THE PHILIPPINE REVIEW OF ECONOMICS
VOL. XLVII NO. 1 JUNE 2010 PP. 89-108

Foreign exchange reserve accumulation in the ASEAN-4: challenges, opportunities, and policy options

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The ASEAN-4 countries—Indonesia, Malaysia, Philippines, and Thailand—have large and growing stocks of foreign exchange reserves. The region's reserves now comfortably exceed levels required for traditional liquidity purposes. This has led to calls for a more active management of reserves, which would yield higher risk-adjusted returns. In this paper, we examine the various opportunities and challenges associated with more active, profit-oriented management of reserves in the ASEAN-4. We also draw on the experiences of well-established sovereign wealth funds to suggest directions for policymakers in their quest for higher returns, which will contribute to national welfare by augmenting fiscal resources.

JEL classification: F31, F32, F21
Keywords: foreign exchange reserves, foreign investment, ASEAN

1. Introduction

The Asian currency crisis of 1997-1998 had a devastating impact on the financial markets and real economies of Southeast Asia. The crisis put a rude and sudden stop to the long period of sustained growth and

*The views expressed in this paper are those of the authors and do not necessarily reflect the views and policies of the Asian Development Bank or its Board of Governors or the governments they represent.

development that transformed the region from an economic backwater to one of the most dynamic components of the global economy. Prior to the crisis, the region had been an integral part of the East Asian Miracle, along with Japan and the newly industrialized economies (NIEs), and had become a benchmark model for the developing world. Southeast Asia enjoyed strong economic performance based on export-oriented industrialization and successful integration into the global economy. Less fortunately, the region also bore the brunt of the crisis: indeed the crisis was kicked off by the forced devaluation of the Thai baht in May 1997. Four of the five economies hardest hit by the Asian crisis—Indonesia, Malaysia, Philippines, and Thailand or the ASEAN-4—are located in the region, with Korea as the only exception.

There is a wide range of views about the underlying causes of the Asian crisis, and the controversy continues to this day. However, the most immediate catalyst of the crisis was the sharp depreciation of the domestic currencies of the ASEAN-4 countries. The depreciation was caused by a shortage of international liquidity or foreign exchange reserves with which to defend the domestic currency. Our paper focuses on a significant macroeconomic development in the ASEAN-4 in the post-crisis period, namely, the accelerated accumulation of foreign exchange reserves, which is partly a regional response to the Asian crisis. A large war chest of foreign exchange reserves helps to prevent currency crisis by bolstering confidence in the domestic currency among domestic and foreign investors. The accumulation of reserves thus represents the region's self-insurance against a currency crisis.

At a broader level, the ASEAN-4 continues to face a wide range of long-term developmental challenges. The region as a whole suffers from various structural and institutional obstacles that it must overcome if it is to regain its pre-crisis economic momentum. For example, Indonesia and the Philippines need to upgrade their inadequate physical infrastructure while Thailand and Malaysia need to strengthen their educational systems to move up the skills ladder to more high-tech industries. While the specific developmental challenges differ from country to country, addressing them effectively requires not only political will, good governance, and sound policies but also adequate resources. The fiscal dividend that a more active management of excess reserves can yield provides the governments of ASEAN-4 with valuable resources with which to tackle the long-term developmental challenges facing their respective countries.

The remainder of the paper is organized as follows. In section 2, we look at the benefits and costs of reserves. The fact that holding reserves

entails both benefits and costs implies an optimal level of reserves, above which reserves reduce social welfare. In section 3, we examine the data from the ASEAN-4 countries to assess whether the region has more reserves than it needs for liquidity purposes. The evidence unambiguously points to the presence of significant amounts of excess reserves in the ASEAN-4, suggesting that there are sound economic reasons for more actively managing at least part of the region's reserves. In section 4, we explore the policy options available for the governments of ASEAN-4 to use their excess reserves more productively. In doing so, we draw lessons from the experiences of sovereign investment agencies, which have a long history of using foreign exchange to actively pursue profits rather than passively manage liquidity. In section 5, we summarize the main findings and key messages of our paper.

2. Benefits and costs of reserves, and optimal reserves

The notion of excess reserves is linked with the concept of optimal reserve levels, which in turn is associated with the benefits and costs of reserves. Reserves provide two main benefits: (a) self-insurance against financial crisis and (b) mercantilist export promotion. It is difficult to exaggerate the traumatic impact of the Asian crisis, the immediate cause of which was a shortage of international liquidity, on the Asian psyche. Building up large war chests of international liquidity to insure oneself against Asian crisis-type financial turmoil is known as the self-insurance or precautionary demand for reserves. The other main benefit of reserves pertains to the mercantilist idea of promoting exports to promote growth. Buying foreign currencies to hold down domestic currencies so as to promote exports is known as the mercantilist demand for reserves. Aizenman and Lee [2006, 2005] provide extended discussions of the precautionary and mercantilist demands for reserves. Although both motives are likely to be in play in Asia, a systematic study of the relative importance of the two motives in Asia by Aizenman and Lee [2005] finds stronger empirical support for self-insurance motive. Related to the two main benefits but somewhat different is a third benefit from reserves–exchange rate stability. A central bank may accumulate reserves as a result of foreign exchange market interventions aimed at stabilizing the exchange rate.

Reserve accumulation not only yields benefits but entails costs as well. The three major costs of reserve accumulation are inflation, fiscal costs, and higher interest rate. A central bank's issuance of domestic currency to purchase foreign currency increases the monetary base, which in turn leads

to inflation. In order to sterilize the inflationary impact of reserve accumulation, a central bank typically issues bonds—i.e., domestic liabilities—in exchange for currency in circulation, withdrawing domestic liquidity in the process. However, sterilization may entail a fiscal burden—the second major cost—if the interest rate a central bank pays on its outstanding bonds exceeds the interest rate it earns on its foreign reserve assets. The third major cost—higher interest rate—is also associated with sterilization. Sustained accumulation will eventually lead to a higher interest rate since there is a limit to the general public's appetite for sterilization bonds. Holding reserves entails some additional costs besides the three main costs.[1] According to Mohanty and Turner [2006], an unusually favorable constellation of factors, such as the benign global inflationary environment, have so far limited the costs of reserve accumulation in Asia.

We are now ready to discuss a central bank's optimal reserve level. The optimal level of reserves is neither infinite (since reserves entail costs) nor zero (since reserves yield benefits). The optimal level of reserves is determined not by total benefits and costs of reserves but by their marginal benefits and costs. At least beyond a certain level, the marginal benefit of reserves is likely to diminish with the level of reserves. Intuitively, for example, an economy with US$ 10 billion of external liabilities is unlikely to enjoy any positive benefit from its 200 billionth dollar of reserves. Likewise, beyond a certain level, the marginal cost of reserves is likely to increase with the level of reserves. Intuitively, for example, as the level of reserves approaches infinity, the massive growth of the monetary base will unleash inflationary pressures, which would overwhelm any structural deterrents of inflation. Figure 1 presents a stylized illustration of the optimal reserve level R*, where the marginal benefit of reserves (i.e., the benefit from an additional dollar of reserves) equals the marginal cost of reserves (i.e., the cost of an additional dollar of reserves).

Beyond R*, which is where many of the region's central banks are thought to be, accumulating reserves reduces social welfare since the cost of

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[1]These costs include balance-sheet losses or valuation losses arising from the depreciation of the currency (e.g., US dollar) of the reserve assets and asset price inflation resulting from the increase in liquidity due incomplete sterilization. Rodrik [2006] identifies an interesting social cost of reserves, namely, the government paying a higher interest rate on its external debt than it is earning on foreign assets held as reserves. However, ASEAN-4's external debt is held predominantly by the private sector.

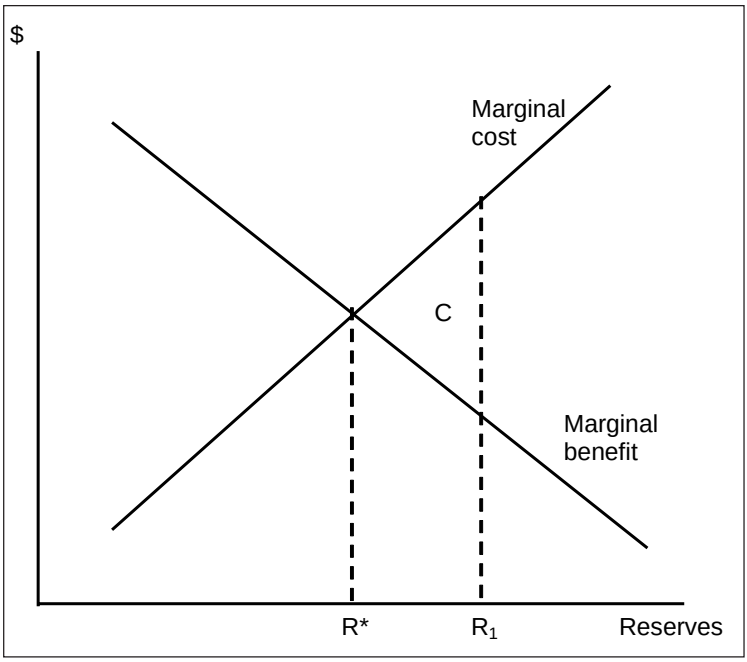


Figure 1. Optimal level of foreign exchange reserves

a dollar exceeds the benefit. If, for example, the actual reserve level was R_1, the amount of excess reserves is ($R^* - R_1$) and the total cost due to excess reserves is the triangle C. Reducing excess reserves would reduce the loss of social welfare and thus increase social welfare. Although the focus of our study is to explore a more productive use of reserves, given that they are already in place, the structural long-term solution to the problem of welfare-reducing excess reserves is to avoid accumulating them to begin with. There is a wide range of views about the costs and benefits of reserves and hence a lack of consensus about the optimal reserve level. In addition, the optimal reserve level differs from country to country and changes over time for a given country. There is no obvious reason why the benefits and costs of reserves should remain constant over time, especially in developing countries undergoing big structural changes such as capital-account liberalization. The practical implication for Asian policymakers is that they should err on the side of caution in determining the optimal reserve level.

The case for caution is especially strong for countries whose reserve buildup is mainly based on capital inflows, especially if those inflows are primarily short-term portfolio investments rather than long-term direct investments. The experience of Thailand prior to the Asian crisis offers

potentially invaluable lessons. Thailand had the world's tenth largest reserves in 1995 and eleventh largest reserves in 1996. Yet even such robust levels of reserves failed to prevent Thailand from becoming the epicenter of the Asian currency crisis in 1997. The lesson is that short-term capital inflows are vulnerable to disruptive reversals, which increase the need for precautionary reserves. In this connection, it is advisable for policymakers to look at more comprehensive measures of their country's net external liability position than just net debts or credits. For example, a country that is a net creditor may still be vulnerable to financial shocks if foreigners hold large amounts of shares in the domestic stock market.

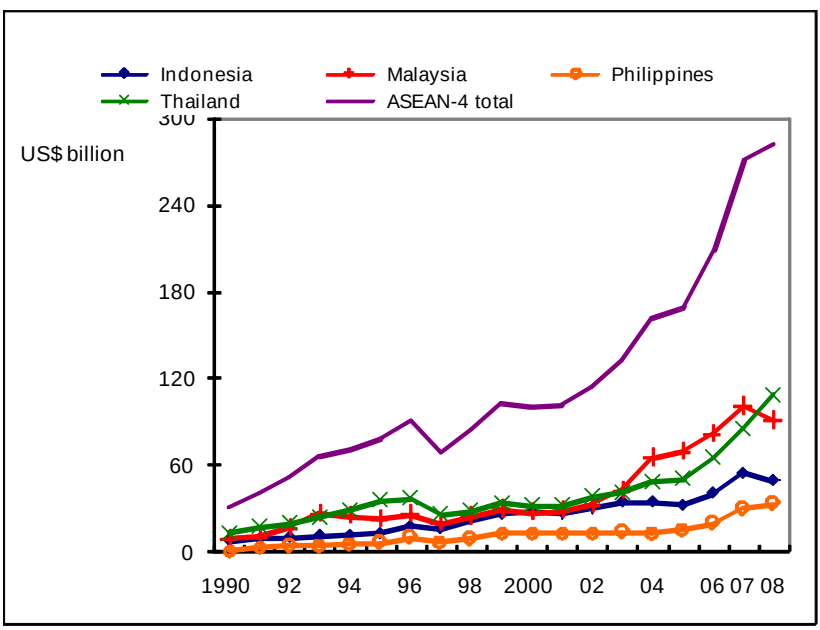
A source of widespread popular confusion is the rate of return on reserve assets. The primary purpose of reserves is to provide international liquidity during a crisis. Therefore, reserves cannot function as reserves unless they are invested in safe and liquid assets. The typically low rate of return on such assets is unfortunate but beside the point. It is conceptually useful to view excess reserves not as reserves but as a different kind of public sector asset altogether, subject to its own costs and benefits. In contrast to reserves, the primary benefit from this asset is not liquidity but risk-adjusted returns. To differentiate this asset from reserves, let's call it national wealth, which includes but is not limited to sovereign wealth, a narrower concept that denotes the public sector's wealth. To relate these concepts to our earlier terminologies, fiscal reserves are both national and sovereign wealth whereas central bank reserves are national wealth but not sovereign wealth. Failure to make a clear-cut distinction between reserves and national wealth will burden reserve management with return requirements and national wealth investment with liquidity considerations. The end result may be the failure of reserve management to deliver liquidity and the failure of national wealth investment to deliver returns.

3. Are ASEAN-4's reserves excessive?

There seems to be a growing consensus among regional policymakers that ASEAN-4's reserves now exceed their optimal levels, i.e., that there are excess reserves. In the end, this consensus is what is motivating the ongoing debate in policymaking circles about investing reserves more aggressively. Exploring alternative uses of reserves is not an issue that would arise in countries where reserves are below or are more or less than their optimal levels. At the same time, public pressure for higher returns reflects a popular perception that the region has "too much" reserves, the corollary being that

governments should no longer "waste" reserves on safe and liquid but low-return investments. In short, there is a growing consensus within the ASEAN-4 on the need for more active reserve management. Whether ASEAN-4's reserves are excessive or not is an empirical issue we take up in this section.

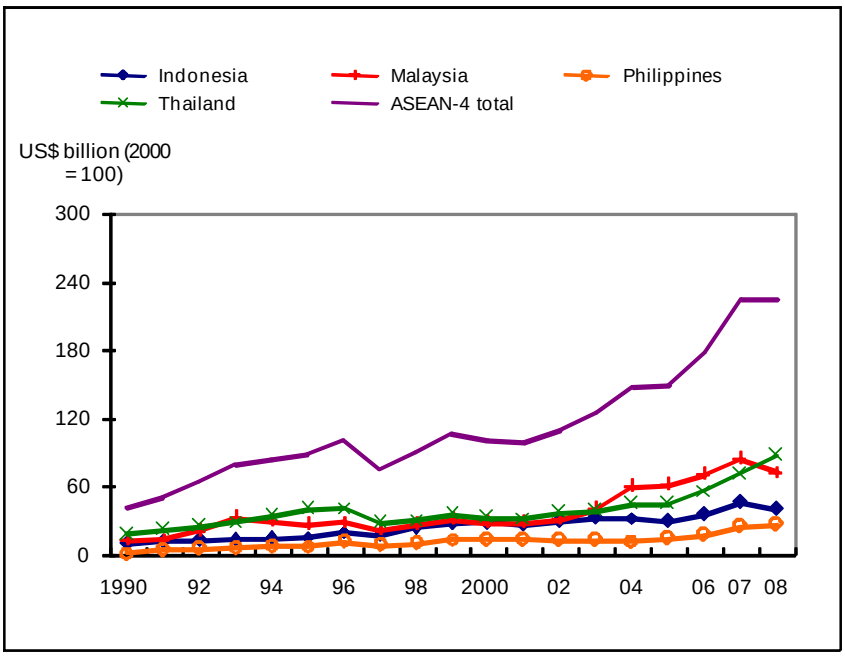
Before we address the issue of reserve adequacy, it is worthwhile to take a brief look at the trends in foreign exchange reserve levels. Figure 2 below shows the nominal reserves of Indonesia, Malaysia, Philippines, Thailand, and ASEAN-4 combined during 1990-2008. Malaysia is the largest holder of reserves in the region, followed by Thailand, Indonesia, and the Philippines. There is a clear upward trend at both the country and regional levels.



Source: Authors' calculation based on data in International Monetary Fund, *International Financial Statistics* online database and CEIC Data Company; both downloaded 19 May 2009.

Figure 2. Nominal foreign exchange reserves in ASEAN-4, 1990-2008

To get a more accurate picture of the trends in reserves, we need to adjust the nominal figures for inflation. We do this by dividing the nominal figures with United States Consumer Price Index (US CPI). Figure 3 below shows the reserves of the four countries and ASEAN-4 in real terms. Again, there is a secular upward trend at both the country and regional levels. Therefore, even if we account for inflation, there has been a sustained growth of reserves in the ASEAN-4.

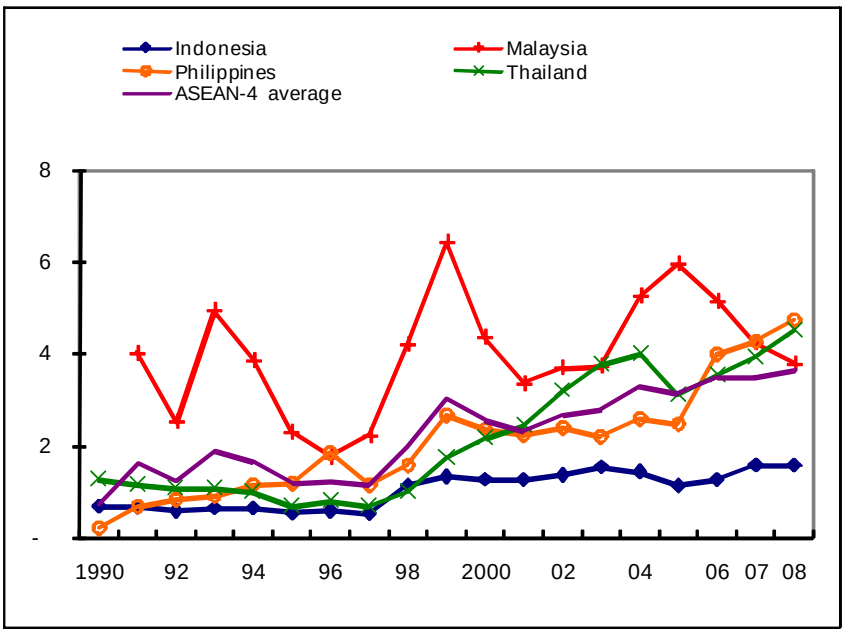


Source: As for Figure 2.

Figure 3. Real foreign exchange reserves in ASEAN-4, 1990-2008

Let us now turn to the issue of reserve adequacy. To gauge the magnitude of ASEAN-4's excessive reserves or national wealth, we now turn to some well-known measures of reserve adequacy. Comprehensive discussions of these measures include Edison [2003] and European Central Bank [2006]. Although these measures are informal rules of thumb based on general economic intuition rather than rigorously derived theoretical concepts, empirical studies generally find them to be helpful guides for policymakers. In particular, many such studies find one such rule of thumb—the ratio of reserves to short-term external debt—to be a significant determinant of an economy's vulnerability to financial crisis. More precisely, according to the well-known Greenspan-Guidotti rule, the critical value of this ratio is one. The idea here is that a country which has reserves equal to or more than all external debt falling within one year should be able to service its immediate foreign exchange obligations even during a crisis. Figure 4 reveals that ASEAN-4 comfortably passes the Greenspan-Guidotti test of adequacy.

Two other well-known reserve adequacy measures are the reserves-to-M2 ratio and the months of imports that reserves can cover. The basic intuition is that the higher the ratio, the greater the confidence of the general

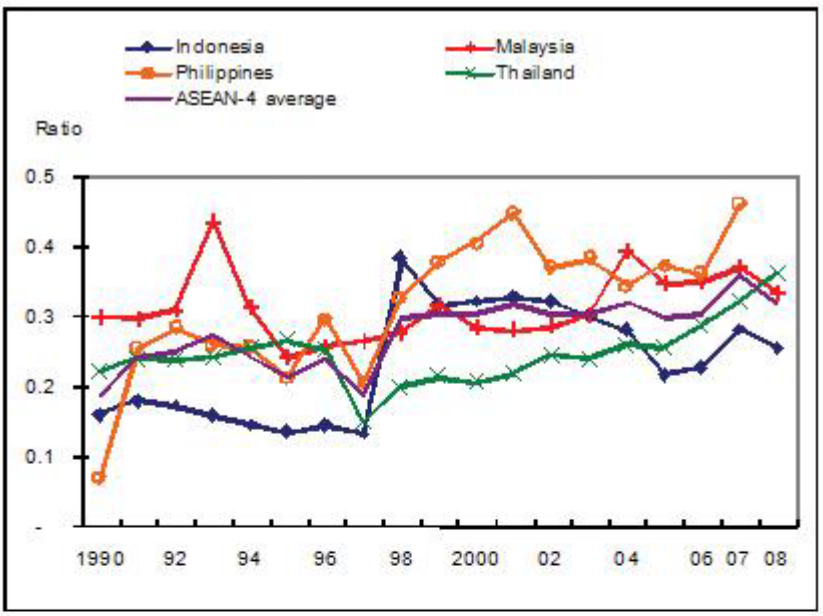


Source: Authors' calculation based on data in CEIC Data Company; Deutsche Bank Research, http://www.dbresearch.de/servlet/reweb2.ReWEB?rwsite=CIB_INTERNET_EN-PROD&$rwframe=0; and World Bank, Global Development Finance online database; all downloaded 19 May 2009.

Figure 4. Ratio of foreign exchange reserves to short-term external debt in ASEAN-4, 1990-2008

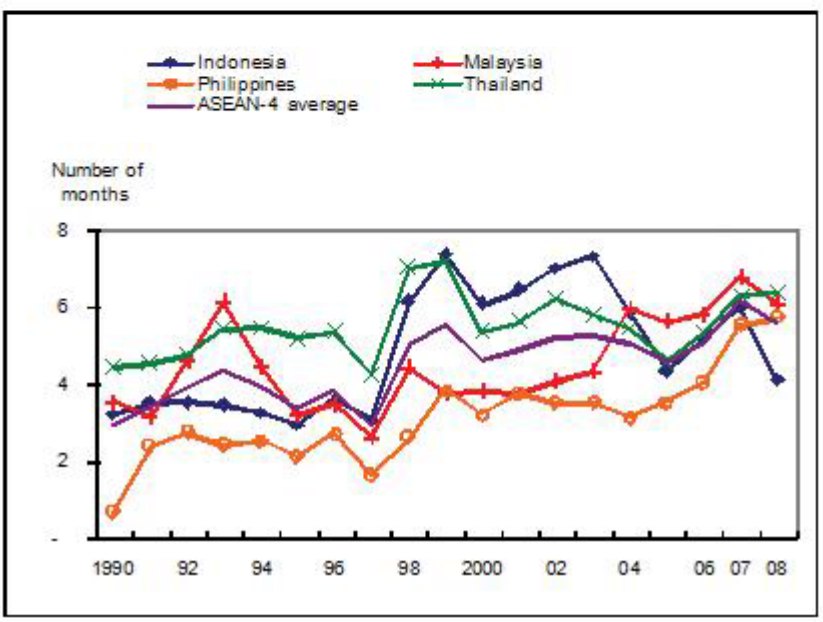
public in the value of the local currency and hence the lower the likelihood of crisis-provoking flights into other currencies. The suggested critical values range from 5 percent to 20 percent. Figure 5 shows that the reserves-M2 ratio is above 20 percent for the ASEAN-4 economies. The basic idea behind the import cover measure is that a large stock of reserves will reduce vulnerability to adverse current account shocks. The suggested critical value is three to four months. Figure 6 shows that the number of months that imports can cover is well above four in ASEAN-4.

We examine two additional measures of reserve adequacy for which there is much less theoretical justification than the three measures discussed above: reserves-to-GDP ratio and reserves-to-total external debt ratio. Figure 7 shows rising reserves-to-GDP ratios throughout the region. Figure 8 shows that the reserves-to-total debt ratio is currently substantially above one or close to one, which implies that reserves are sufficient to cover not only short-term external debt but all external debt, in Malaysia and Thailand. Therefore, both reserves-to-GDP and reserves-to-total external debt ratios provide further evidence of excess reserves in the ASEAN-4.



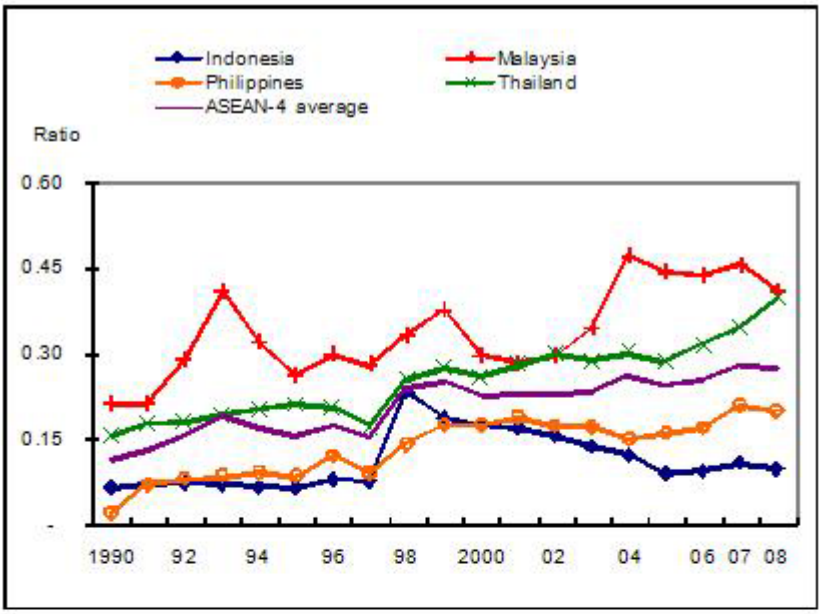
Source: Authors' calculation based on data in CEIC Data Company, downloaded 19 May 2009.

Figure 5. Ratio of foreign exchange reserves to money supply (M2) in ASEAN-4, 1990-2008



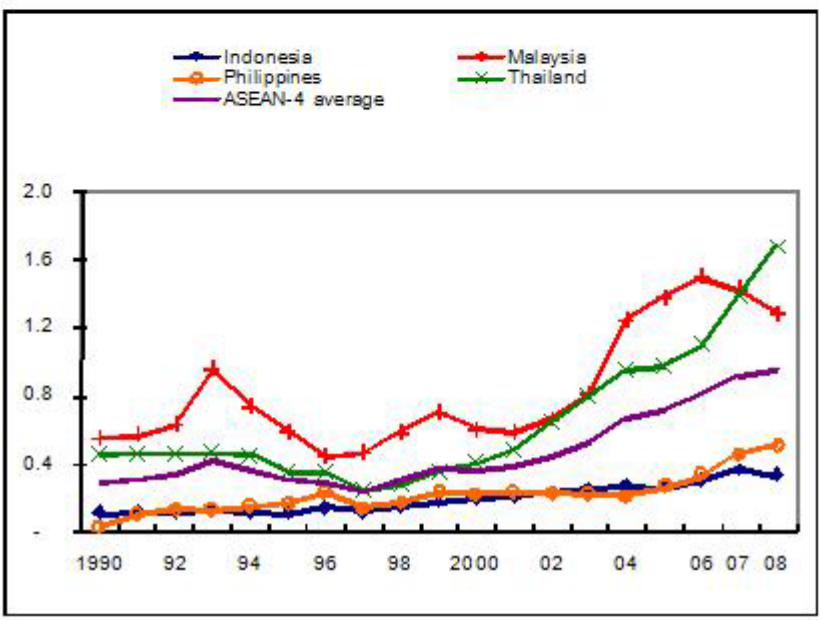
Source: As for Figure 2.

Figure 6. Import cover of foreign exchange reserves in ASEAN-4, 1990-2008



Source: As for Figure 2.

Figure 7. Ratio of foreign exchange reserves to GDP in ASEAN-4, 1990-2008



Source: As for Figure 4.

Figure 8. Ratio of foreign exchange reserves to total external debt in ASEAN-4, 1990-2008

While ASEAN-4 countries appear to be rapidly accumulating reserves, it is important to emphasize that such rapid growth of reserves does not necessarily imply fast growth of excess reserves since demand for reserves may also grow quickly over time. Most of the region's reserve accumulation may be accounted for by fundamentals and thus reflect a rational demand for reserves in the region. See, for example, Edison [2003] who found reserve holdings to be significantly associated with economic size, current account vulnerability, and exchange rate flexibility. Other examples of the empirical literature that have explored links between reserve holdings and some economic fundamentals include Wyplosz [2007]; Jeanne and Ranciere [2006]; Gosselin and Parent [2005]; Mendoza [2004]; Aizenman, Lee, and Rhee [2004]; Aizenman and Marion [2004, 2002]; and Dooley, Folkerts-Landau, and Garber [2004].

4. More active management of surplus reserves in the ASEAN-4: challenges, opportunities and policy prescriptions

We have just seen that actual reserve levels in the ASEAN-4 now comfortably exceed what is required for traditional liquidity purposes. Reserves that are surplus to liquidity requirements can and should be used for other purposes since doing so increases social welfare. In particular, the strategic focus of using surplus reserves should be active profit-seeking investment rather than passive liquidity management. Well-known sovereign wealth funds (SWFs), such as Norway's Government Pension Fund, the Abu Dhabi Investment Authority and other Gulf oil funds, and Singapore's Temasek Holdings and Government Investment Corporation (GIC), provide a natural institutional model for more active, profit-oriented management of ASEAN-4's surplus reserves.

While there is no single authoritative definition of SWFs, they share two defining characteristics: (a) ownership and control by the government, and (b) pursuit of risk-adjusted returns rather than liquidity as the central objective. It is widely believed that Norway's Government Pension Fund, the oil funds of the Gulf, and the Singaporean funds have generally been competent and successful investors. For example, the market value of Temasek grew on average by a remarkable 18 percent per year on a compounded basis between 1974 and 2006, while its average dividend yield to its shareholder—the Singaporean government—during 1974-2006 has been an impressive 7 percent. This kind of commercial success has been inducing governments in Asia to set up their own SWFs as vehicles for managing their surplus reserves, as many have already done (see Table 1).

Table 1. Sovereign wealth funds of developing Asia

Country	Name of fund	Assets (US$ Bn)	Year of inception	Type
Singapore	Government of Singapore Investment Corporation	330	1981	Non-commodity
China, People's Rep. of	China Investment Corporation	300	2007	Non-commodity
Singapore	Temasek Holdings	100	1974	Non-commodity
Hong Kong, China	Investment Portfolio (HKMA)	100	1998	Non-commodity
Brunei Darussalam	Brunei Investment Agency	30	1983	Commodity: Oil
Korea, Rep. of	Korea Investment Corporation	20	2005	Non-commodity
Malaysia	Khazanah Nasional BHD	15	1993	Non-commodity
Kazakhstan	National Oil Fund	15	2000	Commodity: Oil, gas, metals
Taipei, China	National Stabilization Fund	15	2000	Non-commodity
Azerbaijan	State Oil Fund	1.6	1999	Commodity: Oil
Timor Leste	Petroleum Fund	1.22	2005	Commodity: Oil and gas
Uzbekistan	Fund for Reconstruction and Development	0.5	2006	Commodity and non-commodity
Kiribati	Revenue Equalization Reserve Fund	0.47	1956	Commodity: Phosphate mining
Nauru	Nauru Phosphate Royalties Trust	0.07	1968	Commodity: Phosphate mining
India	To be named	n.a.	n.a.	Non-commodity
Thailand	To be named	n.a.	n.a.	Non-commodity

Note: A number of trust funds in the Pacific Region, which have been financed by government and donor funds, are not included in the above list and have an aggregate size of about US$ 500 million.

Sources: Morgan Stanley, March 2007; Rozanov [2005]; Setser and Ziemba [2007].

4.1. Challenges

Although managing surplus reserves more actively is both politically popular and economically sound, doing so effectively requires that ASEAN-4 countries overcome a number of institutional and structural obstacles. It would be a serious mistake for ASEAN-4 countries to believe that it is possible to build a Temasek or a GIC overnight. It takes a lot of time and effort to *build up the necessary institutional capacity* to make the high-risk, high-return investments required for a high overall rate of return and, at the same time, to effectively manage the overall risk level of the investment portfolio. Aside from Hong Kong and Tokyo, Singapore has long been the only major international financial hub in Asia. Therefore, unlike the rest of the region, the infrastructure, human capital, and regulatory framework of a sophisticated and well-functioning financial system are all already in place. Furthermore, both Temasek and GIC have accumulated a large stock of institutional knowledge and experience from their many years of operations. It is highly unlikely that ASEAN-4 sovereign funds have the capacity to invest competently in areas like private equity, venture capital, and real estate, let alone equity stakes in start-up companies in biotech or environment, even if their owners—the governments—had such big appetite for risk. The practical implication for ASEAN-4 funds is that a gradualist approach of learning-by-doing is preferable to a cold-turkey-style big bang. In other words, it is better for those funds to start from less risky asset classes and build up their investment management capacity before moving into more adventurous asset classes.

It is also important for the ASEAN-4 governments to *firmly resist political pressures for fiscally irresponsible uses of the surplus reserves*. There is a widespread tendency to view surplus reserves as free fiscal assets to be spent ad hoc by governments on any or all fiscal needs. Unfortunately for the ASEAN-4, the region's reserves are by and large not free fiscal assets but the results of foreign exchange market interventions by central banks. As such, the reserves have counterpart liabilities in the central banks' balance sheets, most often in the form of bonds sold by central banks to the general public. In stark contrast, the foreign exchange assets held by the sovereign funds of Norway, the Gulf states, and Singapore are free fiscal assets in the sense that they do not entail any counterpart liabilities. The fact that the ASEAN-4's reserves are, for the most part, not free fiscal assets strengthens the case for guarding against ill-informed political pressures for using them in fiscally unsound ways.

A further challenge for the ASEAN-4 with respect to setting up sovereign funds to manage their surplus reserves is that there is still much room for improvement in governance in the four countries. That is, *governance needs to be strengthened* if the sovereign funds are to mobilize political support from the general population. If it is unclear how the sovereign fund benefits the general population, political support for the sovereign fund will inevitably be eroded.

4.2. Opportunities

While the surplus reserves themselves are not free fiscal assets, the income from investing surplus reserves is fiscal dividend. In this sense, it is critical to conceptually distinguish between the reserves and the income from investing them. Since the income generated by investing the reserves does represent an increase in fiscal resources, the case for spending such income to meet long-term development challenges is much stronger than it is for the reserves. Quite obviously, the higher the returns generated by SWFs, the greater the fiscal dividends available for governments. Therefore, to put it in the simplest terms, the SWF's central function must be to make as much money as possible for governments without taking excessive risks. The primary contribution of SWFs to the region's growth and development lies in maximizing the fiscal resources available for governments to meet future fiscal needs.

According to Summers [2007], the average annual real rates of return on a typical SWF portfolio and a typical central bank portfolio are 5.75 percent and 0.98 percent, respectively. The differential of 4.77 percent in the rate of return between active and passive reserve management suggests that the size of the potential fiscal dividend is hardly trivial. For example, according to the Greenspan-Guidotti measure of reserve adequacy, ASEAN-4 had surplus reserves of US$ 205.3 billion in 2006. Using Summers' numbers, ASEAN-4 stands to reap a fiscal dividend of US$ 9.8 billion if it were to divert its surplus reserves to profit-seeking investment. Of course, the exact magnitude of the fiscal dividend will depend on the investment performance of the SWF, which in turn depends on its design and operation.

4.3. Policy prescriptions for the design and operation of sovereign funds

The experiences of well-established funds provide some valuable policy lessons in terms of good design and practice for the region's funds. A key

policy lesson is the need for *operational autonomy* and *freedom from political interference*. Regardless of its specific governance structure, an SWF needs to have complete control over its day-to-day investment decision making if it is to perform successfully. Once government or central bank interferes with how the fund carries out its business, profits will inevitably suffer for the simple reason that motives other than profit maximization will enter the picture.

Very much related to the precondition of operational independence is the importance of running the SWF on a *purely commercial basis*. The agency in charge of investing excess reserves should be free from the public interest role of policy making and market regulations, and it should be managed solely on the basis of commercial criteria (i.e., rate of return) without the need to accommodate noncommercial objectives.

There should be a clear-cut *separation between liquidity management and excess reserve investment*. To the extent possible, the SWF should be free from obligations to provide additional international liquidity to the central bank in case of emergencies such as the Asian crisis. Such concerns should remain solely in the domain of the central bank's reserve management. As long as sovereign wealth remains classified as reserves, it is subject to stringent restrictions in terms of where and how they can be invested. There is a very real danger that the failure to clearly distinguish between the two will compromise the achievement of both liquidity and return.

In principle, adopting a long-term investment horizon can generate substantial benefits in terms of liquidity premium. However, in the case of ASEAN-4, where the public sector buys foreign exchange reserves with sterilization bonds, making long-term investments with those reserves is potentially risky in light of the typically short maturity of those bonds. Besides the duration mismatch, another source of mismatch between assets and liabilities is currency mismatch. Sterilization bonds are denominated in local currencies whereas the reserve assets are denominated in foreign currencies. The broader point here is: the fact that ASEAN-4's reserves are mostly borrowed funds has significant ramifications for the SWFs' investment strategies. The nature of reserves suggests that an *asset-liability management framework* may be more appropriate for the region's SWFs than the asset management framework, which guides the oil funds and the Singaporean funds. Such a framework explicitly highlights the costs of the borrowed funds and the importance of avoiding asset-liability mismatches.

5. Conclusion

The rapid accumulation of foreign exchange reserves in the ASEAN-4 has led to growing public pressure for a strategic shift in the management of foreign exchange reserves, from passive liquidity management to active profit-seeking investment. Sovereign wealth funds have attracted the attention of regional policymakers as the institutional mechanism for implementing this strategic shift. Our discussions yield a number of key messages on how those funds can contribute to the region's welfare.

First, more active management of surplus reserves is unambiguously beneficial for the region. It is no longer worthwhile for central banks to hold reserves when the additional liquidity they provide is less than their additional cost. The region would be better off if it were to reallocate surplus reserves away from safe and liquid but low-yield assets toward higher-risk, higher-yield assets.

Second, *the region's excess reserves do not represent sovereign wealth*. For the most part, ASEAN-4's reserve buildup is driven by the central bank's purchases of foreign exchange. As such, an asset-liability management philosophy may be more suitable for the SWFs of ASEAN-4 than the asset management philosophy, which guides the oil funds and the Singaporean funds.

Third, while the surplus reserves themselves are not fiscal resources, the income from investing surplus reserves is fiscal dividend. Since the income generated by investing the reserves does represent an increase in fiscal resources, the case for spending such income on priority fiscal needs is much stronger than it is for the reserves. This strengthens our argument that the sovereign fund's investment activities and objectives must be purely commercial and profit oriented.

ASEAN-4's large and growing stock of foreign exchange reserves is a relatively recent phenomenon, and provides the region's governments with an opportunity to augment their fiscal resources. Looking at the future, all ASEAN-4 economies face huge developmental challenges, from human capital development to physical infrastructure to social protection, which they will need to address if they are to sustain their economic growth and development. However, the realization of fiscal dividends from more active management of foreign reserves is neither guaranteed nor automatic. While the experiences of well-established SWFs offer some broad but useful lessons for the region's policymakers, in the end each country will have to find country-specific

solutions to the critical issue of using its reserves more productively. Those solutions will inevitably reflect and take into account the specific institutional and structural characteristics of the country, such as institutional capacity for investing in high-risk, high-return non-traditional assets.

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