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The Case for Monetary Union in East Asia – From Theory to Empirics

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1. Introduction

In the interwar years, the difficulties of reinstating the gold standard and the disruptive shock of the Great Depression had prompted a wide-ranging debate on the international monetary system in the West. Today, the developments in the West, in particular the birth of euro and the Asian financial crisis were among the drivers which had spurred the proliferation of the intellectual work on monetary arrangement in the context of East Asia.

> The theory of optimum currency areas (OCAs) has advanced only minimally since the seminal contributions of Mundell (1961), McKinnon (1963), and Kenen (1963). It remains difficult to move from theory to empirical work and policy analysis.
>
> Bayoumi and Eichengreen (1997, p.762)

Nevertheless, as the above statement vividly points out, it has remained difficult to operationalize the intellectual work to practical grounds given the complexities found in the real world. In spite of this, numerous empirical studies have attempted to demystify the theory in an effort to identify groups of economies which could possibly come together under one common monetary umbrella.

Against this backdrop, the present paper seeks to present the reasons why the idea of Asian monetary union has gained increasing popularity despite of the obstacle highlighted. Along this line, the paper also provides the arguments for two alternative monetary anchors. Finally, the paper reviews a number of empirical works in the field in order to identify countries which have been commonly indicated to be prospective for integration and to comment on some general trends found in the empirical papers.

The remaining of the paper is structured as follows. Section 2 revisits the essence of the classical work which has propagated the intellectual framework. Section 3 explains why flexible exchange rates are most probably not suitable for emerging East Asia. Section 4 details the case for fixed exchange rate and monetary union for the region. Sections 5 and 6 present the case for US dollar and the case for currency basket as the monetary anchor respectively. Section 7 provides the review of 20 empirical studies and section 8 discusses relevant interpretations and concludes.

2. The theory of optimum currency areas

In the classic published in 1961, Robert Mundell proposed that an optimal currency area is characterized by internal factor mobility and external factor immobility. Succinctly, interregional and interindustrial factor mobility can substitute for changes in nominal exchange rates to restore internal and external equilibriums when asymmetric shocks occur between economic regions. The equilibriums pertain to maintenance of full employment, stable price levels, and balanced international payments.

Upon contemplation of Mundell's thesis, Kenen (1969) elucidated the former's definition of optimality and economic region. An economic region was interpreted as a homogeneous collection of producers that use the same technology, face the same demand curve, and suffer or prosper together as circumstances change whilst optimality was taken as a condition linked to the labor market and exchange rate regime. Economic regions do not necessarily coincide with nations. If a prevailing exchange rate regime can maintain external balance without causing unemployment or demand-induced wage inflation, that regime is optimal. Flexible prices, wage rates, and labor markets are the conditions underlying that optimality in which balances can be restored in the event of asymmetric shocks.

Based on the presumption that perfect labor mobility hardly prevails, Kenen provided an alternative to define optimality. In his opinion, diversity in product-mix or economic activity may be more relevant than labor mobility in defining OCAs. He argued that well-diversified economies are more able to cope with asymmetric shocks between members in a monetary union and are therefore more feasible candidates to be part of the union. Another dimension for optimality came from McKinnon (1963) in which he contended that highly open economies are least feasible for flexible exchange rates and hence, exchange rate fixation with a putative currency is highly desirable.

Under fixed exchange rate and free capital mobility, the pursuit of independent monetary policy will likely lead to disequilibrium in the balance of payments, resulting in speculative capital flows (see e.g. Tavlas, 1993). In the presence of liberal capital sector, a sustainable monetary bloc entails irrevocably fixed exchange rates; full and irreversible convertibility of currencies; financial market integration; liberalized movements on current transactions; common monetary policy; and harmonization of national financial regulations and structures of institutions.

3. The case against flexible exchange rate

Even before the literature on OCAs came into the picture, there had always been a school of thought which advocates complete floating exchange rate. The fundamental argument raised by Milton Friedman[1] in his 1953 classic for allowing exchange rate to float lies in the ability of floating rate to ease the process of adjustment to external shocks. Suppose the demand for exports of a country falls, necessitating a fall in relative prices of goods and labor to correct the deficit—it will be easier for the change in terms of trade be accomplished

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[1]Though Friedman has always been portrayed as a strong advocate for floating rates, he has actually had no objections for hard fixed rates (Hanke, 2008).

through depreciation or devaluation rather than through some combinations of inflation in the foreign country and unemployment in the home country.

Whilst the argument for floating rate is convincing, floating regime has nevertheless been criticized for increasing transaction costs, undermining the roles of money, and promoting speculation (Mundell, 1961); creating excess volatility and uncertainty which may lead to inconvertibility (Krugman, 1991); inflating prices and wages (McKinnon, 1963; Krugman, 1990; Mundell, 2001); deterring international investment and capital allocation (Kenen, 1969; Tower and Willet, 1976; Eichengreen, 2001); facilitating precarious and inflationary monetary polices (McCallum, 1989; Tavlas, 1993; Calvo, 2002); disrupting international strategic management (Cooper, 2000); and also for its ineffectiveness in correcting balance of payments (De Grauwe, 1989; Krugman, 1990).

In a strategic sense, attempts to increase competitiveness by devaluations would only lead to inflation and retaliations (see McKinnon, 1963; Krugman, 1990; Mundell, 2001). In highly open economies, domestic prices and wages are most likely closely linked to exchange rates of significant trading partners, rendering devaluations or depreciations ineffective in restoring external balance; the net result is more inflation. Also, devaluation is useless when a shock comes from the capital account, as when emerging markets are hit by contagion and face sharply higher interest rates; the Latin American and the Indonesian experience had been contractionary irrespective of the degree of devaluation (Calvo, 2002).

In light of the above, for economies which have been integrated in respect of trade and international capital flows, which define most of East Asia today, flexible rates are most probably undesirable. In fact, the sharp fluctuations in the yen-dollar rate, coupled with pseudo-fixed or soft pegs and incompetent monetary policies were the main culprit behind the Asian crisis. Thus, the foregoing of independent monetary policy and hence floating rate is very likely to be beneficial to developing countries (Milton Friedman in Friedman and Mundell, 2001; Calvo and Reinhart, 2002).

This is in light of the fact that even Japan, an advanced economy, is not spared from the devastating effects from floating rates. The Japanese banking system was the casualty of excessive appreciation of the yen between 1985 and 1995 (Mundell, 2003). The tripling of the value of the yen against the dollar had actually weakened the corporate balance sheets and saddled the Japanese banking system with non-performing loans.

4. The case for fixed exchange rate and monetary union

The primary case in favor of exchange rate fixation against a pivotal currency rests upon the desirability of certainty (Krugman, 1990). By fixing participants' currency values against a hard currency (or a basket of hard currencies), the resulted system will confer a degree of stability between the participants and the numéraire country (countries), as well as between the participants. The desirability of fixed exchange rate and monetary union is evidently proven by the ever-expanding EMU; the Euro club contains 16 members since Slovakia adopted the Euro on January 1, 2009. The following discussion highlights the case for an Asian monetary union which most probably underlies the motivation for the empirical studies in the area.

Greater economic integration

Tighter economic integration in East Asia is ever warranted in the face of rising regional integration elsewhere such as NAFTA, EU, Mercosur, CEMAC[2], OECS[3], UEMOA[4], and CACM[5]. To an extent, these arrangements have brought intra-regional stability but more competition between trade blocs and more volatility between major currencies.

Along these lines, East Asia may need to further enhance its intra-regional trade to insulate against disturbances originating from outside the region. Recent free trade deals have encompassed ASEAN[6], China, Japan, India, Australia, and New Zealand which cover aspects of goods, services, investments, and intellectual property (Kowsmann and Venkat, 2008). In theory, countries could still achieve greater economic integration through regional free trade arrangements without monetary integration (Ngiam and Yuen, 2001). In practice, however, trade liberalization and economic integration often require stable exchange rates. Otherwise, regional free trade agreements could be undermined by compensatory tariffs demanded by exporters in stable countries against countries that might devalue their currencies. In effect, during the interwar experience, nations had resorted to either exchange rate manipulation or tariff protection to maintain competitiveness (see Simmons, 1994).

On the other hand, a monetary union which encourages trade and economic integration constitutes a virtuous self-reinforcing circle (Bayoumi and Eichengreen, 1997). If a world currency is set as the anchor currency, firms need not incur hedging costs and lose trade from uncertainty, not only with union countries but also with the rest of the world (see Krugman, 1990). Since EMU was established, trade and investment have grown tremendously and the monetary area has expanded to embrace more peripheral countries. The same is true for the case of dollarization, an effective monetary union with the US, which has raised investment and economic growth (Alesina and Barro, 2001) and trade enormously (Rose and van-Wincoop, 2001).

Highly open economies would gain much if exchange rates are fixed. When initial trade is large, the size of required price and wage adjustments to accommodate any given external shock will be small (Krugman, 1990). With initial exports of 20 percent of GNP, a one percent deficit (of GNP) would require less fall in prices and wages than if the initial exports were one percent. Even when initial trade is low, the gains from fixed rates could also be high (Alesina, Barro, and Tenreyro, 2002). Since low initial trade could be due to high trading costs, the trade that did occur must have high marginal values − coupled with lower marginal costs when exchange rates are fixed, higher marginal gains will result.

In view of the above, a monetary bloc would be extremely advantageous to East Asia which has been enjoying increasingly high intra-regional trade and trade integration with the rest of the world, led by the export juggernauts of China, India, and the Asian Tigers.

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[2] Economic and Monetary Community of Central Africa.
[3] Organization of Eastern Caribbean States.
[4] West African Economic and Monetary Union.
[5] Central American Common Market.
[6] To date, ASEAN contains Myanmar, Vietnam, Laos, Cambodia, and Brunei in addition to the original members of Thailand, Malaysia, Singapore, Indonesia, and the Phillipines.

The benefits are especially important to the highly heterogeneous economic structure of the region (Ngiam and Yuen, 2001). All the while, MNCs operating in the region have to diversify their production processes and stages of production across countries to exploit comparative advantages. Examples are the tourism and electronics industries which are highly concentrated in the growth triangles (GTs) in Southeast Asia. GTs are subregional economic zones which were set up to foster economic complementation (Ramos, 1994). The first triangle was the Singapore-Johor-Riau Triangle (SIJORI) initiated in 1988 where R&D and capital intensive jobs are done in Singapore while labor intensive and manufacturing jobs are located in Johor and Riau. It later became the Indonesia-Malaysia-Singapore Triangle (IMS-GT) in 1994. Other triangles are the East ASEAN Growth Area (EAGA) covering Brunei and parts of Malaysia, Philippines, and Indonesia; a growth zone linking parts of Myanmar, Laos, Thailand, and China; and the southern Chinese Economic Triangle, made up of China, Hong Kong, and Taiwan which began with Deng Xiaoping's vision of substituting economic development for class warfare as the highest order of business in post-Mao China.

A monetary bloc which bolsters economic integration will also preclude any undesirable beggar-thy-neighbor policy. Even the implicit dollar peg (or pseudo-exchange rate union) adopted by the Asian economies prior to the Asian crisis had actually insulated each other from harmful devaluations (McKinnon, 2005). In spite of this, past experience has shown that beggar-thy-neighbor policies could still be a concern. For instance, even though there was no speculative attack against the Singapore dollar during the Asian crisis, the Singapore government had nevertheless allowed its currency to fall against the dollar in line with the regional currencies in an attempt to preserve its competitiveness (Ngiam and Yuen, 2001).

Lower costs

A currency area enhances the role of money as unit of account by setting economies of scale into play and reduces transaction costs, including the costs of information, search, exchange, hedging, and calculation (Grubel, 1981). Small economies, including the less developed economies in Indo-China in East Asia, should benefit the most from the unit of account, means of payment, and store of value services provided by a major currency (see Bayoumi and Eichengreen, 1997). In fact, the US dollar has been commonly accepted in Vietnam and its neighboring countries since the Vietnam War.

A credible monetary union anchored on a stable currency will also lead to lower cost of capital (see McKinnon and Pill, 1999; Chang, 2000). Since the uncertainty arisen from currency risk and sudden regime change is removed in this arrangement, the cost of international and hence domestic borrowing becomes lower. In addition, the improved allocational efficiency of financing process in a monetary bloc does provide both borrowers and lenders a broader spectrum of financial instruments, thereby enabling more efficient choices to be made in terms of duration and risk (Robson, 1987).

Lower cost of capital also stems from lower reserve requirement when enlargement of foreign exchange market in a monetary bloc removes volatility of exchange rates and ability of speculators to influence money prices (Grubel, 1970; Fleming, 1971; Tower and Willet, 1976). Moreover, if countries are structurally diverse, as those in East Asia, reserves for intra-area transactions too may be substantially reduced because any payments imbalances may be offsetting (see Kafka, 1969).

Price stability

A monetary standard based on a credible currency also helps in curbing inflation in several ways. First, exchange rate fixation facilitates inflation targeting. As Giovannetti (1992) argued, exchange-rate targeting is better than monetary-growth targeting because exchange rates are highly observable whereas money supply, to the extent that it is endogenous, is difficult to measure and control. Second, any high inflation country which joins a low inflation monetary bloc could 'import' low inflation reputation without loss of output and employment (De Grauwe, 1992). The recent past has seen establishments of currency board intended to import monetary policy credibility from a stable developed country (Oomes and Meissner, 2008).[7] Third, collusion in the form of fixed exchange rates can remove internal monetary policy from politically dependent domestic authorities and delegate it to a more independent foreign authority (Fratianni and von Hagen, 1992).

Evidence of fixed exchange rate and inflation reduction can be seen from countries that have implemented rigid rates. Historically, countries with currency boards (e.g., Argentina, Estonia, Lithuania, and Bulgaria) have experienced lower inflation and higher growth than those with other regimes (Guide, Kähkönen, and Keller, 2000). While Chang (2000) has found that dollarization had enhanced the credibility of policies in curbing inflation, Edwards and Magendzo (2001), and Dornbusch (2001) have detected that dollarized countries tend to display significantly lower levels of inflation than their non-dollarized counterparts.

Monetary credibility and inflation reduction are also important to less developed countries in East Asia. In general, the degree of monetary authority independence from the executive branch in these countries is far lower than those in the advanced countries, which partly explains why internal monetary policies in small countries are relatively unstable. Based on IMF data, average CPI inflation in Vietnam, Laos, and Indonesia for 2001-2007 is about 4-6 percent higher than the US level while Myanmar's rate is about 24 percent higher. Since there is no permanent Phillips curve trade-off (see e.g., Tavlas, 1993), high inflation countries have little to lose in the long run and much to gain by adopting monetary policy of a stable country. In this respect, the US would be one of the possible anchor countries since the US internal prices have been very stable since the early 1980s (McKinnon, 2005).

Financial stability

Rigid pegs to a hard currency are particularly advantageous to substantially indebted countries with soft currencies. A stable domestic currency against the denominator of liabilities is utmost crucial in times of distress where speculative capital flows could easily deplete foreign reserves even among neighboring countries that are marginally leveraged. Given that many developing countries in East Asia are still substantially indebted in hard currencies especially in dollars (Calvo, 2002; McKinnon, 2000), any steep depreciations would certainly render them insolvent. This might in turn push the debtor countries into a vicious cycle of capital reversals and further depreciations (Reinhart, Rogoff, and Savastano, 2003). The Thai experience during the Asian crisis is a very good instance.

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[7] New currency boards have been implemented in Argentina, Bosnia and Herzegovina, Bulgaria, Djibouti, Estonia, and Lithuania. Examples of currency blocs in small economies are the Eastern Caribbean Currency Union and the CFA franc zone in Africa.

Though IMF usually advises countries to float their exchange rates in face of domestic crises, emerging middle-income economies are held back by the so-called "fear of floating" dilemma (see e.g., Calvo and Reinhart, 2002). At least two interlocking factors underlie this 'fear'. First, emerging economies do not have well-developed and diversified financial systems which are able to minimize real sector disruptions resulted from transitory exchange rate variations. Most importantly, they are not able to borrow overseas in their domestic currencies, commonly referred to as "original sin". Second, policymakers in emerging markets suffer from a chronic lack of credibility. As a result, an emerging economy might experience large and frequent shocks to exchange rate expectations or to interest rate risk premiums. By right, a true floater would allow the spot exchange rate to absorb these shocks. However, due to original sin and the need to maintain credibility, these countries allow for some flexibility in both variables, but by and large it is the interest rate that absorbs most of the shock.

Labor mobility

According to Mundell (1961), the costs of sacrificing the use of exchange rate changes would be minimal if there is mobility or flexibility of the labor markets in geographical and industrial dimensions within a currency area (see also, Lerner, 1944). Alternatively, if labor markets are flexible, real wages can adjust to restore internal and external balances. In considerations for monetary union, this issue plays the center role because it concerns about welfare and employment. The following evidence suggests that labor markets in East Asia may be sufficiently mobile or flexible to withstand asymmetric disturbances that may arise in a monetary union.

Asis and Piper (2008) discovered that much of international migration in Asia is intra-regional and undocumented. Also, the migration industry is well developed and well connected. Since early 2000s, the world's largest net labor exporting country is the Philippines. Other main exporters include Indonesia, India, China, Vietnam, Myanmar, Cambodia, and Laos. The common destinations for them are Middle East, Malaysia, and Thailand. Net labor importing countries include Japan, Hong Kong, Taiwan, Korea, Singapore, Brunei, Malaysia, and Thailand, which draw workers from the less developed countries in the region. Notably, China allowed labor export mostly in connection with state contracted projects overseas since the 1978 market reform but international migration has been eclipsed by the much larger internal rural-to-urban migration.

At the same time, Athukorala (2006) found that the number of migrant workers per 1,000 of labor force has increased significantly from 1980s to early 2000s in Japan, Korea, Taiwan, Hong Kong, Singapore, Malaysia, and Thailand. The number has continued to rise in Malaysia and Korea despite the Asian crisis and in Japan despite its decade-long recession. Remarkably, the stock of foreign workers in Japan has recorded an almost three-fold increase from 1990 to 2003. In particular, Manning (2000) discovered that unskilled, skilled, professional, and business migration in East Asia had intensified in the 1990s and continued even in the face of Asian crisis. Indeed, intra-Asian labor migration had increased approximately from 1 million in the beginning of 1980s to 6.5 million in 2002 (Huang and Guo, 2006). One possible reason would be the establishment of ASEAN Occupational Safety and Health Network in 2001.

Goto and Hamada (1994) and Eichengreen and Bayoumi (1999) have even indicated that labor mobility in East Asia was higher than that in Western Europe during the 1980s and 1990s. In 1999, the year the euro was adopted, ten countries in Western Europe had some kind of minimum wage policy whereas only four East Asian economies had that kind of policy, suggesting that Asian wages could be relatively easily adjusted to clear the labor market (Ngiam and Yuen, 2001). For that year, the unemployment rates in East Asia were also found to be lower than those in Western Europe.

5. The case for US dollar as the anchor

> The big news last week was a speech by Zhou Xiaochuan, the governor of China's central bank, calling for a new "super-sovereign reserve currency".
> But they are, apparently, worried about the fact that around 70 percent of those (the China's) assets are dollar-denominated, so any future fall in the dollar would mean a big capital loss for China.

<div align="right">(Krugman, 2009)</div>

The above excerpt is from Paul Krugman's New York Times column published in April, 2009. The article responded to China's call to replace the US dollar as the world reserve currency in wake of the 2008 global economic crisis "exported" by the US. Notwithstanding the "flaw" in the US monetary policy and financial sector, the article asserted that the dollar would remain robust in view of the fact that any dollar dumping by China would set downward pressures on the dollar, leading to huge capital loss for the republic.

This is clearly reflected in Table 1 which exhibits the currency composition of official currency reserves in the world and in the emerging and developing economies. Due to confidentiality of data, data for individual countries are not available publicly. Despite its declining share, the US dollar is still the most dominant reserve currency till 2008. One can also notice the decreasing role of the yen and the rising dominance of the euro.

Krugman's argument appears to be consistent with the proposal by the OCA gurus, Robert Mundell and Ronald McKinnon on having a dollar bloc in East Asia (see e.g., Mundell, 2003; McKinnon, 2005). Mundell has explicitly recommended that US dollar be the anchor currency for ASEAN+3 countries as the initial step toward an Asian monetary union. The most devastating threat to an Asian dollar bloc, however, is the floating yen-dollar rate which may be chaotic when it swings sharply. But then again, should Japan is also a part of the dollar bloc, this setback virtually disappears.

Several other factors have also made the choice of the US dollar as the monetary anchor an ideal one. First, as widely recognized, the dollar is the vehicle currency for transaction across the world. Specifically, exports of primary products tend to be invoiced in dollars with worldwide price formation (spot and forward) in centralized exchanges usually in US cities like Chicago and New York, and in dollar-denominated commodity exchanges in London and elsewhere (McKinnon, 2000).

In East Asia, the dollar is also the preferred invoice currency even though Japanese trade is as large as the American one (McKinnon and Schnabl, 2004). Only about half of Japan's overall exports are invoiced in yen, while three quarters of its imports are invoiced in dollars. When the yen-dollar rate fluctuates, Japan will suffer high variation in domestic

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
World														
USD	59	62	65	69	71	71	72	67	66	66	67	65	64	64
Pound sterling	2	3	3	3	3	3	3	3	3	3	4	4	5	4
Deutsche mark	16	15	14	14	-	-	-	-	-	-	-	-	-	-
French francs	2	2	1	2	-	-	-	-	-	-	-	-	-	-
Japanese yen	7	7	6	6	6	6	5	4	4	4	4	3	3	3
Swiss francs	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Netherlands guilder	0	0	0	0	-	-	-	-	-	-	-	-	-	-
ECUs	9	7	6	1	-	-	-	-	-	-	-	-	-	-
Euros	-	-	-	-	18	18	19	24	25	25	24	25	26	27
Others	5	4	4	4	2	1	1	2	2	2	2	2	2	2
Emerging and developing economies														
USD	72	73	74	73	72	73	72	66	61	61	62	61	61	60
Pound sterling	2	2	2	2	2	3	3	3	4	5	5	6	6	5
Deutsche mark	15	15	14	14	-	-	-	-	-	-	-	-	-	-
French francs	2	2	2	2	-	-	-	-	-	-	-	-	-	-
Japanese yen	6	5	5	4	4	3	2	2	2	2	2	1	2	2
Swiss francs	1	1	1	1	0	0	0	0	0	0	0	0	0	0
Netherlands guilder	0	0	0	0	-	-	-	-	-	-	-	-	-	-
ECUs	0	0	0	0	-	-	-	-	-	-	-	-	-	-
Euros	-	-	-	-	19	20	22	28	32	31	30	31	30	31
Others	2	2	2	3	1	1	1	1	2	1	1	2	1	2

Source: (COFER), IMF (2009).

Table 1. Currency Composition of Official Foreign Exchange Reserves (Percent)

prices of goods, that is, "pass-through" is high. Other East Asian countries are equally vulnerable. On the other hand, the US price level is fairly immune to fluctuations in the dollar rate because both its exports and imports are largely invoiced in dollars. In periods of reasonable confidence in the US monetary policy, commodity prices in dollar are relatively invariant to fluctuations in dollar rate.

Second, the US is also the most important export destination for most East Asian countries. Based on 1990–2002 data, Kawai and Takagi (2005) showed that the US was by far the most important industrial-country destination for principal Asian exporters, such as Cambodia, the Philippines, Taiwan, Hong Kong, Thailand, Korea, Malaysia, China, and Singapore, although Japan was more important for Vietnam and the resource exporting countries of Brunei and Indonesia. As for imports, Japan was the most important source country, except in Brunei and Cambodia for which the EU was the most important. Based on direction of trade data from IMF for 2001-2007, total trade with the US (exports plus imports) is higher than that with Japan for China, Hong Kong, Korea, Cambodia, Malaysia, the Philippines, Singapore, Vietnam, India, Macau whereas total trade with Japan is higher for Taiwan, Indonesia, Laos, Myanmar, Thailand, and Brunei.

Other than direct relationship with US, trade with dollar bloc countries in Asia Pacific is significant too. As Kawai and Akiyama (2000) pointed out, it is possible that the 'excess' stability of East Asian currencies against the US dollar beyond what can be explained by bilateral linkage, is accounted for by the importance of trade with other countries in the dollar bloc. This is because it is "optimal" for a country to adopt an anchor currency that minimizes the sum of bilateral exchange rate volatilities, weighted by the importance of each trade partner (Oomes and Meissner, 2008). Other than in Asia, the dollar is also the international standard for invoicing goods and services and for denominating the bulk of international capital flows in the Americas, the Oceania, and much of Africa (McKinnon, 2005).

Third, American corporations have been playing a significant role in foreign direct investment in East Asia. In this aspect, the importance of dollar can be recognized by looking at the regional breakdown of FDI inflows into the region (see Kawai and Takagi, 2005). For newly industrialized economies (Hong Kong, Korea, Taiwan, and Singapore), about 23 percent of total FDI inflows during 1990–2002 came from the US, about 15 percent from the EU, and about 14 percent from Japan. For ASEAN (excluding Singapore), 22 percent of the inflows came from Japan, while 18 percent and 16 percent came from EU and the US respectively. In China, the US accounted for 10 percent of the total FDI inflows, while EU and Japan accounted for 8 percent and 6 percent respectively.

Fourth, a regional dollar bloc could certainly bolster dollar-pegging durability of any individual country. This is in view of the fact that soft pegs against the dollar are still strong and prevalent in East Asia in spite of the Asian crisis (McKinnon, 2005; McKinnon and Schnabl, 2004; Ogawa and Shimizu, 2006; Bauer and Herz, 2009).[8] In South Asia, India

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[8] According to Ogawa and Shimizu (2006), the Chinese yuan, the Malaysian ringgit, the Cambodian riel, the Lao kip, the Myanmar kyat, and the Vietnamese dong had still maintained their dollar pegs in 2004 and 2005. Meanwhile, the Singaporean dollar, the Japanese yen, the Thailand baht, the Korean won, the Indonesian rupiah, and the Philippine peso, had about two-thirds of their currency basket weights on the dollar.

has been adopting a de facto dollar peg since 1993 which continued even after the crisis (see Patnaik and Shah, 2008). Even though many Asian exporters have turned around from being net capital debtors to net creditors against the US after the crisis, many still opt to maintain their soft dollar pegs because any currency depreciation will reduce the value of their dollar-denominated assets and increase the value of outstanding external debt and debt service payments whereas any revaluation would certainly impede their export competitiveness—an impasse duly labeled as "conflicted virtue". Furthermore, many poor developing countries in Asia still have high levels of dollarization and indexation of debt (Rogoff, 2005). The prevalent pegging will most like stay because when a large number of countries are pegging to a currency, it becomes difficult to break out of this pattern into another perhaps more socially beneficial set of arrangements (see Oomes and Meissner, 2008). Since this is the case, a step forward to an Asian dollar bloc is absolutely logical.

Since the days before the Asian crisis, most Asian economies had informally soft-pegged their currencies to the dollar, a move which made them vulnerable to the depreciating yen. However, dollar pegs were entirely rational from the perspective of Asian economies—to facilitate hedging by merchants and banks against exchange risks, and to help central banks anchor their domestic price levels. Nevertheless, since their dollar pegs were 'soft', the obvious Achilles heel was the vulnerability to one-way speculation which struck during the crisis. In contrary, if their exchange rates were securely locked to the dollar with credible regional arrangements, the system as a whole would definitely be durable.

Fifth, the dollar is also the 'safe-haven' currency into which nationals in emerging markets fly in the face of a domestic financial crisis (McKinnon, 1999). Even when the US money manager, the Federal Reserve System, had been doing quite badly, as happened from the inflationary 1970s into the early 1980s, the dollar-based system proved surprisingly resilient. The resilient dollar rate even in the midst of the recent global financial crisis is another evidence. In the absence of any serious shock to the US monetary system, for any country in East Asia, the more synchronized its monetary policy with the US one (i.e., dollar exchange rate naturally stable and price level aligned with the US level), the lower will be the currency risk (e.g., from capital flight).

Sixth, anchoring domestic currencies against the multi-faceted dollar may also yield synergistic benefits. Since World War I, the dollar had emerged as the world's currency which has remained as the predominant global unit of value, the unit of quotations for exchange rates (both spot and forward markets), the main invoice currency, the dominant international reserve medium (and official intervention currency), the de facto unit of account for IMF transactions, and the international currency of choice for investors, travelers, and even smugglers and other illicit transactions (Mundell, 2007). The extract from Paul Krugman's comment in the beginning of this section clearly highlights this point. Since financial liberalization, which has been progressing in the Asian region, would lead to more global integration (Lee, Park, and Shin, 2004), the choice of a global currency, that is, the dollar would be most appropriate.

Lastly, other candidate currencies may not be suitable enough to serve as the monetary anchor for East Asia. Though Japan's influence in the region is undeniably significant, due to some considerations, the Japanese yen may not be the ideal numéraire.

First, as pointed out by Mundell (2003), Japan has been facing internal macroeconomic and banking problems and its yen had been very unstable against the dollar. The tripling of the yen's value against the dollar between 1985 and 1995 weakened corporate balance sheets and saddled the Japanese banking system with trillions of non-performing loans. Had Japan locked its yen's rate to the dollar, prolonged stability in the yen-dollar rate would have quashed the resulted deflationary expectations that had gripped the Japanese economy for almost a decade (McKinnon, 2005).

Second, as mentioned before, because a large part of Japanese trade is invoiced in dollars, any changes in the yen-dollar rate would be passed through to domestic yen prices. This makes the Japanese domestic price levels vulnerable to exchange rate fluctuations.

Third, as Shirono (2009) and Kwan (1998) have discovered, besides the declining dependence on Japan, the economic structure and the inflation level of Asian economies which were significantly different from those of Japan would certainly be a great deterrent to a yen bloc. At the same time, Sato, Zhang, and McAleer (2003) and Chow and Kim (2003) have found that Japanese real business cycle was significantly different from those in the region. Other difficulties with the use of the yen are associated with the unfamiliarity with the Japanese language and emotional issues associated with acknowledgement of Japan's culpability in World War II (Mundell, 2003). Perhaps for the above reasons, there has been no Japanese yen bloc in the world (see Oomes and Meissner, 2008). Another possible reason is the Japanese de facto dollar peg in 1949–1977 and tight regulation which existed in the Tokyo financial market until the end of the 1980s which had simply promoted the rise of the dollar in Asia.[9]

Fourth, as shown in Table 1, the importance of the Japanese yen in official foreign exchange reserves in the world and in emerging and developing economies has been declining steadily. This indirectly indicates the declining role of the yen in international transaction and store of value.

What about the possibility of the Chinese renminbi as the anchor? At present, the China's currency is not convertible on capital account, and its financial system is not well developed (Mundell, 2003). Of course, keeping foreign reserves in the form of Chinese government assets would not be perceived as risk-free as putting them in Japanese government bonds or US treasury bills. The fact that China places 70 percent of its savings in the US is a good evidence.

In addition, the choice of an internal anchor, yen or renminbi, could be a source of distrust between rivals. As aptly put it by Katada (2008), despite emerging signs of challenges, Japan's domestic resistance and the region's power rivalry between Japan and China still makes the dollar the currency of choice in the medium term future.

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[9] Japan maintained a parity of 1 dollar = 360 yen from April 1949 to August 1971. Reasons why Japan preferred the dollar to the British pound were the US economic aid during the reconstruction period and the windfall demands of the Korean War which promoted dollar transactions whilst at the same time, sterling had the disadvantage of nonconvertibility (Oomes and Meissner, 2008). Thereafter, the dollar stabilized its position as the key currency for Japan because coincidentally trade in dollars also increased its share in the Asian region while at the same time trade finance in the New York money market became more important (Iwami, 1994).

6. The case for currency basket as an alternative

Though the case for dollar is well demonstrated, current developments particularly the recent global financial crisis has nevertheless made the option of a currency basket arrangement for East Asia more appealing.

On July 21, 2005, the China's government announced that the monetary authority would adopt a managed floating exchange rate system with reference to a currency basket. In recent years, so too have some East Asian countries, namely Singapore, Thailand, Japan, Korea, Indonesia, and the Philippines (Kawai, 2008).

In the literature, Kawai and Akiyama (2000), Ogawa and Ito (2002), and Williamson (2005) were among the vocal advocates which suggested that East Asia adopts a common currency basket in order to stabilize intra-regional exchange rates and at the same time allow both misalignment among intra-regional currencies and volatility vis-à-vis the outside currencies, including the dollar and the euro, to be restrained.

Under a common currency basket, the monetary authorities of the East Asian countries use the value of a basket of major international currencies (i.e., the US dollar, yen, and euro) as a reference to make regional coordination in exchange rate policies so as to not deviate each of the Asian currencies from the common reference (Ogawa and Shimizu, 2006). Such an arrangement can be called a G-3 currency basket. The most apparent benefit of the G-3 currency basket (with optimal weights) is that it keeps trade competitiveness relatively stable because real effective exchange rates would be more stable against large shocks to their trade balances. On the other hand, a common US dollar (hard) peg could possibly deviate their effective exchange rates from desirable levels because Asian economies have strong economic relationships with not only the US but also Japan and the EU (Kawai and Akiyama, 2000; Kawai, 2008).

What about individual currency basket? An individual currency basket is composed of its own trade partner currencies based on its own trade weights (Ogawa and Shimizu, 2006). Too much variety within an individual currency basket composition would have adverse effects on stability of intra-regional exchange rates if the monetary authorities target the individual currency baskets.

Empirically, Williamson (2005) managed to demonstrate the superior performance of a common currency basket over a series of individual currency baskets. The common currency basket was found to be able to reduce instability of intra-regional exchange rates. As Rajan (2002) pointed out, a common currency basket would be more favorable than individual currency baskets because the possibility of a competitive devaluation would exist if national monetary authorities can choose their own individual currency baskets.

Notwithstanding the popularity of a common currency basket, it will only work in practice if the yen-dollar and dollar-euro rates were stable (see Mundell, 2003). Along this argument, McKinnon and Schnabl (2004) raised two other important reasons why an East Asian dollar bloc is favorable to a common currency basket bloc.

First, exchange rate fixation to just one pivotal currency helps individual merchants and bankers better hedge their own foreign exchange risks. Because of the missing bond and forward exchange markets in many developing countries in Asia, governments would provide

an informal hedge by keeping the domestic currency stable against the dominant currency (the dollar). Suppose Japan is part of an East Asian dollar bloc, this would leave merchants to the 'extraneous' fluctuations in the dollar-euro rate which, however, can be hedged by making use of well-developed forward market between dollar and euro. On the other hand, under a currency basket, merchant's hedging strategy would be confused[10], particularly if the weights of the major currencies in the basket are somewhat vague, and the timing of official changes in the rate between national currency and the dollar (intervention currency that governments use) is also uncertain. Basket pegging would reduce risk only if merchants could not hedge. However, almost all merchants today use forward hedging strategies.

Second, picking the appropriate official weights in a common currency basket is extremely problematic. A simple trade-weighted basket would not reflect the dollar's overwhelming predominance as a currency of invoice, where external dollar prices of goods and services are sticky and do not vary much with changes in the dollar-euro rate. Nor, would it reflect the currency of denomination of outstanding external debts. As Kenen and Meade (2008) added, no simple set of trade weights will give optimal results because optimality itself is a multi-dimensional notion, and no one really knows enough about the relevant parameters to modify the trade weights in a satisfactory way. In the East Asian context, Korea trades far more heavily with Japan than do most ASEAN countries. Within ASEAN, Indonesia and Thailand trade more heavily with Japan than with US whereas Singapore trades more heavily with US.

7. Empirical review

The most common method used in empirical Asian OCA literature, probably due the precedence set by Bayoumi and Eichengreen (1994), is the structural vector-autoregression (SVAR) approach. In a nutshell, the VAR approach attempts to identify most homogenous countries so that costs associated to monetary union participation can be minimized. If the responses of certain variables (e.g., price, real exchange rate, unemployment, etc.) to some macroeconomic shocks (e.g., demand and supply shocks) are symmetrical in terms of magnitude, pattern, and speed of adjustment, the costs of forming a monetary bloc would be presumably small. Other strands of methodologies have strived to achieve similar objective, that is, identification of homogeneous groups.

Of the 20 papers dated 1994–2009 reviewed, some studies have indicated relatively broad integration comprising four or more countries in a group whereas others have suggested smaller groups as potential candidates. The studies can be categorized into those which use dataset prior to the Asian crisis in which the region was experiencing remarkable growth (pre-1997 dataset), those which also include the crisis period (pre-2000 dataset), and those which extend the dataset till the post-crisis period (pre-2008) but before the 2008 global financial crisis. While some studies have investigated multiple aspects of convergence, only results from the main econometric analysis are extracted.

Pre-1997 dataset

In their 1994 much celebrated piece, Bayoumi and Eichengreen (B-E) compared 9 East Asian countries to Western Europe, by asking whether Asia came as close as Europe to

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[10] A clear illustration is given in McKinnon and Schnabl (2004).

being an OCA. 1969–1989 data and Blanchard-Quah (B-Q) extraction technique were used to extract and quantify demand and supply shocks that affect a country's economy. The higher the correlation between the shocks of a pair of countries, the stronger the economic integration. They also asked how rapidly each country individually adjusted to each type of shock.

The number of large positive correlations expressed as a percentage of the total country pairs in Asia exceeded the corresponding percentage in EU. Asian countries also adjusted more rapidly to both types of shocks than did the EU countries. Accordingly, they concluded that East Asia came as close as the EU to being an OCA, and specifically two country subsets came even closer to being OCAs: (1) a Northeast Asian bloc comprising Japan-Korea-Taiwan, and (2) a Southeast Asian bloc comprising Hong Kong-Indonesia-Malaysia-Singapore, and possibly Thailand.

Later in 1999, Eichengreen and Bayoumi complemented their earlier results by regressing bilateral exchange rate volatility on relative output variability, dissimilarity of export composition, strength of bilateral trade, and economic size. Time period used was 1976–1995 and 8 Asian countries were included. The simulated levels of exchange rate variability in East Asia had been found to approach the Western European levels. Specifically, three country groups have displayed significant correlation in exchange rate variability: (1) Singapore-Malaysia, (2) Singapore-Thailand, and (3) Singapore-Hong Kong-Taiwan.

Another support based on pre-crisis data came from Loayza, Lopez, and Ubide (2001) which utilized 1970–1994 data of 7 Asian economies to present evidence from an error components model. The shock dimensions examined were country-specific, sector-specific, and common shocks. The study discovered significant short-run and long-run co-movements of shocks within East Asia which were comparable to those found within Europe. Specifically, two potential country groups were identified: (1) Japan-Korea-Singapore-Taiwan, and (2) Indonesia-Malaysia-Thailand.

Pre-2000 dataset

In 2000, Yuen used GDP per capita, real GDP growth, aggregate price inflation, deposit interest rates, gross domestic investment, value-added in agriculture, and value-added in services with hierarchical clustering to identify prospective East Asian countries for monetary union. 1990–1997 data were used and Asian countries made up 9 of the total cases. The results suggested five country groups: (1) a mature group of Japan-Australia-New Zealand-US (high income per capita, low GDP growth, moderate inflation), (2) a high growth group of Korea-Malaysia-Thailand (income per head, inflation, interest rates), (3) a moderate growth group of Indonesia-Philippines (moderate growth, low income per capita, and high inflation), (4) a small open economy group of Hong Kong-Singapore (highest income per capita, lowest interest rates, highest value-added in services, lowest value-added in agriculture), and (5) China which was distinctly different from the rest.

In a 2001 paper, Bayoumi and Mauro updated the earlier B-E work with a larger dataset of 1968–1998 which includes the crisis period. As before, 9 Asian countries were examined. They concluded that the size of disturbances in East Asia was larger than that in EMU, reflecting the situation during the Asian crisis. Nevertheless, perhaps due to higher domestic labor flexibility, the speed of adjustment in East Asia was faster than that in EMU.

They identified two country sets which displayed faster speed of adjustment from supply shocks: (1) Hong Kong-Indonesia-Malaysia-Singapore and (2) Philippines-Thailand.[11]

Adopting B-E methodology, Ngiam and Yuen (2001) used 1967–1997 dataset and included 9 countries. The study however did not use impulse response function and EMU as benchmark. Considering VAR results with geographic proximity and social-cultural compatibility, they proposed three plausible monetary unions: (1) Brunei-Singapore-Malaysia, (2) Japan-Korea, and (3) Taiwan-Hong Kong.

Lee, Park, and Shin (2004) also discovered some strong support for monetary integration in East Asia based on 1978–1999 data and 10 Asian economies. Based on a dynamic factor model, the region's common shocks in 1990s were found to be at least comparable to those in Europe. In particular, Indonesia, Korea, Malaysia, Thailand, and the Philippines shared higher degree of regional output co-movements.

Kawai and Takagi (2005) applied a variation of SVAR model to study the impulse response patterns of real GDP and price to exchange rate depreciations among 9 East Asian economies. Time period under review is 1970–1998. Symmetry of response pattern in real GDP could be found in 'non-crisis' economies of (1) China-Hong Kong-Singapore-Taiwan and 'crisis' economies of (2) Indonesia-Korea-Philippines-Thailand. With respect to symmetric response pattern in price, the symmetric groups were: (1) China-Hong-Kong-Singapore-Taiwan-Korea and (2) Indonesia-Malaysia-Philippines.

Pre-2008 dataset

Stretching the time period to cover the post-crisis Asia, Kawai and Motonishi (2005) used 1980–2002 data of 11 Asian economies to demonstrate that real activity variables, namely growth rates of real GDP, real personal consumption, and real fixed investment, were highly correlated among Japan, Korea, Taiwan, Singapore, Malaysia, and Thailand with Indonesia and the Philippines beginning to join this group. Nevertheless, real activity variables of China and low-income ASEAN members were not highly correlated with those of other Asian economies.

While most studies do not specify any reference country, Font-Vilalta and Costa-Font (2006) set Japan as the monetary anchor for 5 countries studied. In this correlation-based paper which utilized 1963–2001 data for Asian countries, the authors examined synchronization of exchange rates, business cycles, interest rates, exports, and imports to assess the feasibility of a yen bloc. To explore the pattern of convergence across different economic conditions, a multi-period analysis across three periods, 1963–1979, 1980–1997, and 1997–2001 was carried out.[12] Only Singapore and Korea have been found to experience increasing synchronization in terms of the dimensions examined.

Complementing VAR approach with generalized purchasing power parity (GPPP) [13] model and using real exchange rates with Japan as the basis, Ahn, Kim, and Chang (2006) managed

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[11] Demand shocks were not examined in this paper as they were thought to be unlikely to be invariant to demand management policies and currency regimes.

[12] This non-overlapping multi- period analysis which is common in applied economics is also used in the present paper.

[13] Long-run purchasing power parity (PPP) implies that real exchange rates are stationary. A vast literature has, however, shown that they are nonstationary. This is because fundamental macroeconomic variables

to find ASEAN 4 (Indonesia, Malaysia, Singapore, and Thailand), Hong Kong, Korea, and Taiwan to qualify for an OCA with respect to significant symmetrical response to supply shocks in terms of magnitude and speed of adjustment. Besides, ASEAN 4, Hong Kong, Korea, Taiwan, and Japan were shown to share common trends in real exchange rate movement. Time periods used were 1960–2002 (SVAR) and 1970–2003 (GPPP) and 10 Asian countries were studied.

Using 1970–2002 Asian data of 9 economies and 1979–1998 EMU data as benchmark, Huang and Guo (2006) also found Hong Kong, Indonesia, Korea, Malaysia, Singapore, and Thailand to be viable candidates. A four-variable SVAR model was developed to extract external supply, domestic supply, demand, and monetary shocks. Degree of labor mobility and extent of intra-trade were also reviewed.

Sato and Zhang (2006) employed 1978–2004 Asian data and 1980–1997 EMU data as benchmark to assess real output co-movements of 8 Asian economies with cointegration test. The analysis also employed Vahid test to examine for long-run relationships and Engle tests to check for short-run interactions in real outputs. Short-run common business cycles were found in Southeast region of (1) Singapore-Thailand-Indonesia, and in the Northeast region consisting of (2) Hong Kong-Korea-China, as well as between (3) Japan and Taiwan. Although the underlying structural shocks were less symmetric and the average size of the shocks was larger, the speed of adjustment to shocks in East Asia was much faster than in the EU.

Based on fuzzy cluster analysis, Nguyen (2007) detected a divergence in the post-crisis East Asia and from 10 economies considered, the only grouping that weathered all the periods was Singapore-Malaysia. The criteria used are: synchronization of business cycles, volatility of real exchange rate, degree of openness to regional trade, inflation differential from the regional average, and level of export diversification. No reference country is assigned. The analysis used a dataset of four overlapping periods: 1990–1996, 1990–2000, 1999–2003, and 1990–2003.

By investigating the intra-regional interdependencies, Rana (2007) has also found increasing prospects for monetary union. The paper provided simple 10-year moving correlations between real GDP growth of 11 Asian countries and the group as a whole from 1989 to 2005. Correlations had been converging towards very high levels in (1) the Philippines, Indonesia, Japan, Malaysia, and Thailand. They were, however, a bit lower in (2) Laos, China, Singapore, and Vietnam.

Bacha (2008) examined the feasibility of an OCA for 12 East Asian economies based on SVAR and correlation analysis. Time period used is 1970–2003. For the SVAR analysis, the paper examined the interrelationship among the real GDP growth rates and countries' response to external shocks, represented by world real GDP. For the correlation analysis, the study looked into similarity of inflation, trade relationships, similarity in business cycles, and extent of policy congruence. The results indicated four potential country pairs: (1) Malaysia-Singapore, (2) Japan-Korea, (3) Indonesia-Thailand, and (4) Australia-New Zealand. It was postulated that geographic proximity could have enhanced trade intensity and factor mobility, enforcing the measures used.

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that determine real exchange rates are nonstationary. A system of nonstationary real exchange rates may have a long-run equilibrium path in common since the individual nations will experience a set of common real macroeconomic shocks. This is termed as GPPP hypothesis.

Ibrahim (2008) utilized both hierarchical and fuzzy clustering methods on 7 East Asian countries using OCA criteria and 'adjusted' Maastricht Treaty criteria to identify for potential groups. Results from pre-crisis (1991–1997) and post-crisis (1998–2004) periods are compared. Japan is set as the reference country. The OCA criteria used are volatility in real GDP, volatility in real exchange rate, volatility in interest rate, trade openness, and convergence of inflation. The adjusted Maastricht criteria are budget deficit/GDP, external debt/GDP, exchange rate volatility, inflation differential, and annual prime lending rate. Results for pre-crisis period indicated groupings of Indonesia-Philippines and Malaysia-Thailand-Korea. Meanwhile, post-crisis OCA results suggested groupings of Malaysia-Philippines-Thailand-Korea whereas post-crisis Maastricht results indicated groupings of Malaysia-Philippines-Thailand and Singapore-Korea-China.

Another support came from a multi-faceted study by Kawai (2008) who reviewed various aspects of economic integration in East Asia. The author looked at how rapidly and deeply regional integration has been proceeding in trade, FDI, and other activities; presented the evolution of exchange rate arrangements in the post-crisis period; explored the implications of a possible unwinding of global payments imbalances and surges in capital inflows; and posed the challenges for monetary coordination. Period studied is 1989–2003. Comparisons to post-euro EMU and other parts of the world are made. From 10 economies examined, those which were sufficiently integrated were (1) Japan-Korea, (2) China-Hong Kong, and (3) Singapore-Malaysia-Brunei. The author also presented a strong case for a currency basket as the monetary anchor in East Asia.

More recently, Sato, Zhang, and Allen (2009) managed to identify two prospective groups, one comprising the US, Taiwan, Hong Kong, and Singapore, and the other containing ASEAN 5 (Thailand, Malaysia, Singapore, the Philippines, and Indonesia) and Japan. The study employed Johansen cointegration to check for long-run co-movements of real outputs. Data series extended from 1978 to 2006 and were seasonally adjusted using the Census X-12 method. 10 Asian countries were selected. Notably, China was not a potential member with any of the grouped economies. More interestingly, the ASEAN countries were associated only when Japan was included.

Quah (2009) compared the values of the OCA dimensions, namely inflation convergence, export diversification, labor market flexibility, and external indebtedness of 17 Asian economies to the EMU and dollarized countries in an attempt to draw patterns in the data which are consistent with those in the benchmark countries. The anchor currency used is the US dollar. Dataset was segmented into 1980–1996, 1997–2000, and 2001–2007, which contain post-euroization and post-dollarization periods. Results suggested that inflation rates and levels of export diversification in Asia were comparable to those in dollarized economies; labor markets in the region were at least as flexible as those in EMU; external debt levels in Asia have fallen considerably in comparison to the dollarized countries, indicating reduced incentive to fix exchange rates to the dollar; and the most prospective countries for a dollar bloc were India, Thailand, and Malaysia.

8. Discussion and conclusion

Some generalizations can be made from the review. First, though the empirical papers have used different methods, some common 'groupings' can still be found in many of the results.

Based on pre-1997-dataset results, two general groupings can be recognized: the Northeast Japan-Korea-Taiwan group and the Southeast Thailand-Malaysia-Singapore-Indonesia group. The pre-crisis (growth period) data appear to have generated groupings by level of economic development; the more developed Northeast group and the less developed Southeast group.

For those using pre-2000 datasets, the "Asian Tigers" Taiwan-Hong Kong-Singapore group, the 'crisis' Korea-Thailand group, and the Southeast Malaysia-Philippines-Indonesia group can be detected. Obviously, the dataset which encompasses the pre-crisis and the crisis period has produced the Asian Tigers group which has been robust during the crisis period, the crisis group which has been severely distressed, and the Southeast group which has been relatively less affected.

When pre-2008 datasets are utilized, an 'extended Southeast' Korea-Philippines-Thailand-Malaysia-Singapore-Indonesia grouping can be commonly found. It is apparent that this group represents the countries which have been substantially severed during the crisis but have since rebounded significantly.

Despite the variations in the groupings, the original ASEAN members, Thailand, Malaysia, Singapore, Indonesia, and the Philippines, have appeared to be consistently indicated as prospective countries. With the expected benefits and the substantially flexible labor in these markets, there is a strong case for a monetary bloc centered on a stable anchor such as the dollar in ASEAN.

Nonetheless, this finding is not highly conclusive since selection bias could have contributed to the results. The fact that the number of countries included differs from one study to another study does indicate that the sampled cases are varied. Among the studies reviewed, relevant Asian economies such as India, Vietnam, Macau, and Brunei have almost been neglected

Some motivation could be behind this. In selecting the countries to examine, aside from data constraints, the authors could have been influenced by the notion that flexible exchange rates are detrimental to highly open (small) economies. Hence, only highly open Asian economies such as ASEAN 5, Japan, Korea, etc., are given much importance. What remains to be unclear, however, is the non-inclusion of Brunei in almost all the studies even though Brunei is a highly open small economy with total trade more than its GDP (see Kawai and Takagi, 2005). Of course Macau is also a highly open small economy. If Hong Kong, a China's territory, can be treated as a separate entity in the studies, so does Macau.

Nevertheless, the authors could have also been adhering to another facet of the traditional theory when selecting the countries. Consider this:

> If a prevailing exchange rate regime, fixed or flexible, can maintain external balance without causing unemployment (or demand-induced wage inflation), that regime is optimal. If the currency regime within a given area causes unemployment somewhere in that area (or compels some other portion of that same area to accept inflation as the antidote to unemployment), it is not optimal.
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> (Kenen, 1969, p. 41).

The excerpt above is an interpretation given by Peter Kenen on the definition of optimality implied by Mundell (1961). Hence, if an Asian country has already achieved those objectives with existing exchange regime, moving into a monetary union is not necessary. This might also be a reason why some countries are consistently not examined in the studies. But then again, the reasons for including certain countries and not including the others are rarely made clear in the empirical works. Along these lines, it is not totally unfounded to conjecture that early theoretical views might have been overshadowed by current considerations[14], such as the case for monetary union and most importantly the need to demonstrate the rigor in the methodology involved.

Secondly, while the early intellectual debate has been spurred by the fact that homogenous regions or countries hardly prevail and hence adjusting mechanisms such as factor mobility, product diversification, flexible exchange rates, etc., are needed to achieve the objectives of price stability, full employment, and external balance, the empirical OCA literature appears to have always been in the search for homogeneous economic regions, made up of economies which share common macroeconomic circumstances (output variations, real exchange rate movements, etc.) in an attempt to identify potential candidates for monetary union. There seems to be a consensus among the empirics that sufficiently symmetrical countries can be identified in Asia so that adjustment mechanisms may be less needed if a common monetary standard is implemented across the countries. Along these lines, the current empirical literature could be regarded as the other side of the coin to the early theoretical debate.

Thirdly, those studies which used EMU as a metric for East Asia (e.g. Huang and Guo, 2006; Sato and Zhang, 2006) can be commended for bringing the theoretical grounds of OCA closer to pragmatic circumstances, given that statistical significance alone still leaves much to be desired. Nonetheless, the validity of the results could have been greatly enhanced if measures from the post-euro EMU are used in the comparative analyses between Asia and EMU, hence, mitigating the criticism from the endogeneity of OCA criteria argument (see Frankel and Rose, 1998). Suppose OCA criteria are indeed endogenous, that is, achieved only after monetary union is formed, using post-euro benchmarks would be much more appropriate than using pre-euro benchmarks. In this respect, studies done after euroization, those which used post-1999 Asian data (e.g. Huang and Guo, 2006; Sato and Zhang, 2006) have obvious advantage of using the post-euro data. Among the papers reviewed, however, perhaps due to insufficient post-euro data for econometric modeling, only Rana (2007), Kawai (2008), and Quah (2009) have demonstrated this in a descriptive manner. But then again, no due emphasis has been given to the endogeneity argument. Hence, it is not unreasonable to say that little has been done in view of the endogeneity criticism.

Lastly, notwithstanding the obvious case for the dollar as the monetary anchor for East Asia, it has nevertheless gained little attention among the empirics. Perhaps due to the ambiguity of a center economy in Asia (unlike in EU where Germany is commonly

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[14] For instance, Font-Vilalta and Costa-Font (2006) selected the set of countries according to availability of data and affiliation to the Japanese economy. Clearly it is not based on whether the existing arrangement is not optimal or otherwise.

accepted as the center economy), a monetary anchor is rarely set a priori in the empirical studies.

In conclusion, this paper has concisely discussed the essence of the early theoretical foundations of OCAs; highlighted more recent developments such as why monetary union anchored on a stable currency would not only be favorable but also feasible for East Asia; presented the case for US dollar and the case for a currency basket as the monetary anchor; reviewed a substantial number of current empirical papers on Asian OCA; and made some interpretations in view of the early conceptual principles and the current empirical works.

Unquestionably, the conclusions made here are limited in the sense that only 20 empirical papers published in 1994-2009 have been reviewed which certainly do not represent the studies in the field at large.

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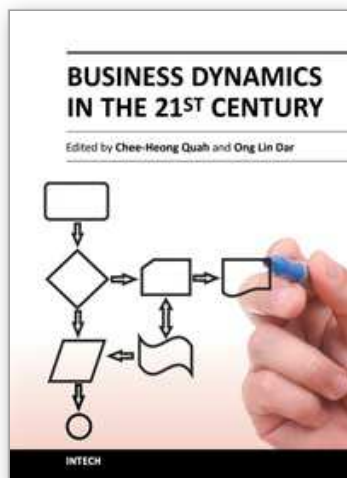
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Edited by Dr. Chee-Heong Quah

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