-1.5

22.5

19.7
-5.2
1.9
-8.7
-4

13
4.9
6.6
0.9
3.6
2.5

-47
-16.7
-28.6
-31.7
-18.2
-19.8

32.1
-39.4
-36.8
-28.9
-11.4
-16

Table 3. **Japan's International Bank Lending**

Unit: million dollars

	1995.6		1996.6		1999.12		2001.6	
	amount	share	Amount	Share	Amount	share	amount	share
Developed Countries	30308	0.182	26526	0.159	528335	0.667	728725	0.752
Asia	107976	0.649	115471	0.693	65050	0.082	51934	0.054
Indonesia	20512	0.123	21622	0.130	12491	0.016	9626	0.010
Korea	20874	0.125	22512	0.135	12592	0.016	10110	0.010
Malaysia	6091	0.037	8131	0.049	6029	0.008	5843	0.006
Philippines	1147	0.007	1402	0.008	2921	0.004	3066	0.003
Thailand	32628	0.196	37552	0.225	13075	0.016	7979	0.008
sub total	81252	0.488	91219	0.547	47108	0.059	36624	0.038
Total	166368		166701		792676		969425	

Source: Bank for international Settlement, The BIS Consolidated International Banking Statistics, Various Issues.

Sour Table 4. Japan's Overseas Direct Investment by Region*

(Unit: U.S. million Dollar)

	1997	1998	1999	2000	2001 (the 1st half)
Asia	12,181	6,528	7,162	5,931	2,762
Korea	442	303	980	813	355
Hong Kong	695	602	971	936	92
Taiwan	450	224	285	510	146
Singapore	1,824	636	962	424	418
Thailand	1,867	1,371	816	931	512
Philippines	524	379	617	458	93
Indonesia	2,514	1,076	918	414	191
Malaysia	791	514	526	232	104
China	1,987	1,065	751	995	752
Vietnam	311	51	99	21	49
India	434	257	208	168	36
Sri Lanka	270	36	19	11	13
Pakistan	62	9	-	-	-
North America	21,389	10,943	24,770	12,271	3,223
Latin America	6,336	6,463	7,437	5,232	2,245
Middle East	471	146	113	19	1
Europe	11,204	14,010	25,804	24,406	4,966
Africa	332	444	515	53	123
Oceania	2,058	2,213	893	667	380
Total	53,972	40,747	66,694	48,580	13,699

Note: * Report-Accepted Basis

Source: JETRO. 2002. *Jetro Investment White Paper 2002*.

JETRO. 2000. *Jetro Investment White Paper 2000*.

Table 5. Korea's Overseas Direct Investment by Region*

(Unit: U.S. million Dollar)

	1997	1998	1999	2000	2001	Outstanding at the end of 2001
Asia	1,575	1,531	857	849	-317	10,882
Malaysia	-7	21	2	-13	10	323
Vietnam	92	50	15	36	31	638
Singapore	23	129	154	72	20	508
India	105	115	14	15	8	475
Indonesia	154	58	75	61	-363	1,061
Japan	62	22	34	34	75	527
China	695	665	221	307	-274	4,382
Thailand	184	89	4	17	28	500
Philippines	30	33	77	62	42	505
Hong Kong	52	371	203	239	72	1,269
Middle East	68	6	0.9	27	17	246
North America	826	686	935	1,179	342	8,286
Latin America	251	224	183	1,411	76	2,722
Europe	357	1,033	204	139	1,741	5,387
Africa	92	91	20	20	13	515
Oceania	120	102	36	61	11	669
Total	3,289	3,674	2,236	3,686	1,883	28,706

Note: * Actual Investment

Source: The Export-Import Bank of Korea. 2002. *Overseas Direct Investment Statistics Yearbook 2002*.

Table 6. Taiwan's Overseas Direct Investment by Region*

(Unit: U.S. million Dollar)

	1997	1998	1999	2000	2001
Asia	819	581	836	851	815
Hong Kong	214	69	122	111	96
Japan	32	30	122	312	169
Singapore	230	158	325	220	378
Philippines	127	39	29	13	46
Indonesia	56	20	7	34	6
Thailand	58	131	113	50	16
Vietnam	85	110	35	54	31
Korea	0.3	2	81	93	12
America	1,916	2,637	2,268	3,946	3,461
Europe	59	34	61	62	46
Oceania	28	8	41	148	63
Africa	-	36	41	7	6
Total	2,894	3,296	3,269	5,077	4,391

Note: * Approval Basis

Source: Investment Commission, MOEA of Taiwan. 2001/12. *Statistics on Overseas Chinese & Foreign Investment, Outward Investment, Indirect Mainland Investment*.

Table 7. Singapore's Investment Abroad, 1997-1999

	1997	1998	1999
Singapore's Investment Abroad ($M)			
Total	158,566	177,949	191,031
Total Direct Investment	75,807	75,622	84,219
Direct Equity Investment	57,191	53,211	58,754
Direct Investment	41,478	39,899	45,293
Portfolio Investment	23,277	36,155	35,965
Other Foreign Assets	59,482	66,172	70,847
Destination of Singapore's Total Direct Investment Abroad ($M) Top 8 Investment Destination based on 1999 (Stock as at Year-End)			
China	10,477	12,186	12,625
Hong Kong	8,113	7,668	8,399
Malaysia	8,908	8,610	7,940
Belgium	1,751	3,261	6,151
Indonesia	6,519	4,485	4,517
British Virgin Islands	2,901	3,993	4,368
United States	2,905	3,064	4,285
Mauritius	2,485	3,222	4,072

Source: http://www.singstat.gov.sg/ (2002.6.25 search)

Table 8. Cointegration Tests of Stock Prices of East Asian Countries

Classification	Pre-crisis		Post-crisis	
Null hypotheses	H_0: r=0	H_0: r≤ 1	H_0: r=0	H_0: r≤ 1
Indonesia, Japan	6.59	0.39	5.35	0.23
Indonesia, Korea	7.91	2.19	14.48	1.79
Indonesia, Malaysia	15.08	0.15	12.75	3.85
Indonesia, Thailand	9.94	0.92	16.09	6.19
Japan, Korea	8.21	3.31	3.55	0.30
Japan, Malaysia	16.02	19.96	7.38	0.09
Japan, Thailand	8.82	3.55	7.51	0.16
Korea, Malaysia	19.58	4.21	14.03	2.39
Korea, Thailand	21.30*	5.76	8.19	2.69
Malaysia, Thailand	13.74	1.97	10.35	4.34
Critical values	19.96	9.24	19.96	9.24

Note: ⅰ) Figures indicate trace statistics in Johansen (1998, 1991). ⅱ) r is the number of cointegration vectors. (ⅲ) pre-crisis: January 1, 1994-April 30, 1997, post-crisis: January 1, 1999 – June 30, 2002.

Table 9. Summary statistics of market index returns

The table presents the summary statistics of weekly local index returns of US, Japan, Indonesia, Malaysia, Philippines, Korea, Taiwan, and Thailand. The total return index data are from Datastream International. The sample covers the period of 1990.04.11 through 2002.4.17 (629 observations). Bera-Jarque is the Bera-Jarque test for normality.

Panel A: Summary statistics

	US	Japan	Indonesia	Malaysia	Philippines	Korea	Taiwan	Thailand
Mean	0.2428	-0.0653	0.0130	0.1408	0.1313	0.1380	0.0032	0.0572
Median	0.3931	-0.0929	0.0000	0.1763	0.1205	-0.2400	0.1871	-0.0503
Maximum	7.5738	13.2824	18.1563	27.7003	13.9590	19.5279	23.5014	19.4633
Minimum	-9.1434	-10.1056	-14.3746	-20.4036	-14.2675	-18.7246	-20.3456	-16.9964
Std. Dev.	2.1898	2.8262	4.0046	3.9843	3.7698	4.7417	4.8523	4.9402
Skewness	-0.4479	0.1578	0.1318	0.1745	0.1338	0.1518	-0.0690	0.1618
Kurtosis	4.7093	4.5816	5.6122	10.0684	4.3374	4.5281	5.6497	4.3625
Bera-Jarque	97.61	68.17	180.66	1312.62	48.76	63.62	184.51	51.40
Probability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Panel B: Correlation

	US	Japan	Indonesia	Malaysia	Philippines	Korea	Taiwan	Thailand
US	1.00							
Japan	0.37	1.00						
Indonesia	0.15	0.17	1.00					
Malaysia	0.27	0.20	0.37	1.00				
Philippines	0.23	0.16	0.37	0.38	1.00			
Korea	0.28	0.27	0.18	0.24	0.19	1.00		
Taiwan	0.22	0.21	0.17	0.28	0.25	0.27	1.00	
Thailand	0.29	0.18	0.39	0.47	0.40	0.36	0.22	1.00

Table 10. Vector autoregression decomposition

The table presents the results of variance decomposition of Asian market returns using the estimates of trivariate VAR for the US, Japan, and each of the six Asian markets. The estimation is based on weekly local index returns. The total return index data are from Datastream International. The sample covers the period of 1990.04.11 through 2002.4.17 (629 observations).

Period	Indonesia		
1	2.59	1.79	95.62
2	4.44	2.69	92.87
3	5.37	2.85	91.78
4	5.41	2.88	91.71
	Malaysia		
1	7.68	1.03	91.29
2	7.84	1.21	90.96
3	7.81	1.25	90.94
4	7.81	1.25	90.94
	Philippines		
1	6.37	0.39	93.24
2	8.80	0.47	90.73
3	9.62	0.67	89.70
4	9.65	0.67	89.68
	Korea		
1	7.96	3.54	88.50
2	8.13	3.74	88.13
3	8.30	3.74	87.96
4	8.30	3.75	87.95
	Taiwan		
1	5.62	1.80	92.58
2	6.93	1.92	91.15
3	6.93	1.92	91.15
4	6.94	1.92	91.14
	Thailand		
1	8.81	0.41	90.77
2	9.79	0.52	89.69
3	9.76	0.58	89.65
4	9.77	0.58	89.65
	Average across countries in period 4		
	7.98	1.84	90.18

Table 11. Vector autoregression decomposition – alternative choice of ordering variables

The table presents the results of variance decomposition of Asian market returns using the estimates of trivariate VAR for the Japan, US, and each of the six Asian markets. The estimation is based on weekly local index returns. The total return index data are from Datastream International. The sample covers the period of 1990.04.11 through 2002.4.17 (629 observations).

Period		Indonesia	
1	3.40	0.97	95.62
2	5.34	1.79	92.87
3	5.89	2.33	91.78
4	5.95	2.35	91.71
		Malaysia	
1	3.89	4.82	91.29
2	4.19	4.86	90.96
3	4.22	4.85	90.94
4	4.22	4.85	90.94
		Philippines	
1	2.31	4.45	93.24
2	2.34	6.94	90.73
3	2.93	7.37	89.70
4	2.93	7.39	89.68
		Korea	
1	7.86	3.64	88.50
2	8.19	3.68	88.13
3	8.14	3.90	87.96
4	8.14	3.90	87.95
		Taiwan	
1	4.54	2.88	92.58
2	5.11	3.75	91.15
3	5.10	3.75	91.15
4	5.11	3.75	91.14
		Thailand	
1	2.90	6.33	90.77
2	2.86	7.45	89.69
3	2.94	7.41	89.65
4	2.94	7.41	89.65
		Average across countries in period 4	
	4.88	4.94	90.18

Table 12. Vector autoregression decomposition before and after the Asian currency crisis

The table presents the results of variance decomposition using the estimates of trivariate VAR for the US, Japan, and each of the six Asian markets estimated for each of the two subperiods (before the Asian currency period, 1990.4.11 – 1997.12.31, and after the Asian currency crisis period, 1998.01.07 – 2002.04.24), respectively. The estimation is based on weekly local index returns. The total return index data are from Datastream International. The sample covers the period of 1990.04.11 through 2002.4.17 (629 observations).

Forecast Period	1990.4.11 – 1997.12.31			1998.01.07 – 2002.04.24		
			Indonesia			
1	2.61	3.35	94.03	2.73	1.03	96.24
2	4.89	3.95	91.16	4.33	2.33	93.34
3	6.00	4.24	89.77	5.13	2.37	92.50
4	6.16	4.28	89.56	5.13	2.39	92.48
			Malaysia			
1	7.10	1.30	91.60	8.46	0.78	90.76
2	7.85	1.40	90.75	8.43	0.99	90.58
3	7.76	1.51	90.73	8.44	0.99	90.57
4	7.76	1.51	90.73	8.44	0.99	90.57
			Philippines			
1	4.48	0.20	95.32	10.25	0.83	88.92
2	6.43	0.21	93.36	13.00	1.04	85.96
3	6.63	0.39	92.98	14.77	1.26	83.97
4	6.69	0.40	92.92	14.78	1.26	83.96
			Korea			
1	3.86	1.39	94.76	12.93	7.80	79.27
2	4.05	2.24	93.71	14.27	7.67	78.06
3	4.06	2.60	93.35	14.53	8.53	76.95
4	4.07	2.60	93.34	14.54	8.56	76.90
			Taiwan			
1	3.28	1.17	95.55	11.28	3.48	85.23
2	3.76	1.27	94.97	14.29	3.54	82.17
3	3.77	1.40	94.83	14.15	3.69	82.16
4	3.79	1.40	94.81	14.14	3.72	82.14
			Thailand			
1	5.43	0.19	94.38	12.96	0.75	86.29
2	5.87	0.69	93.44	14.47	0.77	84.76
3	6.30	2.38	91.32	13.73	1.90	84.37
4	6.30	2.38	91.31	13.75	1.91	84.34
			Average across countries in period 4			
	5.79	2.09	92.12	11.80	3.14	85.06

Table 13. Maximum likelihood estimates of Multivariate GARCH model

The table presents the estimates of the multivariate GARCH model. Estimates are based on weekly local index returns of US, Japan, and equal-weighted portfolio returns of six Asian markets (Indonesia, Malaysia, Philippines, Korea, Taiwan, and Thailand) from 1990.04.11 to 2002.4.17. The system of equations is as follows:

$$\underline{R_t} = \underline{\delta} + \underline{\varepsilon_t} \qquad \underline{\varepsilon_t} \mid \Omega_{t-1} \sim N(0,H_t)$$
$$H_t = H_0 * (\iota\iota' - \alpha\alpha' - \beta\beta') + \alpha\alpha' * \underline{\varepsilon_{t-1}}\underline{\varepsilon_{t-1}}' + \beta\beta' * H_{t-1},$$

where $\underline{R_t}$ is the return vector, $[R_{US,t}, R_{JP,t}, \text{ and } R_{Asia,t}]$', between time $t\text{-}1$ and t, and Ω_{t-1}, the set of market-wide information available at $t\text{-}1$. δ is a constant (3×1) parameter vector and $\underline{\varepsilon_t}$ is a vector of residuals that are conditionally distributed multivariate Normal with symmetric conditional covariance (3×3) matrix, H_t. In the law of motion equation for the conditional variances, ι is an 3-vector of ones, α, β are 3-vectors of parameters (where $*$ is the Hadamard matrix product, element by element), and H_0 is an unobserved starting covariance matrix which we set equal to the sample covariance matrix of the returns. The total return index data are from Datastream International. The sample covers the period of 1990.04.11 through 2002.4.17 (629 observations). t-statistics are in parenthesis.

	US	Japan	Asian emerging market portfolio
δ_j	0.3223	-0.0081	0.1273
	(3.70)	(-0.07)	(1.23)
α	0.1684	0.3137	0.2685
	(8.69)	(9.16)	(16.32)
β	0.9798	0.8750	0.9480
	(207.37)	(35.68)	(119.57)

Table 14. Foreign Bank Ownership in Selected Emerging Markets[1]

	Total Assets Foreign Contro4 December 1994	Foreign Control[2] December 1994	Total Assets[3] December 1999	Foreign Participation December 1999	Foreign Control[2] December 1999	
	(In billion of U.S. dollars)	(In percent)	(In billion of U.S. dollar)	(In percent)	(In percent)	(In percent)
Central Europe						
Czech Republic	46.6	5.8	63.4	47.3	49.3	50.7
Hungary	26.8	19.8	32.6	59.5	56.6	80.4
Poland	39.4	2.1	91.1	36.3	52.8	52.8
Total	112.8	7.8	187.1	44.0	52.3	56.9
Latin America						
Argentina	73.2	17.9	157.0	41.7	48.6	48.6
Brazil	487.0	8.4	732.3	18.2	16.8	17.7
Chile	41.4	16.3	112.3	48.4	53.6	53.6
Colombia	28.3	6.2	45.3	16.2	17.8	17.8
Mexico	210.2	1.0	204.5	18.6	18.8	18.8
Asia						
Korea	638.0	0.8	642.4	11.2	4.3	16.2
Malaysia	149.7	6.8	220.6	14.4	11.5	11.5
Thailand	192.8	0.5	198.8	6.0	5.6	5.6
ATotal	980.5	1.6	1061.8	10.9	6.0	13.2

Source: IMF (2000)

1 Ownership data reflected changes up to December 1999 while balance sheet data are the most recent available in Fitch IBCA's BankScope.

2 Ratio of assets of banks where foreigners own more that 50 percent of total equity to total bank assets.

3 For central Europe and Asia available balance sheet data are in most cases for December 1998.

4 Same as footnote 2 but at 40 percent level.

Table 15. The Top 20 Investment Banks by Parent Country

Issues of Euromoney in 1996 and 2002. Numbers in parenthesis are percentages.

Function	Overall Results		Underwriting		Trading		Advisory	
Parent Country of Investment Banks	1996	2002	1996	2002	1996	2002	1996	2002
US	8 (40)	11 (55)	8 (40)	9 (45)	8 (40)	10 (50)	8 (40)	10 (50)
UK	3 (15)	3 (15)	2 (10)	3 (15)	5 (25)	3 (15)	6 (30)	3 (15)
Europe	7 (35)	5 (25)	7 (35)	6 (30)	6 (30)	7 (35)	6 (30)	7 (35)
Japan	2 (10)	1 (5)	3 (15)	2 (10)	1 (5)	0 (0)	0 (0)	0 (0)
Total No. of Investment Bank	20 (100)	20 (100)	20 (100)	20 (100)	20 (100)	20 (100)	20 (100)	20 (100)

Source : Euromoney, January, 1996 and 2002

Table 16-A. Distribution of international financing by country and by financial instrument

Panel A: International financing by year and country (Unit: million U.S. dollars and %)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Total
						Capital market financing						
Indonesia	242	100	285	1591	1545	1232	3223	0	767	76	450	9511
												(8.73)
Malaysia	0	0	475	1325	3509	749	3000	89	591	556	1600	11894
												(10.91)
Philippines	12	403	928	1112	1543	3020	2644	1919	623	1431	700	14335
												(13.15)
South Korea	693	1179	2938	3214	9644	8533	4769	2137	4166	4304	3302	44880
												(41.17)
Taiwan	139	1131	0	1766	1634	1051	1484	682	1502	3448	1693	14530
												(13.33)
Thailand	1378	84	2095	1782	1809	1358	3421	708	661	0	555	13852
												(12.71)
Total	2464	2897	6722	10790	19683	15943	18543	5535	8310	9814	8300	109002
												(100.00)

Table 16-A Continued

					Loan financing							
Indonesia	2171	2903	1652	5600	6255	5792	7094	0	0	0	0	31467
												(25.81)
Malaysia	1161	1994	3493	1913	4227	5315	2975	600	0	0	0	21678
												(17.78)
Philippines	0	57	1486	578	471	2402	2269	0	0	0	0	7263
												(5.96)
South Korea	3369	1246	701	4772	3046	4467	5058	0	0	0	0	22658
												(18.58)
Taiwan	850	498	611	270	1152	4075	7479	995	0	129	0	16058
												(13.17)
Thailand	1559	2840	5326	2809	4975	3764	1531	0	0	0	0	22804
												(18.70)
Total (B)	9110	9538	13268	15942	20126	25815	26405	1595	0	129	0	121928
												(100.00)
Total (C) C=A+B	11574	12435	19990	26732	39809	41758	44948	7130	8310	9943	8300	230929
Proportion of capital market financing A/C	(21.29)	(23.30)	(33.63)	(40.36)	(49.44)	(38.18)	(41.25)	(77.63)	(100.00)	(98.70)	(100.00)	(47.20)

Note: The table presents the distribution of international financing proceeds financed in six Asian countries during the period of 1991-2001 by country and by instrument. The financing schemes are categorized into capital market financing and loan financing. Capital market financing instruments include 1) Bond (bond with warrants, convertible bond, plain bond), 2) Medium Term Note, and 3) Equity (ordinary shares, preference shares, warrants). Loan financing instrument includes syndicate loans. The table is constructed using
Source: Thomson Financial SDC data base.

Table 16-B. International financing by year and instrument

		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Total
Capital market financing	Bond	866 (7.48)	929 (7.47)	5058 (25.30)	7065 (26.43)	9177 (23.05)	3835 (9.18)	8818 (19.62)	2551 (35.78)	2460 (29.60)	4721 (47.48)	7177 (86.47)	52657 (22.80)
	Equity	1598 (13.81)	1919 (15.43)	764 (3.82)	3568 (13.35)	5713 (14.35)	6962 (16.67)	2298 (5.11)	2976 (41.74)	3850 (46.33)	3584 (36.05)	989 (11.92)	34221 (14.82)
	MTN	0 (0.00)	50 (0.40)	900 (4.50)	157 (0.59)	4794 (12.04)	5146 (12.32)	7427 (16.52)	8 (0.11)	2000 (24.07)	1509 (15.18)	133 (1.60)	22124 (9.58)
	Total	2464 (21.29)	2898 (23.31)	6722 (33.63)	10790 (40.36)	19684 (49.45)	15943 (38.18)	18543 (41.25)	5535 (77.63)	8310 (100.00)	9814 (98.70)	8299 (99.99)	109002 (47.20)
Loan financing	Loan	9110 (78.71)	9538 (76.70)	13268 (66.37)	15942 (59.64)	20126 (50.56)	25815 (61.82)	26405 (58.75)	1595 (22.37)	0 (0.00)	129 (1.30)	0 (0.00)	121928 (52.80)
	Total	11574 (100.00)	12435 (100.00)	19990 (100.00)	26732 (100.00)	39809 (100.00)	41758 (100.00)	44948 (100.00)	7130 (100.00)	8310 (100.00)	9943 (100.00)	8300 (100.00)	230929 (100.00)

Table 17. Distribution of lead managers by their parent countries and year

	1991	1992	1993	1994	1995	1996	1997	1991-1997	1998	1999	2000	2001	1998-2001	Total
Capital market financing														
US	100	0	756	412	2589	4614	5230	13700	1665	3469	4299	1396	10829	24529
UK	576	1790	2460	6102	8009	4298	8656	31890	1595	1668	3068	2995	9327	41217
Swiss	108	83	129	359	153	50	356	1238	18	0	0	0	18	1256
Other Europe	70	533	911	185	867	2412	1027	6005	252	543	556	2117	3468	9473
West Total	854	2406	4256	7058	11618	11374	15268	52834	3530	5680	7923	6508	23641	76475
	(34.65)	(83.08)	(63.31)	(65.41)	(59.02)	(71.34)	(82.34)	(68.58)	(63.77)	(68.35)	(80.72)	(78.40)	(73.97)	(70.16)
Japan	114	0	1592	494	2528	1616	1832	8177	100	781	200	919	2001	10177
Singapore	15	0	102	179	698	943	150	2087	317	385	1211	224	2137	4223
Hong Kong	724	406	722	2327	2115	1194	819	8308	231	692	259	175	1356	9664
Other Asia	758	84	50	732	2725	815	473	5637	1357	772	222	475	2825	8462
Asia Total	1611	490	2466	3732	8066	4568	3274	24208	2005	2630	1892	1793	8319	32527
	(65.35)	(16.92)	(36.69)	(34.59)	(40.98)	(28.66)	(17.66)	(31.42)	(36.23)	(31.65)	(19.28)	(21.60)	(26.03)	(29.84)
Total	2465	2896	6722	10790	19683	15942	18543	77042	5535	8310	9815	8301	31960	109002
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Table 17 continued

	1991	1992	1993	1994	1995	1996	1997	1991-1997	1998	1999	2000	2001	1998-2001	Total
							Loan financing							
US	597	458	2556	1047	253	932	1371	7213	0	0	0	0	0	7213
UK	2342	183	655	1211	1004	1298	697	7391	0	0	0	0	0	7391
Swiss	0	80	25	220	291	2451	0	3068	0	0	0	0	0	3068
Other Europe	556	663	1053	3046	4297	3227	3685	16526	0	0	0	0	0	16526
West Total	3495	1384	4288	5525	5845	7908	5753	34197	0	0	0	0	0	34197
	(38.36)	(14.51)	(32.32)	(34.66)	(29.04)	(30.63)	(21.79)	(28.45)	(0.00)	-	(0.00)	-	(0.00)	(28.05)
Japan	630	3081	4496	879	1172	2317	2864	15440	0	0	0	0	0	15440
Singapore	1200	2150	1186	2080	3047	3228	2181	15072	0	0	0	0	0	15072
Hong Kong	1385	1664	2511	4461	3128	2904	2114	18167	0	0	0	0	0	18167
Other Asia	2400	1259	786	2998	6935	9457	13492	37328	1595	0	129	0	1724	39052
Asia Total	5615	8154	8980	10417	14281	17907	20652	86006	1595	0	129	0	1724	87730
	(61.64)	(85.49)	(67.68)	(65.34)	(70.96)	(69.37)	(78.21)	(71.55)	(100.00)	-	(100.00)	-	(100.00)	(71.95)
Total	9110	9538	13268	15942	20126	25815	26405	120204	1595	0	129	0	1724	121927
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	-	(100.00)	-	(100.00)	(100.00)

Note: The distribution of international financing proceeds financed in six Asian countries during the period of 1991-2001 by parent country of a lead manager. The financing schemes are categorized into capital market financing and loan financing. Capital market financing instruments include 1)Bond (bond with warrants, convertible bond, plain bond). 2) Medium Term Note, and 3) Equity (ordinary shares, preference shares, warrants). Loan financing instrument includes syndicate loans.
Source: Thomson Financial SDC database.

Table 18. Distribution of lead managers by their parent country and financial instrument

(Unit: million U.S dollars)

	Capital market financing				Loan financing	
	Bond	Equity	MTN	Total	Loan	Total
US	12234	7795	4500	24529	7213	31742
UK	18268	9849	13100	41217	7391	48608
Swiss	1019	237	0	1256	3068	4324
Other Europe	3864	1691	3917	9472	16526	25998
West Total	35385	19572	21517	76474	34197	110671
	(67.20)	(57.19)	(97.26)	(70.16)	(28.05)	(47.92)
Japan	8841	1337	0	10178	15440	25618
Singapore	1209	3015	0	4224	15072	19296
Hong Kong	5207	3908	550	9665	18167	27832
Other Asia	2014	6390	57	8461	39052	47513
Asia Total	17271	14650	607	32528	87730	120258
	(32.80)	(42.81)	(2.74)	(29.84)	(71.95)	(52.08)
Total	52657	34222	22124	109003	121927	230930
	(100.00)	(100.00)	(100.00)		(100.00)	(100.00)

Note: The distribution of international financing proceeds financed in six Asian countries during the period of 1991-2001 by the parent country of a lead manager. The financing schemes are categorized into capital market financing and loan financing. Capital market financing instruments include 1) Bond (bond with warrants, convertible bond, plain bond), 2) Medium Term Note, and 3) Equity (ordinary shares, preference shares, warrants). Loan financing instrument includes syndicate loans.
Source: Thomson Financial SDC database.

Table 19. List of top 20 lead managers

The table is constructed using. Figures are in million US dollars and numbers in parenthesis are percentages.

(Unit: million U.S dollars)

Lead Manager	Amount	Parent Company
Merrill Lynch International Lt	8741	US
Lehman Brothers	6050	US
JP Morgan Securities Ltd	3819	US
Morgan Stanley Dean Witter & C	3606	US
Daiwa Securities Co Ltd	3414	Japan
Goldman Sachs (Asia)	2485	US
Salomon Brothers Inc	2464	US
SBC Warburg	2392	UK
Warburg Dillon Read	2382	UK
CS First Boston Limited	2344	US
Nomura Securities Co Ltd	2300	Japan
JP Morgan & Co Inc	1965	US
Merrill Lynch & Co Inc	1941	US
Deutsche Morgan Grenfell	1739	Germany
Morgan Stanley International L	1728	US
Goldman Sachs International	1649	US
Baring Brothers & Co Ltd	1543	UK
UBS Securities Inc	1515	Swiss
Credit Suisse First Boston Inc	1500	Swiss
Jardine Fleming	1325	UK

Country	Amount	No.	
US	36792	11	(61.11)
UK	7641	4	(22.22)
Swiss	3015	2	(11.11)
Other Europe	1739	1	(5.56)
West Total	49186	18	(90.00)
Japan	5714	2	(10.00)
Singapore	0	0	(0.00)
Hong Kong	0	0	(0.00)
Other Asia	0	0	(0.00)
Asia Total	5714	2	(10.00)
Total	54900	20	(100.00)

Note: The table presents the list of top 20 lead managers ranked by the issue proceeds financed in six Asian countries during the period of 1991-2001. The financial instruments used include 1) Bond (bond with warrants, convertible bond, plain bond), 2) Medium Term Note, and 3) Equity (ordinary shares, preference shares, warrants).

Source: **Thomson Financial SDC database.**

Table 20. List of top 20 lead managers before and after the East Asian currency crisis
The table is constructed using. Figures are in million US dollars and numbers in parenthesis are percentages.

(Unit: million U.S dollars)

1991-1997			
Country	Amount	No.	
US	23780	10	(50.00)
UK	7733	5	(25.00)
Swiss	1515	1	(5.00)
Other Europe	1739	1	(5.00)
West Total	34767	17	(85.00)
Japan	5164	2	(10.00)
Singapore	0	0	(0.00)
Hong Kong	0	0	(0.00)
Other Asia	1186	1	(5.00)
Asia Total	6351	3	(15.00)
Total	41118	20	(100.00)

1998-2001			
Country	Amount	No.	
US	16026	12	(60.00)
UK	2086	3	(15.00)
Swiss	2322	2	(10.00)
Other Europe	500	1	(5.00)
West Total	20934	18	(90.00)
Japan	550	1	(5.00)
Singapore	0	0	(0.00)
Hong Kong	0	0	(0.00)
Other Asia	704	1	(5.00)
Asia Total	1254	2	(10.00)
Total	22188	20	(100.00)

Note: The table presents the list of top 20 lead managers before and after Asian currency crisis. Lead managers are ranked by the issue proceeds financed in six Asian countries during the each period of 1991-1997 and 1998 2001, respectively. The financial instruments used include 1) Bond (bond with warrants, convertible bond, plain bond), 2) Medium Term Note, and 3) Equity (ordinary shares, preference shares, warrants).
Source: Thomson Financial SDC database.

Table 21. NPLs of Crisis-Affected Countries

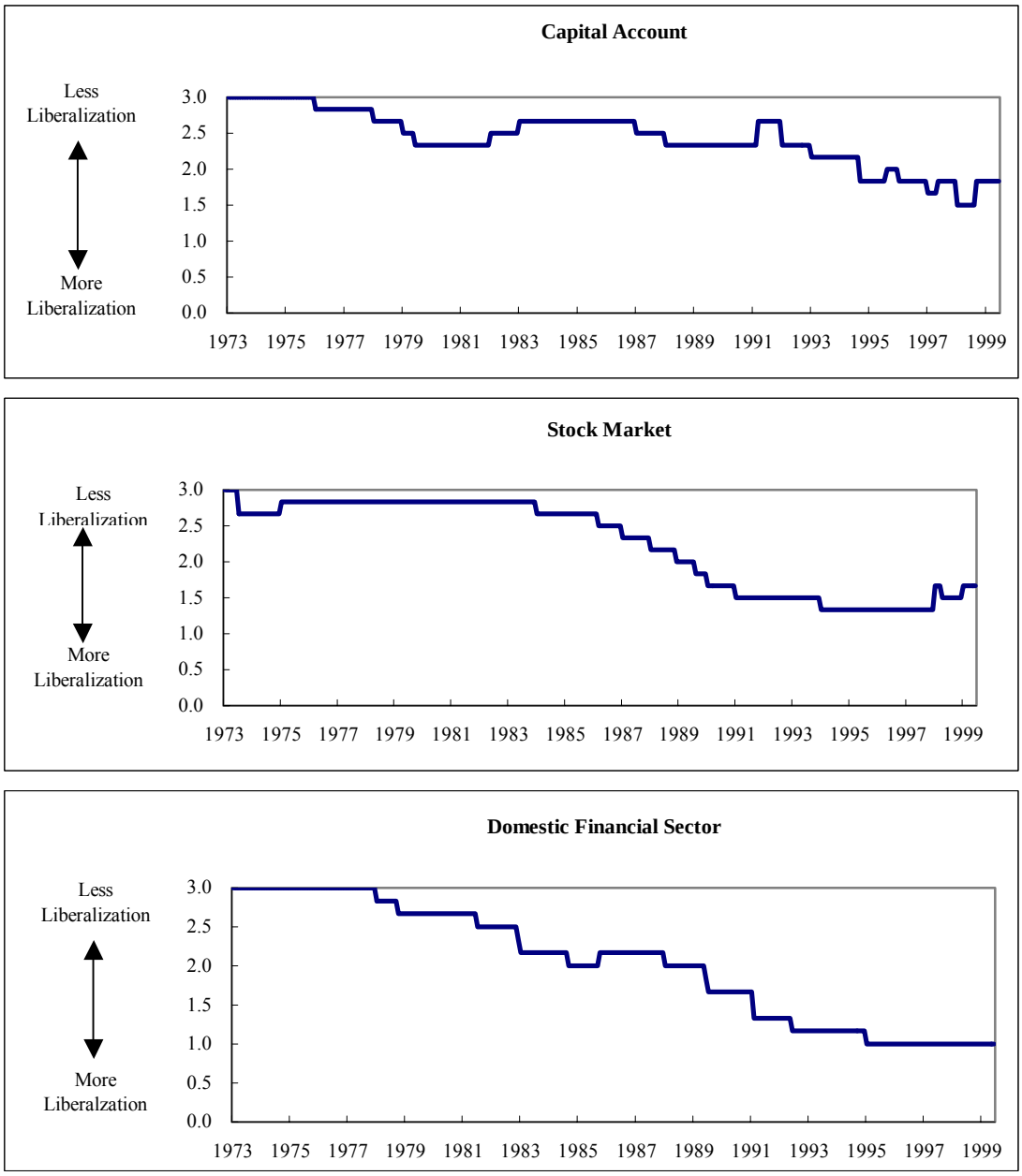
(Percent of total loans)

	1997	1998	1999			2000				
	Dec.	Dec.	Mar.	Jun.	Sep.	Dec.	Mar.	Jun.	Sep.	Latest
Indonesia[a]	-	-	-	-	-	64.0	62.4	63.5	61.7	58.8(Nov)
Korea[b]	8.0	16.1	17.0	16.4	15.9	15.8	17.9	18.9	17.9	
Malaysia[c]	6.0	22.6	22.7	23.4	23.6	23.6	23.3	23.2	-	
Philippines[d]	4.7	10.4	13.2	13.1	13.4	12.5	14.4	14.6	15.3	15.1(Dec)
Thailand[e]	-	45.0	47.0	47.4	44.7	41.5	39.8	34.8	30.6	26.5(Dec)

Note: (a) The first line uses the "stringent" definition of an NPL; the second line excludes transfer to IBRA. (b) NPL figures use the BLC. (c) Figures include commercial banks, finance companies, merchant banks, and Danaharta. (d) Figures are for commercial banks. (e) Commercial banks. First line includes commercial banks, finance companies, and the estimated amount of NPLs transferred to wholly-owned private AMCs.

Source: World Bank (2001)

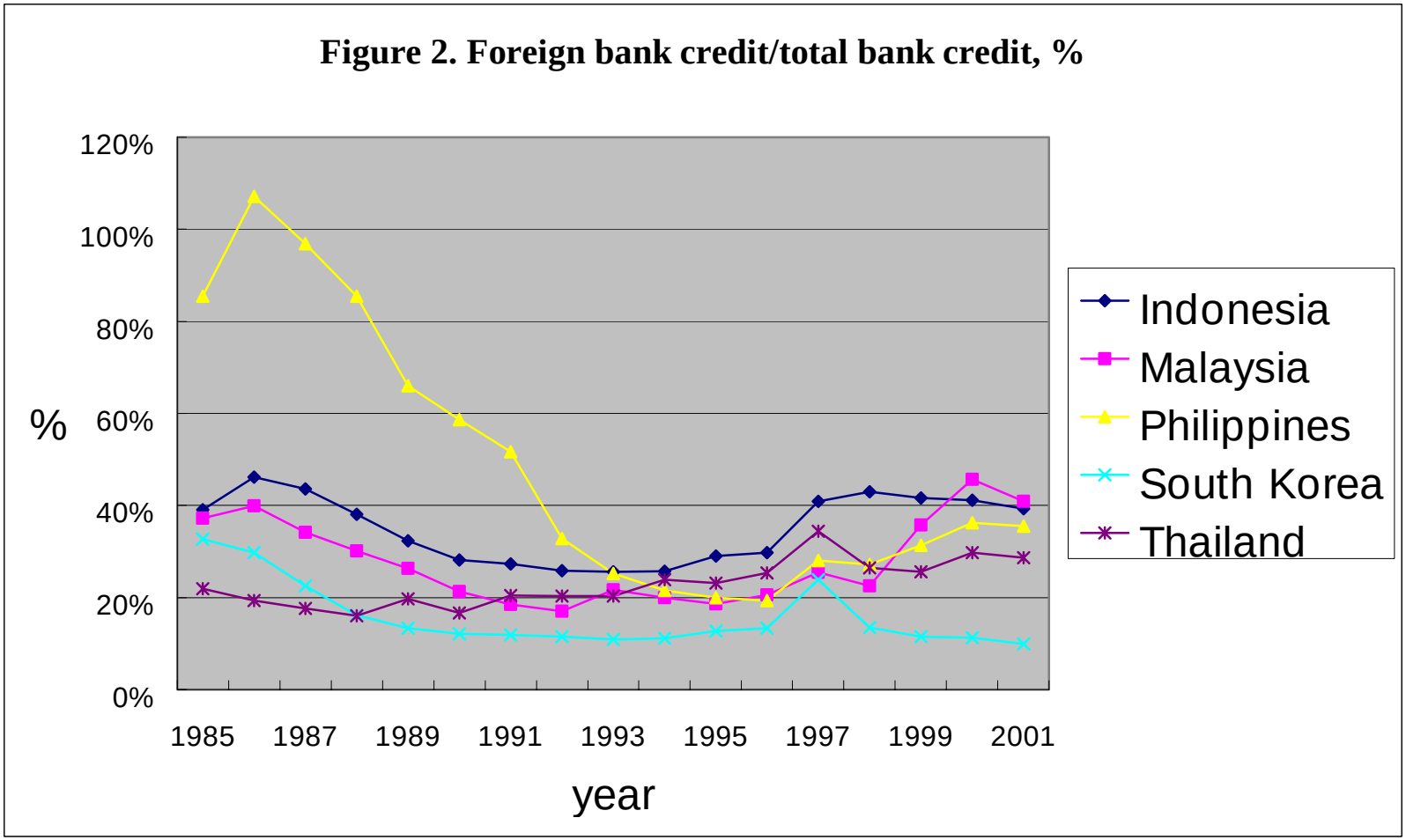
Figure 1. Indices of Financial Liberalization by Sector



Note: 3= High restrictions, 2= partial liberalization, and 1= full liberalization. East Asian emerging market economies include: Hong Kong, Indonesia, Korea, Malaysia, Philippines, Taiwan, and Thailand

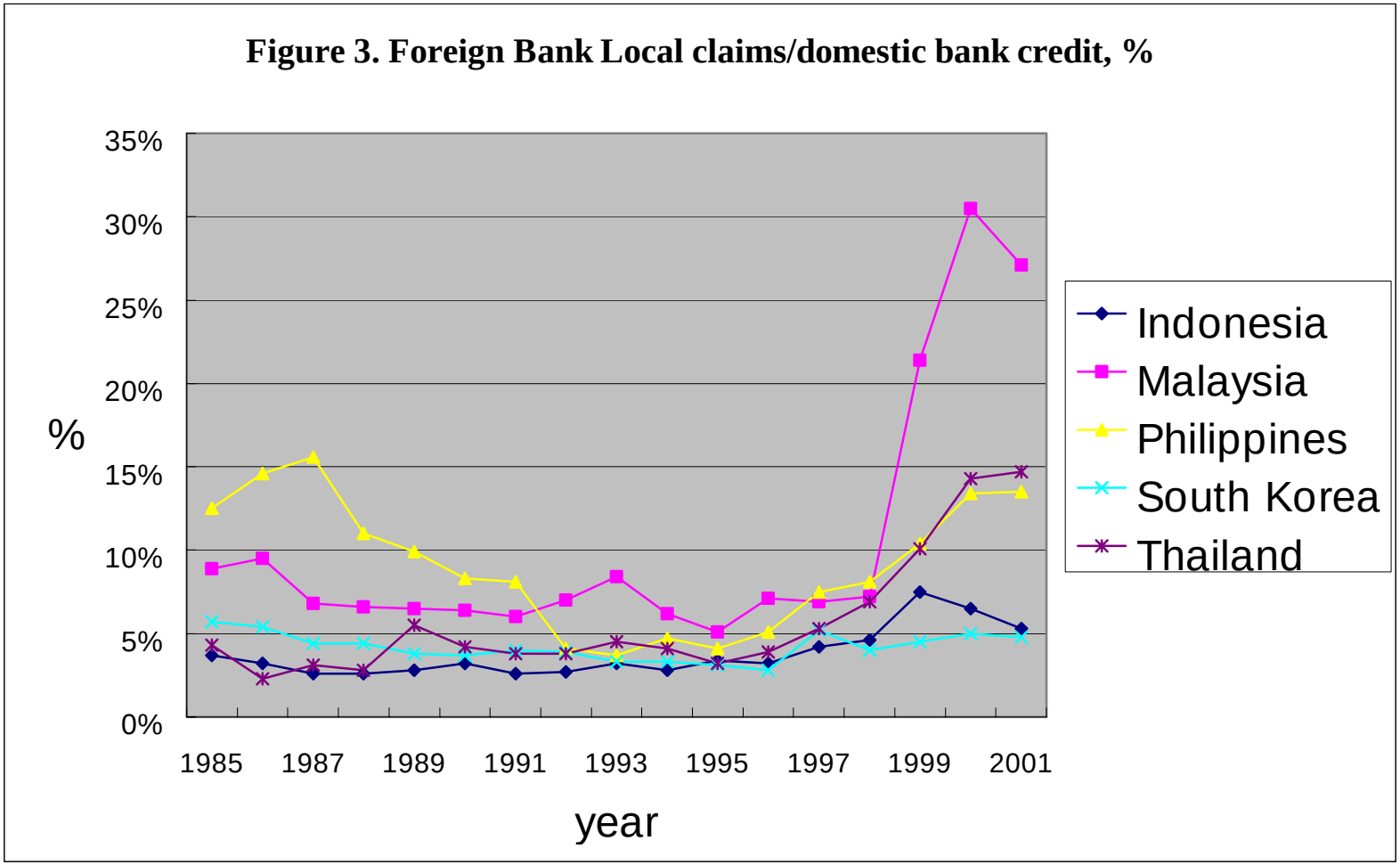
Source: Kaminsky and Schmukler (2002)

Figure 2. Foreign bank credit/total bank credit, %



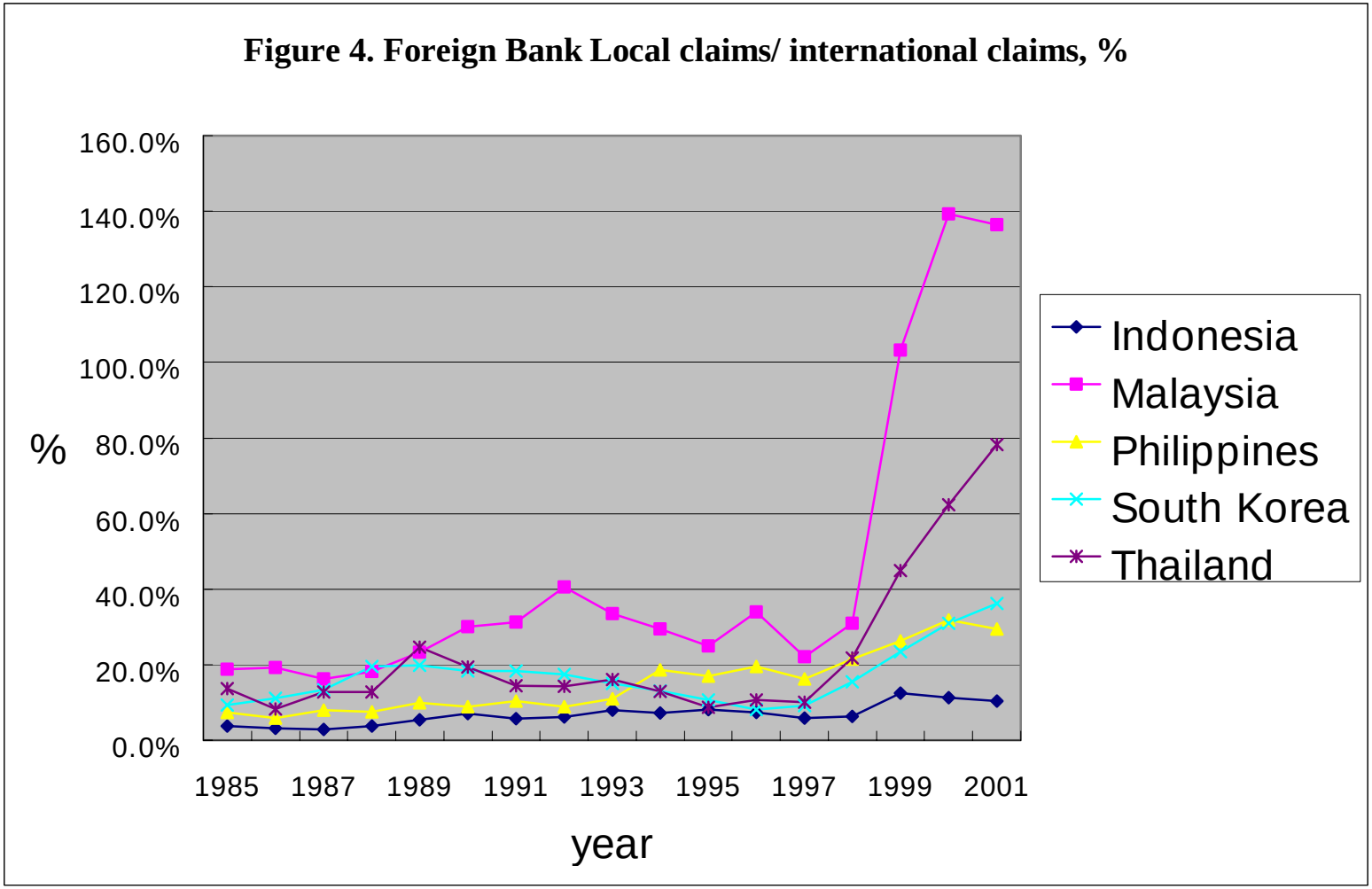
Source: BIS (2002)

Figure 3. Foreign Bank Local claims/domestic bank credit, %



Source: BIS (2002)

Figure 4. Foreign Bank Local claims/ international claims, %



Source: BIS (2002)

Figure 5. Time-varying correlations between US, Japan, and Asian market portfolio returns