Feasibility and Implications of a Monetary Union in Southeast Asia

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Abstract

This study explores the readiness of seven ASEAN countries to adopt a common monetary policy and introduce a common currency. The suitability of the region as an Optimum Currency Area is estimated using an OCA Index developed in Bayoumi & Eichengreen (1997). This study finds that while the countries studied appear to be prepared to adopt a common monetary policy, there are still many opportunities to exploit policy independence in order to improve infrastructure and competitiveness prior to further integration.

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I. Introduction

The push towards greater integration within regional trading blocs has shifted into high gear in recent years. The year 2009 marks the tenth anniversary of the Euro, which has rapidly established itself as the enduring symbol of harmonious economic integration. 2010 is expected to bring forth a common currency within the Gulf Cooperation Council. The economic turmoil currently plaguing the world's economies has created an urgent need for international cooperation to maintain economic and political stability and prevent a return to the destructive protectionism of prior crises. This paper attempts to examine the prospects for further monetary integration within the major economies of the ASEAN (Association of Southeast Asian Nations) bloc, namely Singapore, Brunei Darussalam, Philippines, Malaysia, Indonesia, Thailand and Viet Nam (henceforth denoted as ASEAN-7). The Optimum Currency Area (OCA) Index methodology of this study allows the usage of more recent data on exchange rate variability and trade patterns. By de-emphasizing financial sector data variables such as capital-asset ratios and short-term/long-term external liabilities, the model allows the inclusion of less developed economies (for which extensive data is unlikely to be available) in the analysis. Additionally, by focusing on currency value variability, the model is better suited towards evaluating policy options for the region, where exchange rate policy has been a major factor in triggering crises.

While the organization was originally established with the aim of achieving largely political objectives, it has since shifted its focus toward facilitating trade and investment between the member states, which also include the less developed economies of Myanmar, Lao PDR and Cambodia. The devastating impact of the Asian Financial Crisis (AFC) in 1997-98 was a major trigger for the shift in policy focus towards economic stability and regional cooperation. In the current environment of easily reversible capital flows, shifting competitive dynamics and economic uncertainty, the countries of Southeast Asia have a vested interest in securing their future. This study examines the feasibility of an ASEAN-7 monetary union and evaluates whether it can prevent a reoccurrence of the destabilizing capital outflows and devaluations that marked the AFC period. ASEAN was established in 1967 to ensure the sovereignty of its founding members in the unstable political climate of post-colonial Asia. A major objective of the organization was to encourage cooperation between Singapore and Malaysia, which had both split into independent states following the dissolution of the Federation of Malaya in 1965. As Cold War tensions were running high at the time, the anti-communist regime in Indonesia saw the US-backed organization as useful insurance against Chinese influence in the

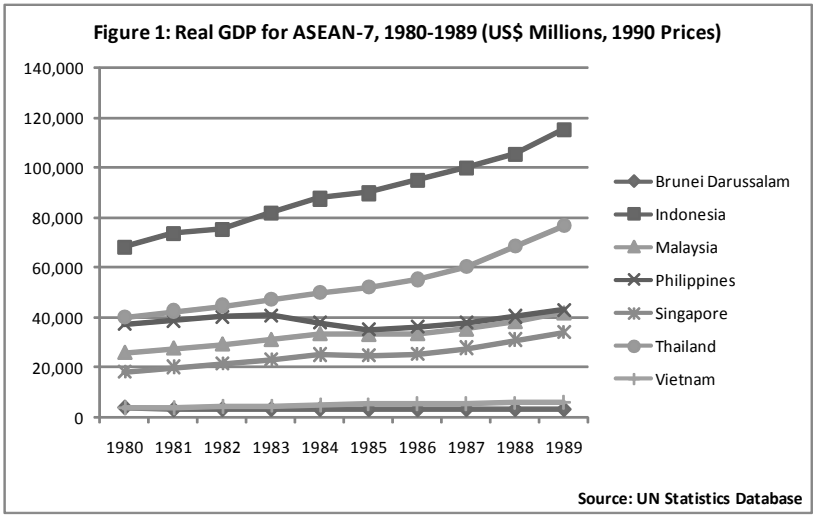
region. Thailand also saw the security benefits of joining, particularly with the rising profile of Soviet- and Chinese-backed Communist forces in Cambodia (then Kampuchea), Laos and Viet Nam. The end of the Second Indochina War in 1975, however, saw a gradual shift in prioritization towards establishing deeper trading links between the member states.

The 2nd ASEAN Summit in Kuala Lumpur (1977) saw the establishment of the ASEAN Industrial Project, which entailed collective participation in developing ammonia-urea production in Malaysia and diesel engines in Singapore, an important first step towards a system of regional division of labor.[2] The meeting also involved the completion of a Preferential Trading Agreement (PTA) that sought to simplify shipping and customs procedures within intra-ASEAN trading and reduced duties on certain categories of exports. In the wake of a very successful decade for the region (see Figure 1), the 4th Summit in Singapore (1992) saw the establishment of the ASEAN Free Trade Area (AFTA), subject to the stipulations of the Common Effective Preferential Tariff (CEPT). The CEPT bound member states to reduce tariffs on ASEAN imports (including categories running the gamut from cement, electronics, pharmaceuticals and textiles) to within a 0-5% *ad valorem* basis within five to eight years, the elimination of quantitative restrictions on imports and gradual elimination of other non-tariff barriers (NTBs)[3]. In the years prior to the completion of the Uruguay round of GATT talks[4], this was a dramatic affirmation of free trade principles and a testament to the trust that had developed between erstwhile rivals.

2 ASEAN Secretariat Joint Communique, Kuala Lumpur, 4-5 August 1977, http://www.aseansec.org/1224.htm.

3 Agreement On The Common Effective Preferential Tariff (CEPT) Scheme For The ASEAN Free Trade Area, Articles II-V. http://www.aseansec.org/5124.htm.

4 General Agreement on Tariffs and Trade; following the completion of the Uruguay round of trade liberalization talks in 1994, the GATT was renamed as the World Trade Organization (WTO).



Since ASEAN matured in the post-Bretton Woods era of financial and trade liberalization, there was little risk of the bloc imposing externally protectionist policies. Its economic clout was small relative to the European Union (EU) and the dominant development strategy in the region was export-oriented industrialization (EOI),which had a proven track record in Japan, as well as Singapore, Hong Kong, Taiwan and the Republic of Korea (the latter four constituting the original Asian 'tiger' economies). As such, these economies established their major export markets outside of ASEAN[5] and encouraged extra-ASEAN flows of foreign direct investment (FDI) to finance the current account deficits run-up through purchases of capital goods and technology needed to improve factor productivity (see Table 1).

Apart from Singapore, the ASEAN-5 either pegged their currencies to the U.S. Dollar or maintained a managed float regime in order to create an environment conducive to investment and maintain export price competitiveness. During the boom years, the depreciating effect of consistent current account deficits on the exchange rate was offset by both FDI and portfolio investment flows as well as active intervention in the foreign exchange markets by central banks. The power of monetary authorities to maintain exchange rates within an acceptable band depended primarily on the volume of foreign exchange reserves they were willing to sacrifice in currency markets. As would later be seen however, it also depended on the credibility of the authorities committing

5 Guangsheng, L.U. "Assessment on Performance of ASEAN Economic Integration." International Review Fall (2006): 121-133.

to the exchange rate policy, as perceived by global capital markets.[6]

Table 1: Average Annual Net FDI Flows (US$, Millions)

	1980-1989	1990-1995	1996-2001	2002-2007
Brunei Darussalam	(1)	103	625	942
Indonesia	326	2,164	251	3,633
Malaysia	965	4,655	4,095	4,786
Philippines	318	1,028	1,367	1,737
Singapore	1,907	6,240	13,239	16,917
Thailand	515	2,004	4,702	6,844
Vietnam	6	947	1,694	2,563
China	1.619	19,610	43,393	65,920

Source: UNCTAD World Investment Report 2008

II. The Impact of the Asian Financial Crisis

The Asian Financial Crisis had its origins in Thailand, which like much of ASEAN, was in the midst of a credit boom. While there had been a great deal of liberalization in ASEAN financial markets, particularly with regards to capital controls and restrictions on foreign capital in still-nascent debt and equity markets, the banking sector had not advanced to the same degree when it came to managing credit risk. Over time, the number of non-performing loans (NPLs) accumulated on the balance sheets of the region's largest banks. On the supply side, creditors abroad became concerned that the banks were too highly leveraged and would not be able to meet their obligations without further capital injections. On the demand side, portfolio investors feared that the firms they were financing would be unable to repay the loans, sending them into insolvency. Thus, on one hand, the overseas creditors refused to extend debt repayment schedules, while investors began liquidating their positions in debt and equity markets. This posed an ultimately insurmountable challenge for monetary authorities looking to sustain policy credibility in light of a gathering speculative storm against local currencies.[7] The region's problems were exacerbated by high domestic interest rates, which encouraged local banks to borrow at cheaper rates from foreign banks.[8] The debts were hence denominated in foreign currencies and drained exchange reserves from state coffers

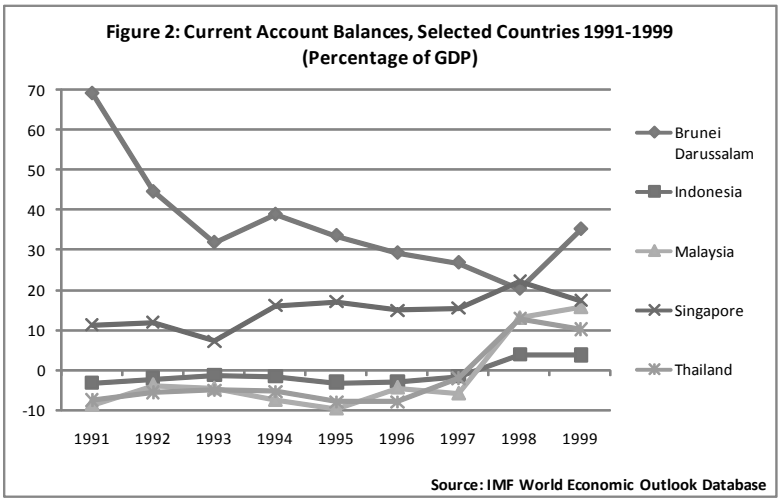
6 A comprehensive analysis of the crisis can be found in Giancarlo, Pesenti & Roubini (1998).

7 Athukorala & Warr (2002) note that this sort of policy action is known as 'self-fulfilling panic theory'.

8 McKinnon, Ronald & Schnabl, Gunther. "The East Asian Dollar Standard, Fear of Floating, and Original Sin." Review of Development Economics (2004): 331-360.

just as monetary authorities were attempting to use the stockpile to defend currency values.

The ultimate result of speculative pressure on the region's currencies was a debilitating round of 'competitive' devaluations, where a lowering of the peg or wholesale flotation would force the hand of other economies, which wished to retain export competitiveness. These actions however only increased the risk of regional contagion by rewarding speculative pressure; proposed bail-outs by the International Monetary Fund (IMF) were ineffective in halting currency depreciation and capital outflow in the cases of Indonesia and Thailand. The regional bloodletting would ultimately recede only after China committed itself to holding its currency peg and the IMF orchestrated a bail-in of South Korea by negotiating extensions for the country's repayments of external debt to its major overseas creditors.



III. The Need for Greater Regional Policy Coordination

While the 2nd Informal ASEAN Summit in Kuala Lumpur in December 1997 was primarily concerned with the fallout from the crisis, little of substance was agreed to, apart from cooperation agreements with China and Korea which were intended to signal confidence in exchange rate stability. While lip service was given to the concept of an 'ASEAN Vision 2020' in which further integration and resource sharing were promised, policy specifics were few and far in between.[9] This problem stems partially from the organization's lingering focus on security issues and its subsequent aversion to interference in

9 The text of the declaration can be accessed at: http://www.aseansec.org/5228.htm.

the affairs of individual member states. It was only in Hanoi in the following year that a concrete agreement was reached to move forward the schedule for CEPT tariff compliance to 2003, rather than 2008.[10] This would only be applicable for the original five members of ASEAN; newer members like Cambodia, Viet Nam and Laos were granted a five-year extension. Reflecting the region's fears of a lengthy downturn in FDI inflows, the Hanoi Plan of Action ratified the ASEAN Investment Area (AIA) initiative, which provided considerable incentives for regional investment, such as a 3-year tax holiday and permission to establish fully foreign-owned enterprises (which allow multinational corporations to exploit technological advantages in domestic markets without the hindrance of cooperating with a domestic joint venture partner). Significantly, duties on imported capital goods were lifted, which would go some way towards raising total factor productivity in the coming years.

In the aftermath of the AFC, it would appear that ASEAN member states were unprepared to deal with the consequences of macroeconomic irresponsibility in an environment of financial liberalization, cheap credit and highly mobile capital. A currency union (this term will be used interchangeably with 'monetary union' throughout this paper), despite eliminating monetary policy independence, will necessitate a collaborative approach towards maintaining economic stability. In the pre-crisis years, the dollar pegs throughout the region renounced such policy independence for the most part, but provided none of the economic and institutional advantages now established within the Eurozone. That said, the dollar pegs were a natural response to the problem of 'original sin' in developing economies with thin capital markets.

'Original Sin' in economics refers to a situation in which a country cannot repay debts sourced from foreign lenders with its domestic currency. This creates a need to hedge against exchange rate risk, which encourages monetary authorities to engage in pegging to reduce currency volatility. But since hedging requires the use of forward contracts, it may be difficult or impossible to find a counterparty willing to take on a nominal amount of the domestic currency if there is no prospect of investing the sum in an interest-bearing asset denominated in that currency.[11] While all but the least developed countries have established debt and equity markets, the degree of regulation, liquidity and transparency vary greatly. Less developed capital markets are an unattractive venue for investment for counterparties with better options. Therefore, establishing a currency union for a regional organization experienced in using

10 Francis, Smitha & Kallummal, Murali. "The New Regionalism in Southeast Asian Trade Policy and Issues in Market Access and Industrial Development: An Analysis of the ASEAN-China Free Trade Agreement." The IDEAS Working Paper Series (2008).

11 Eichengreen, Barry and Ricardo Hausmann. "Exchange Rates and Financial Fragility." NBER Working Paper 7418 (1999).

fiscal and structural policies to overcome a lack of monetary policy independence may not be as costly as it may initially seem.

The benefits of such a union, as discussed in Madhur (2002)[12], go beyond the commonly stated aims of reducing intra-region transaction costs and improving price transparency. With the implementation of a common currency, the aims of the AIA and the Chiang Mai Initiative (CMI) of May 2000 could be realized to a much greater degree. The CMI established a regional financing initiative for member states facing balance of payments (BOP) difficulties[13]. It therefore created a much-needed clearinghouse system for bilateral currency swap arrangements which would greatly help mitigate the original sin issue and help prevent a repeat of the factors that led to the AFC. The Singapore summit at which the CMI was proposed also discussed issues related to further financial cooperation with ASEAN+3 (ASEAN and Japan, Korea and China). On a wider level however, ASEAN states have become increasingly wary of the erosion of their competitive advantages vis-à-vis China, which had leapfrogged past the region to become the largest recipient of FDI in Asia (Japan excluded; see Table 1). With the entry of China into the WTO in 2001, there is a considerably greater risk of ASEAN-centric export markets being siphoned off by an increasingly vibrant Chinese manufacturing sector.

IV. Discussion of Existing Literature on Optimal Currency Areas

The Optimum Currency Area (OCA) theory was first put forward by Robert Mundell in 1961 as an examination of how countries engaging in cross-border trade could benefit from being part of a monetary union. Even though the implementation of a common currency would eliminate the option of using monetary or exchange rate policies to deal with asymmetric shocks, the economies would still be able to use structural policy to eliminate short and long-term problems.

In the ideal scenario discussed in Mundell (1961)[14], countries in a monetary union enjoy two major competitive efficiencies: wage flexibility and labor mobility. This allows economies to re-equilibrate almost automatically to offset the effects of asymmetric shocks. For example, if a rise in one country's exports (Country A) boosted aggregate demand at the expense of another's exports (Country B), the two economies' AD curves would shift in opposite directions. Equilibrium could be restored if workers in the depressed economy (Country B) lowered their wage claims, allowing a downward shift of

12 Madhur, Srinivasa. "Costs and Benefits of a Common Currency for ASEAN." ERD Working Paper Series No. 12 (2002): 1-18.

13 ASEAN Response to the Financial Crisis, ASEAN Secretariat, http://www.aseansec.org/7660.htm.

14 Mundell, R.A. (1961), "A Theory of Optimum Currency Areas", American Economic Review 51: 657-665.

aggregate supply curve, hence raising equilibrium employment back to what it was previously. Additionally, the subsequently lower price level in Country B means that its exports become more competitive relative to Country A, leading to a downward shift in the latter's AD curve (with regards to domestically produced goods), restoring its initial position.

Similarly, with full labor mobility, the unemployed workers in Country B would be able to find work in Country A. This re-equilibrates both economies as the current account surplus created in the booming economy via the saving of its citizens is offset by the expenditures of the new migrant workers. Conversely, the country with the smaller relative export base would not reduce their spending by an amount equal to the loss in exports, as social security mechanisms like unemployment benefits would mean that their income would remain high enough for them to consume more than they would have otherwise, creating a current account deficit. However, since the workers are expected to have emigrated immediately upon dismissal, no unemployment benefits would be paid out, meaning that aggregate consumption remained commensurate with the drop in exports, eliminating the deficit.

Since neither of the above conditions exist to any considerable degree in practice, particularly in the advanced economies of Western Europe where the bulk of OCA literature has focused, it would be difficult to solve the asymmetric shock problem when in a monetary union. Since the booming economy no longer has a sovereign currency that it can allow to appreciate relative to the depressed economy to restore equilibrium, it must choose between lowering inflation and reducing the current account surplus. Lowering inflation would involve contractionary fiscal and/or structural policy, which would harm growth prospects and cut into spending, while increasing the current account surplus further. Conversely, spending the current account surplus would feed in to higher price levels.

A solution to this dilemma was suggested in Kenen (1969)[15], involving a redistribution of tax revenues. Within sovereign countries, this would happen automatically. A depressed region pays out less in the form of tax receipts, while receiving inflows of capital via unemployment benefits to boost incomes and reduce the regional deficit. Similarly, a depressed economy could finance its trade deficit by tax redistribution from the booming economy, simultaneously taking care of the latter's current account surplus.

15 Kenen, Peter B. (1969), "The Theory of Optimum Currency Areas: An Eclectic View," In: Robert A. Mundell and Alexander K. Swoboda (Eds.), Monetary Problems of the International Economy. Chicago, USA: University of Chicago Press.

Criticisms of OCA Theories

One of the earliest and most fundamental criticisms of the original theory was that the assumed static nature of the Phillips curve (which displays the inverse relationship between inflation and unemployment) would allow governments to trade off inflation for unemployment at a level that suited them best, negating the need for monetary union. Modern empirical evidence (especially after the stagflation of the 1970s) suggests that this is possible in the short run, but in the long run, the Phillips curve is vertical, crossing the x-axis (unemployment) at the point known as the natural rate of unemployment. This means that governments cannot choose between inflation and unemployment, and hence do not stand to gain from having different inflation rates relative to their neighbors. Note that this only refers to different inflation rates as a product of a policy choice, not the inflation rates that come about through productivity differences or the structure of labor markets (both of which are discussed later on). Therefore, joining a monetary union and setting inflation rates equal to those of its member nations, is costless in terms of forgoing policy options. While the reliance on the early Phillips curve undermined the validity of early OCA literature, the modern long-run Phillips curve curiously enough ended up lending support to the theory.

On a macroeconomic level, there are two main schools of thought regarding the utility of a monetary union. The European Commission supports the idea that a monetary union would be beneficial, as it would make future shocks easier to deal with, as they would be expected to occur symmetrically across member states. With a common currency and monetary policy, lowered trade barriers and in the case of the European Union, progression towards a single market, it is argued that economies within the monetary union would increasingly converge in terms of economic activity, a condition noted in McKinnon (1963)[16] as a convenient way of fighting asymmetric shocks. As transaction costs and price discrimination disappear, product differentiation would be the only element separating essentially identical goods. Kenen (1969) however, suggested that a diversified product portfolio would help individual economies withstand shocks. The diminished relevance of national borders in a free trade area would mean that systemic shocks would be felt across the same industries in different countries, as they would both be selling to the same markets. Hence, a single tool could be used to solve what is essentially one problem, rather than two. One interest rate and one exchange rate can be used to re-equilibrate both economies.

16 McKinnon, Ronald I. (1963), "Optimum Currency Areas," American Economic Review 53, September 1963, pp 717-25.

An opposing view, put forward in Krugman (1993)[17] suggests that a monetary union would not eliminate the asymmetric nature of systemic shocks, as closer economic integration would cause the consolidation of industries in different countries, creating geographically concentrated sectors in order to take advantage of economies of scale. This means that a demand-side shock affecting a certain industry concentrated in a certain country would primarily affect that country disproportionately. This criticism is less valid with respect to Western Europe, where the preponderance of the tertiary sector in GDP composition reduces the risk of regional concentration of shocks, as service industries are less likely to be geographically concentrated compared to the industrial sector as discussed in De Grauwe (2007)[18]. But it is a critical point of contention with regards to Southeast Asia and the aim of this paper, which is to see if a monetary union is conducive to the implementation of a region-wide EOI strategy.

Conflicts regarding 'Conventional Wisdom' on OCAs

The original Mundell theory suggested that a country encountering higher inflation than its neighbors would find it worthwhile to stay out of a proposed union, as that way it could still use its exchange rate and monetary policy to remain competitive while gradually implementing the fundamental labor market and factor mobility reforms necessary to raise its intrinsic competitiveness. A country already within a monetary union would have to suffer through lower growth and possibly economic and political upheaval by directly reforming the system without any sort of safety net. However, the Balassa-Samuelson effect[19] suggests that a monetary union would harmonize prices of tradable goods between countries, but would retain price differentials in service industries, reflecting differences in productivity. Therefore, the difference in the rate of nominal wage increases between different countries is itself part of an equilibrating mechanism that leaves inter-country competitiveness unchanged.

Another factor that was assumed to discourage entry to a monetary union was the difference in growth rates between countries. This is another point of concern with regards to ASEAN; unlike the original EU-15 that adopted the Euro, the original ASEAN-5 includes both Singapore, one of the richest countries in the world, and the Philippines, one of the poorest and least developed. Theoretically, a fast-growing country would suffer in a monetary union with slower-growing countries because its imports, unconstrained by trade barriers

17 Krugman, Paul, 1993, "Lessons of Massachusetts for EMU," in F. Giavazzi and F. Torres, eds., The Transition to Economic and Monetary Union in Europe, Cambridge University Press, New York, 241-261.

18 De Grauwe, Paul, 2007, "Economics of Monetary Union", Oxford University Press, USA; 7th ed.

19 Ibid, pp 44.

would increase faster than its exports, leaving it with a mounting current account deficit. Fortunately, there is little empirical data to support this hypothesis. Krugman suggests that the reason this is so is because export growth can keep pace with import growth if countries remain innovative and continue creating new products or improving existing ones. The income elasticity of demand for exported products should remain higher than that of imports, helping to keep the trade imbalance to a minimum. Another reason why the trade deficit should not create problems within a monetary union is that the existence of a common currency and extremely limited capital controls means that investment funds should be flowing out of less productive industries in other countries into the innovative sectors of high-growth nations. This will finance the current account deficit by registering surpluses on the capital account. The correlation matrix shown below does however provide some evidence to suggest that a future ASEAN OCA might work best if it starts by including only the countries with at least a rough measure of business cycle synchronization. Given the significance values, such a bloc might initially be composed of Singapore, Indonesia, Malaysia and Thailand.

Table 2: Real GDP Growth Correlation in ASEAN-7, 1980-2007

	Brunei	Indonesia	Malaysia	Philippines	Singapore	Thailand	Vietnam
Brunei	1						
Indonesia	-0.0622	1					
Malaysia	0.1188	0.8162***	1				
Philippines	0.1219	0.2039	0.3687*	1			
Singapore	-0.0308	0.5802***	0.8423***	0.4525**	1		
Thailand	0.0108	0.8096***	0.7432***	0.2267	0.5892***	1	
Vietnam	0.2346	0.1776	0.3324*	0.0599	0.1665	-0.1068	1

* = significant at the 10% level

** = significant at the 5% level

*** = significant at the 1% level

The Costs and Benefits of an OCA

The main advantages of implementing an OCA lie in the fact that it facilitates increased trade amongst its members. This occurs through the decrease in transaction costs that occurs via the usage of a common currency, the elimination of exchange rate risk and the region-wide price harmonization occurring through the elimination of price discrimination. All these factors

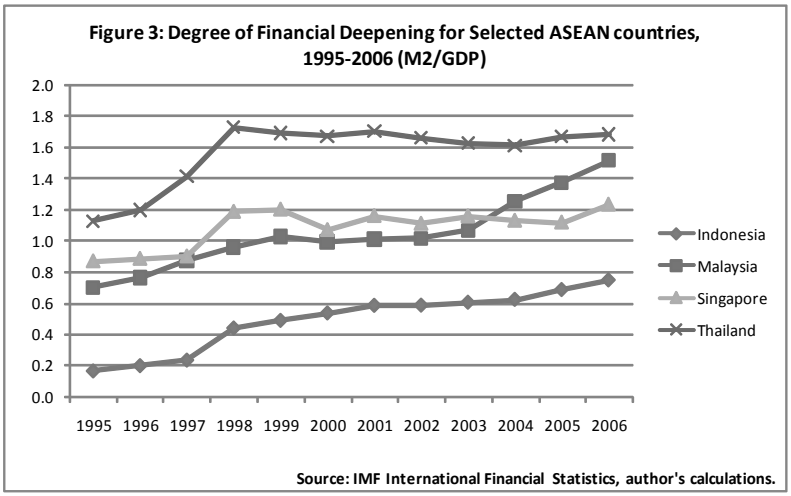
should enhance cross-border trade and investment. The establishment of an OCA also brings up the possibility of its use as an international medium of exchange. This becomes particularly helpful in stimulating economic activity in the currency's domestic financial markets if assets such as bonds and equity are denominated in the currency and sold abroad.

With regards to exchange-rate risk, the use of a common currency reduces investor risk premiums, which in turn may lead to a fall in bond yields, thus boosting bond prices. This in turn may increase financial market liquidity and reduce the threat of exchange rate volatility. Perhaps most importantly though, the lower risk spread reduces moral hazard, as borrowers posing a credit risk are less likely to take greater risks than necessary in order to meet their obligations. While we would expect lower real interest rates to stimulate domestic capital accumulation, empirical evidence suggests only a vague link between the two factors[20].

The major drawbacks of an OCA lie in the fact that many of its efficiencies will remain unrealized without a considerable measure of political integration. Countries in a free trade area may enjoy the benefits of a common currency, but businesses may still have to comply with different systems of law governing trade, something that is still very apparent in European financial markets. London features one of the world's most liquid capital markets, and businesses based there draw much of their funding directly from the capital markets. In mainland Europe, however, the commercial banking sector provides the bulk of investment capital. In an integrated common market, even if shocks are no longer asymmetric, they will affect different markets to different extents, opening up lucrative arbitrage opportunities on one hand but reducing efficiency on the other by requiring the formulation of multiple investment plans. For the purpose of this study, the Singaporean financial market is analogous to the London example when considering the differences in market depth, liquidity and regulation. As noted in Outreville (1999)[21], the ratio of broad money relative to national income (M2/GDP ratio) is a popular proxy measure for determining the depth of financial markets in developing economies, which tend to lack substantive data on financial assets. As Figure 3 suggests, there has been considerable convergence in the size of the financial intermediary sectors in the most developed ASEAN economies (for which data is available). Nonetheless, the divergence in output and infrastructure in countries within ASEAN-7 is still far too large for any concrete conclusions to be drawn from this statistic.

20 Ibid, pp 68.

21 Outreville, J. Francoise. "Financial Development, Human Capital and Political Stability." UNCTAD Discussion Papers (1999): 1-22.



The convergence shown above is especially suspect as the correlation between financial deepening and real GDP growth in this sample is often negative, contrary to what is expected in stable economies.[22] As Table 2 shows, the correlation between income growth and equity market capitalization in this sample is not only stronger, but positive as well. It should be noted that the data has been calculated for the 1996-2006 period, including the crisis period of 1997-1998. More extensive data, if available, may have provided considerably different results.

Table 3: Correlation between Alternate Measures of Financial Market Deepening and Income Growth

	Growth of M2/GDP Ratio to Real GDP Growth	Market Capitalization/ Real GDP Growth
Indonesia	-90.5%	7.5%
Malaysia	-0.1%	3.8%
Singapore	-68.4%	27.6%
Thailand	-89.1%	9.8%

Source: IMF, World Federation of Exchanges, author's calculations.

Different fiscal systems across different economies also have an effect on how public finances are raised and spent. If the economy in question has an underdeveloped fiscal base, raising taxes would be difficult and politically costly to implement. Governments may be tempted to raise capital through seignior-

22 Ibid, pp 4.

age, or profiting off the difference between the face value of legal tender and its intrinsic value. Of course, printing money fuels inflation, which cannot be sustained indefinitely. Countries joining a low-inflation monetary union must also tackle fundamental issues within their own economies to lower inflation; otherwise they will become dangerously uncompetitive relative to their partners, who have free access to their markets.

The existence of different labor market institutions poses perhaps the most difficult challenge to an effective implementation of an OCA. A theory developed in Bruno and Sachs (1985)[23] suggests that the degree of centralization of wage bargaining across economies has an important effect on setting inflationary expectations. The theory argues that centralized bodies are aware of their responsibility to limit inflationary expectations. If they think that an overly generous wage increase will drive up inflationary expectations, given the large proportion of the workforce they represent, they are more likely to moderate their wage claims. Smaller organizations have no such incentive, believing that they are too small to have an effect on inflation. Of course, if the entire economy consists of small unions all negotiating the highest possible wages, then the aggregated effect will drive inflationary expectations high and possibly end up reducing their real wages. Thus, the Balassa-Samuelson effect described earlier cannot attribute inflationary differences solely to productivity differences without accounting for labor market rigidities. The evidence for ASEAN-7 suggests a fair degree of convergence with regards to inflationary movements, as shown in the table below.

Table 4: Inflation Correlation Matrix, 1980-2007

	Brunei	Indonesia	Malaysia	Philippines	Singapore	Thailand	Vietnam
Brunei	1						
Indonesia	-0.3007	1					
Malaysia	0.1955	0.3378*	1				
Philippines	0.3374*	0.0354	0.3371*	1			
Singapore	0.4558**	-0.0789	0.7607***	0.3577*	1		
Thailand	0.2602	0.2882	0.7314***	0.165	0.8041***	1	
Vietnam	0.0601	-0.1628	-0.3549*	-0.0672	-0.1944	-0.1219	1

* = significant at the 10% level

** = significant at the 5% level

*** = significant at the 1% level

23 Bruno, Michael, and Sachs, Jeffrey D. 1985, "Economics of Worldwide Stagflation", Harvard University Press, Cambridge, Massachusetts.

The range of existing OCA literature is vast and to date no single best-practice framework has been agreed upon, even in the post-Euro world. As suggested, this is due to many of the structural problems and limitations of the theory as it stands today as well as the continuous adjustments that need to be made for regions experiencing different economic circumstances. The single most instructive piece of literature regarding the costs and benefits of monetary union appears to be Frankel and Rose (1998)[24] which argues that the benefits of an OCA could be achieved ex-post through a common currency, the establishment of which was needed to satisfy the OCA criteria ex-ante, i.e. the entire idea may well be a Catch-22.

V. Discussion of the Estimating Model, Methodology and Data

The econometric model used in this study draws from the "OCA Index" method established in Bayoumi & Eichengreen (1997)[25]. The authors originally applied the model on data for EU and OECD countries to gauge their suitability for a common currency on the basis of bilateral exchange rate volatility relative to an anchor currency (the Deutsch mark, in that case). Given the variety of perspectives on OCA suitability, this was seen as an alternative to the prevailing usage of structural vector autoregression (SVAR) models to gauge macro-shock symmetry across different economies. Given ASEAN's troubled history with exchange rate policy, this appears to be an appropriate model by which to gauge the region's suitability for further integration. The estimating equation is as follows:

$$SD(e_{ij}) = \alpha + \beta_1 SD(\Delta y_i - \Delta y_j) + \beta_2 DISSIM_{ij} + \beta_3 TRADE_{ij} + \beta_4 SIZE_{ij} + \epsilon$$

Here, the dependent variable SD (e_{ij}) is the standard deviation of the year-on-year (YOY) change in the logarithm of the nominal exchange rate between countries *i* and *j*. This estimation of exchange rate volatility should decline over time as a result of policy coordination and provides a metric by which to gauge OCA suitability. $SD\ (\Delta y_i - \Delta y_j)$ is the standard deviation of the difference of the logarithm of real output between *i* and *j*. $DISSIM_{ij}$ sums the absolute differences in the shares of agricultural, mineral and manufacturing trade in total merchandise trade. $TRADE_{ij}$ is the mean of the ratio of bilateral exports to domestic GDP for the two countries. $SIZE_{ij}$ is the mean of the logarithm of the two GDPs.

24 Frankel, Jeffrey A. and Rose , Andrew K, 1996, "The Endogeneity of the Optimum Currency Area Criteria", NBER Working Papers 5700.

25 Bayoumi, Tamim & Eichengreen, Barry. "Ever closer to Heaven? An optimum-currency-area index for European Countries." European Economic Review 41 (1997): 761-770.

The nominal exchange rate has been considered in this case as its volatility is zero within a currency union (or fixed peg); using the real exchange rate (RER) would introduce unnecessary noise into the estimation as exchange rate volatility could occur through changes in relative inflation rates, which is not accounted for in this model. Real GDP values (calculated at 1990 US Dollar prices) are used in all variables aside from $TRADE_{ij}$ which uses nominal GDP as bilateral export data is only available in nominal dollar terms. The $DISSIM_{ij}$ shares are calculated using nominal dollar figures for the same reason. Throughout the study, the nominal anchor currency is the Singapore Dollar (SGD), given the state of the country's advanced industrial and financial infrastructure. It is therefore assumed that any ASEAN monetary union would first require countries to peg their currencies to a basket of currencies in which the SGD would be weighted heavily (though in all likelihood, significant weights would also be attached to the Dollar, Yen and Euro).

The regressions have been run on ASEAN-7 countries from annual data from 1980 to 2007. Bilateral trade statistics were collected from the IMF Direction of Trade Statistics (DTS) publications. GDP and exchange rate data were collected from the United Nations Statistics Division (National Aggregates Database). Trade composition data was collected from the Statistics Database of the WTO.

VI. Results

While the primary focus of this study is to look at OCA indicators in the post-crisis period, i.e. 1999 onward, it may be helpful to first look at the state of OCA suitability pre-crisis in order to understand how things have changed. The following table shows the results of the regression for the period 1980-1996. It should be noted that Viet Nam was not a full member of ASEAN until 1995, although cooperation and assistance programs had begun soon after the end of the Second Indochina War in 1975 and its admission was recommended as early as 1977.[26] It is therefore included in the regressions for periods prior to 1995.

26 Joint Communique of The Second ASEAN Heads of Government Meeting Kuala Lumpur, 4-5 August 1977, http://www.aseansec.org/1224.htm.

Table 5: Estimation Results

Dependent Variable: Bilateral Exchange Rate Volatility

Time Frame	**1980-1996**	**1999-2007**	**1980-2007**
Relative GDP Volatility	-0.0606***	-0.0207***	-0.0493***
	(0.0222)	(0.0068)	(0.0138)
Export Composition Variable	0.1951**	0.0409	0.1050
	(0.0869)	(0.0414)	(0.0647)
Extent of Bilateral Trade	-0.5950**	-0.1648***	-0.4160***
	(0.2290)	(0.04730)	(0.1191)
Mean of Country-Pair GDP	-0.1203***	0.0042	-0.0606**
	(0.0405)	(.0089)	(0.0265)
Number of Observations	**119**	**63**	**196**
R-squared	**0.1404**	**0.258**	**0.089**

(Robust Standard Errors in parentheses)

* = significant at 10% level

** = significant at 5% level

***= significant at 1% level

For the 1980-1996 period, it can be seen that all the explanatory variables are statistically significant at the 5% level, with GDP volatility and Country-Pair GDP significant at the 1% level. That said, the sign for the GDP volatility variable is not what we would expect, i.e. an increased divergence in income growth lower the volatility of bilateral exchange rates. This is also true for the most recent data examined in the 1999-2007 period. In both cases, it could be argued that the magnitude of the coefficient is too small to effect significant changes in the dependent variable. Additionally, the pre-crisis period as mentioned was marked by fixed or floating dollar pegs. Assuming that cross-currency arbitrage opportunities were negligible, the volatility of bilateral exchange rates could easily have remained stable even as growth rates were different across countries.

Similarly, the post-crisis period has been marked by the rapid accumulation of dollar reserves across East and Southeast Asia. This is primarily a result of the large current account surpluses these countries have been running (See Figure 4), though it should also be said that central banks have been hoarding assets denominated in foreign currencies in order to control inflationary pressures in the domestic economy, as well as to prevent a reoccurrence of a speculative attack. The Singaporean sovereign wealth fund Temasek for example has been a highly active investor in the last year or so, though consider-

ably less in light of the current investment climate. These factors contribute to bilateral exchange rate stability without necessarily being affected by income growth.

In contrast, the export composition variable is statistically significant at the 5% level for the pre-crisis period, but insignificant in the post-crisis period. In both cases however, they display the expected sign. A positive coefficient tells us that an increase in the dissimilarities in the structure of the export portfolio would increase exchange rate volatility. It should be noted that for the 1980-96 period, export data gathered under "manufactured tradables" included both labor-intensive, relatively low-value added exports from countries like Viet Nam and the Philippines as well as higher-value added, capital-intensive high-technology goods like those produced in Singapore and Malaysia. As the post-crisis variable is statistically insignificant within this model, no firm conclusion can be reached about its influence on bilateral exchange rate variability. The bilateral trade variable is statistically significant for both pre- and post-crisis periods, and has the signs we would expect. The pre-crisis coefficient is considerably larger than it is post-crisis, though the standard error is much larger as well. The lower magnitude (but greater significance) of the post-crisis coefficient could be explained by institutional efforts to increase intra-regional trade and investment, in particular efforts by ASEAN members to comply with AFTA market access rules by 2003.

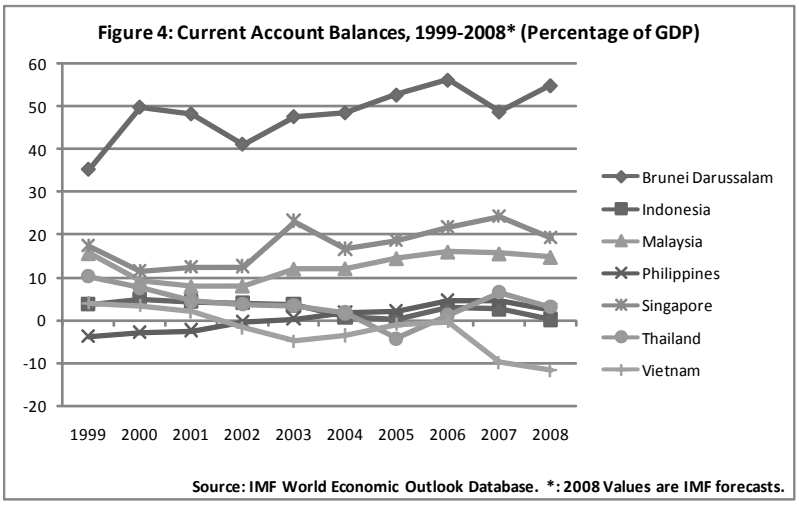
The country-pair mean GDP figures are statistically significant for the first period and insignificant in the second. In the pre-crisis period, this meant that an increase in mean GDP would lower exchange rate volatility, as we would expect improved institutional reform and economic stability policy from governments with a good track record. That the sign is reversed in the post-crisis period is not too important, as the coefficient is small, and is statistically insignificant anyway.

The figures for 1980-2007 have been included for reference, but they are not very useful for the purposes of this study, as a great deal of the variation in the data will not be explained by the variables used within this OCA analysis. Below is the volatility index constructed by the data sample:

Table 6
OCA Indexes relative to Singapore

	1990	1998	2007
Brunei Darussalam	0.000	0.000	0.000
Indonesia	0.080	0.789	0.036
Malaysia	0.051	0.151	0.009
Philippines	0.131	0.147	0.038
Thailand	0.049	0.111	0.028
Vietnam	0.316	0.005	0.041

The table presents a snapshot of OCA readiness for the countries in the sample at different periods of time. As expected, relative volatility of the domestic currencies were highest at the peak of the AFC in 1998. It should be noted that the results for Brunei are consistently even with Singapore, as their two currencies are legal tender in both territories and have their exchange rates fixed at a one-to-one rate. With that said, the reasons for the union are largely political and rooted in the two nations' history. Brunei's economy is also considerably smaller than Singapore's and its bilateral exports are far less than its ASEAN neighbors, so its example is not very instructive in developing an efficient monetary union.



VII. Policy Recommendations

The results above seem to suggest that bilateral exchange rate volatility has fallen to all-time lows within ASEAN and that the time may be right for more intensive monetary coordination, if not outright union. The results from the econometric analysis, however, throw some doubts on to the idea. The GDP volatility data suggests that shock symmetries in the region may not have reached the stage at which policymakers would be comfortable bringing up the topic for serious discussion. Cortinhas (2006)[27] suggests that while demand shocks have begun to converge region-wide in the aftermath of the crisis, supply shocks have begun to diverge, particularly with regards to periphery economies like Philippines and Thailand. While the importance of deeper bilateral trade links have been established, intra-ASEAN trade is still far lower than it was in the EU before the introduction of the Euro (22%, as opposed to 50% in the EU upon the completion of the customs union).[28] While regional trade is unlikely to grow to EU levels due to the comparatively smaller domestic markets and lower levels of development, it is less important in terms of improving economic development, as the post-Uruguay trade regime has provided access to the lucrative overseas markets that the EU did not have in its infancy. Given the number of FTAs that ASEAN has completed or is currently negotiating (these include the US, China, Japan, Korea, Australia and New Zealand), explicit intra-regional trade may no longer even be a policy priority in the race to secure FDI and gain access to growing markets in an uncertain export environment.

Nonetheless, it is clear that developments have been made in facilitating intra-ASEAN trade. Full compliance with AFTA regulations in 2008 among all 10 member states should help reduce bilateral exchange rate volatility (note that Vietnamese dong still features the highest rate of fluctuation against the SGD). Trade facilitation reforms have helped lower shipping costs, for instance; Singapore and Malaysia feature some of the world's lowest shipping costs at US$500 per container, while costs in Indonesia, Thailand and Viet Nam are comparable to those in the OECD.[29] Nonetheless, further improvements in port infrastructure and reductions in bureaucratic delays are estimated to potentially increase trade by nearly 10%.[30]

Further infrastructural improvements also need to be made before ASEAN competitiveness can approach that of Singapore, coastal China or other high-

27 Cortinhas, Carlos. "Asymmetry of Shocks and Convergence in Selected Asean Countries: A Dynamic Analysis." NIPE Working Paper No. 3/2006 (2006).

28 See Plummer (2005), pp 2.

29 Shepherd, Ben & Wilson, John S. "Trade Facilitation in ASEAN Member Countries:Measuring Progress and Assessing Priorities." Policy Research Working Paper 4615 (2008).

30 Ibid, pp 21.

performing East Asian countries. Taylor & Wilson (2008)[31] point to evidence suggesting that increased investment in technological infrastructure (wider access for Internet services) and air transport infrastructure could help increase the volume of trade in higher value-added electronic goods and tertiary trade. Sundaram (2002) also stresses that technological investment in the region has been limited in scope primarily due to government policies on maintaining employment, rather than improving productivity. As Table 4 shows, labor productivity has seen impressive gains over the years, though it can be argued that better targeted investment, particularly in education, where much of ASEAN lags behind the Asian tigers, could raise the gains several-fold.

Table 7: Total Labour productivity, average annual growth rate, percentage

	1991-1995	1995-2000	2000-2005
Brunei Darussalam	-	-	-
Indonesia	6.3	-1.6	3.5
Malaysia	6.6	0.8	2.8
Philippines	0	2.3	0.9
Singapore	6.4	2	2.3
Thailand	7.4	0.2	3
Viet Nam	6.3	4.2	4.8

Source: UNESCAP Statistics Division

Given that labor mobility is one of the key points stressed in OCA theory, it makes sense that the ASEAN region, with one of the highest rates of intra-regional migration flows, should look towards streamlining immigration and employment authorization procedures. To this end, the ASEAN Framework on Visa Exemption went into effect in July 2006,[32] and should encourage a sustained flow of semi-skilled labor from poorer countries to richer countries. This in turn should help facilitate labor market adjustment following the occurrence of shocks, as discussed earlier. Similarly, the ASEAN Framework on Services is intended to extend labor mobility for skilled workers such as engineers and nurses. For smaller economies like the Philippines and Viet Nam, these measures, if implemented well, could have significant benefits with regards to increasing remittance flows, which have proved to be a major source

31 Taylor, Benjamin J. & Wilson, John S. "Deeper Integration in ASEAN: Why Transport and Technology Matter for Trade." Trade Issue Brief. 2008.

32 UNESCAP. "Ten as One: Challenges and Opportunities for ASEAN Integration." ESCAP Series on Inclusive & Sustainable Development. Bangkok: United Nations Economic and Social Commission for Asia & the Pacific, 2007.

of foreign exchange.[33] In time, these factors should go a long way towards improving convergence levels towards something politically credible.

Regardless of whether an ASEAN common currency is politically feasible, the fact remains that FDI flows have guided the development of regional production networks to the point where it may no longer be possible for government policy to create a multi-tiered industrial structure within one country. The changing cost structures of the major manufacturing economies in East Asia (China moving into higher-value manufacturing rather than merely assembly and processing, for example) in addition to increasing competition from South Asia means that resources are better spent in improving infrastructure to encourage greater productivity, rather than in a futile attempt to reorient competitive advantages completely. As noted in Francis et al. (2008)[34], China's exports have grown by 30 percent between the time of its accession to the WTO (2001) to 2006, whereas Southeast Asian exports have risen only 11 per cent. The Chinese manufacturing sector has also benefited from developing forward and backward linkages in the supply chain in order to move into design and manufacturing, rather than merely assembly and processing. In the aftermath of the AFC, ASEAN leaders may well have been under pressure to give up the technology-transfer advantages of joint-venture FDI projects by allowing the establishment of foreign-funded enterprises (FFEs) at the Hanoi Plan of 1998. China's gradual reformist policies and widely recognized market potential allowed it to maintain more protectionist, technology transfer-conducive policies until the economy had developed regional manufacturing clusters and could benefit from external economies of scale. [35]

ASEAN has had mixed results in this regard. The petrochemical industry in Singapore and the automobile components manufacturing sector in Thailand have benefited from agglomeration strategies in the way of lower transport costs and improved logistical flexibility, allowing them to include a high proportion of local components into the finished product, according to Yeung (2008)[36]. But the computer hard drive industry in Penang (Malaysia), Bangkok (Thailand) and Singapore have been unable to compete with Chinese production costs in recent years; their initial attractiveness may well have been the result of state-backed incentive packages for multinational firms to establish

33 Ibid, pp 38

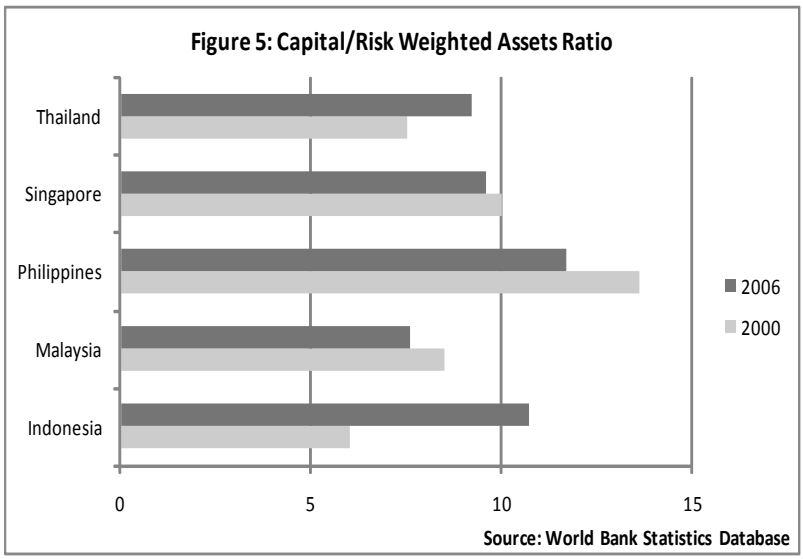
34 Francis, Smitha & Kallummal, Murali. "The New Regionalism in Southeast Asian Trade Policy and Issues in Market Access and Industrial Development: An Analysis of the ASEAN-China Free Trade Agreement." The IDEAS Working Paper Series (2008).

35 Ibid, pp 35.

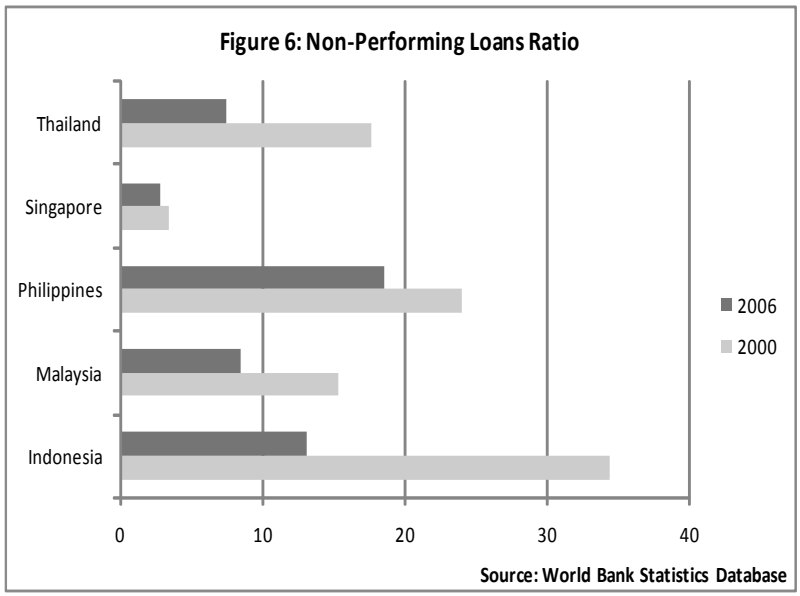
36 Yeung, Henry Wai-chung. "Industrial Clusters and Production Networks in Southeast Asia: A Global Production Networks Approach." (eds.), Ikuo Kuroiwa & Mun Heng Toh. Production Networks and Industrial Clusters: Integrating Economies in Southeast Asia. Singapore: Institute of Southeast Asian Studies, 2008. 83-120.

operations in those regions (Yeung, pp 31). Relying on such safety nets may reduce the focus on increasing productivity and competitiveness, and hence make these sectors vulnerable once multinationals move elsewhere.

Recent developments in the global economy have stressed the importance of cooperation on matters regarding monetary policy and financial markets. The recent IMF bailouts of Hungary and Ukraine were likely to have been watched closely by ASEAN, which remembers the debilitating impact of structural adjustment policies of the AFC bailout package all too clearly. Deepening cooperation on the Chiang Mai initiative, particularly within the context of the greater economic clout of ASEAN+3 could improve the member states' policy credibility at the IMF, which in turn could allow access to the Fund's Short-Term Liquidity Facility (SLF), which would allow qualified countries to borrow up to five times their quota over a three-month period.[37] As discussed earlier, a lifeline that generous could easily have saved many of the worst-hit economies in 1997/98. Fortunately, banking regulation and risk management appear to have improved dramatically since the crisis years, as shown in Figures 3 & 4.



37 Henning, C. Randall. "The Future of the Chiang Mai Initiative: An Asian Monetary Fund?" Peterson Institute for International Economic Policy Brief (2009): 1-9.



VIII. Conclusion

While it is not entirely realistic to think that an ASEAN monetary union is likely to be implemented anytime soon, it is well worth considering the region's suitability for greater policy coordination in the wake of the AFC and the onset of the global economic crisis. The analysis conducted in this paper considers only one of a variety of macroeconomic issues relevant to a comprehensive discussion of a common currency. It finds that OCA eligibility within ASEAN-7 is the highest it has been in its history, but because there is no single framework by which to evaluate the costs and benefits of a monetary union, it is still too soon to reach a definitive conclusion regarding its *suitability*. The uncertain economic times ahead however merit discussion on how further integration could help the organization maintain economic stability while raising its regional competitive profile. The study finds that while significant reforms can be made in the absence of such a union, there are likely to be considerable benefits that apply only after full integration takes place.

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