2 Macroeconomic management beyond the crisis

Macroeconomic management beyond the crisis

Introduction

The recent global financial and economic crisis has had severe repercussions for developing Asia's economic performance. The preceding high growth came to a halt as the crisis spread from the financial systems of the industrial countries to their real economies, dulling their appetite for imports.

As a result, in striking contrast to the 1997–98 Asian crisis, Asia was unable to export its way out of trouble this time. On the contrary, the collapse in world trade and exports brought the global crisis home to the export-dependent region. In effect, plummeting external demand, compounded by feeble private domestic demand, made expansionary monetary and fiscal policy the default policy option.

Despite the pronounced initial impact on output, most evident in the fourth quarter of 2008 and first quarter of 2009, the region has staged a spectacular V-shaped recovery that is reminiscent of its rebound from the Asian crisis. Developing Asia as a whole is estimated to have grown by 5.2% in 2009 and is projected to grow by 7.5% in 2010. Remarkably, the region's robust revival has taken place despite the fragile state of the major industrial economies—the United States (US), the European Union, and Japan. The natural question is how export-dependent Asia has managed to recover so fast and so strongly when its supposed primary engine of growth has sputtered so badly.

One plausible explanation has to do with the large monetary and fiscal stimulus packages that the region's governments rolled out in the wake of the global crisis. Facing enormous political pressures to prevent an economic meltdown, Asian governments aggressively slashed interest

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rates, increased spending, and cut taxes, all in an effort to boost demand and growth.

Although the contribution of the monetary and fiscal stimulus to Asia's recovery remains somewhat uncertain, the widespread perception is that the downturn could have been far worse. The direct impact of interest rate cuts on consumption and investment in the face of depressed business and consumer confidence may be debatable. However, easy monetary policies with direct liquidity injections are likely to have contributed to the recovery indirectly by helping to stave off a credit crunch and financial disintermediation.

The fiscal stimulus probably more directly impacted the real economy. The region's stimulus programs were tilted toward heightened public spending, particularly infrastructure investments, rather than tax cuts, thereby creating direct additional demand for goods and services and counterbalancing the weakness of private demand. What enabled Asian governments to serve as the consumer of last resort was their healthy financial position.

Asia's decisive monetary and fiscal response was entirely appropriate and necessary. The decisive response trumpeted the commitment of governments to do everything within their power to prevent economic collapse and sent critical confidence-boosting signals at a time of extreme crisis, when confidence was at rock bottom.

In historical terms, however, Asia's unprecedented easing of monetary and fiscal policies marked a sharp break from the region's long-standing tradition of macroeconomic prudence. Traditionally, both monetary and fiscal policies have been geared toward promoting macroeconomic stability—that is, low and stable inflation and manageable government budget deficits. Over the long term, central banks gave high priority to price stability, and governments balanced their books. Of course, the state of the economy affects Asian monetary policy, and Asian government budgets tend to expand during downturns. Nevertheless, the use of monetary and fiscal policy for countercyclical output stabilization has been relatively limited. Asia's conservative approach to macroeconomic policy has therefore served the region well. Specifically, it has created a stable macroeconomic environment for firms and households, laying the foundation for the region's sustained rapid growth.

Yet even if Asia reverts to its traditional precrisis monetary and fiscal conservatism after it unwinds its anticrisis fiscal stimulus, the global crisis is already a game changer for macroeconomic policy in the region. Never has the region experienced such a forceful and synchronized monetary and fiscal response to an economic downturn. Certainly, Asia's comeback highlights the potentially valuable role of macroeconomic policy in reducing the adverse impacts of large external shocks. More generally, it serves as a powerful reminder of the possibly large benefits of using macroeconomic policy for short-term output stabilization, in addition to promoting long-term price stability and output growth.

The widespread perception that the unprecedented stimulus contributed substantially to the region's unexpectedly quick and strong recovery may foster political pressures for greater monetary and fiscal activism. At a minimum, such perceptions will lead to more active debate about the pros and cons of countercyclical macroeconomic policy.

In that debate, a central consideration is that Asia's decisive monetary and fiscal policy stimulus represented an exceptional response to an exceptional shock, and therefore drawing policy lessons from the global crisis and applying them to the normal noncrisis period, to which the world economy is gradually returning, would be dangerous.

Using an extraordinary monetary and fiscal stimulus to stave off a severe negative shock originating from the world's largest economy is one thing. Fine-tuning the economy by influencing the routine ups and downs of a normal business cycle is something else altogether. Even in industrial economies, equipped with strong institutions, effective governance, and stable policy environments, the evidence is at best mixed that governments are capable of reducing short-term output volatility with their monetary and fiscal policy. As is evident in industrial economies, political-economy considerations make it much easier for governments to pursue expansionary policies during recessions than to pursue contractionary policies during booms.

In developing countries, a truly countercyclical policy that responds symmetrically to both downturns and upturns is even less possible. Yet an asymmetric countercyclical policy that responds only to downturns is likely to jeopardize macroeconomic stability by creating inflation expectations and impairing fiscal sustainability.

Monetary, exchange rate and fiscal policy in postcrisis Asia

The global crisis raises a number of more specific questions about the conduct of monetary, exchange rate, and fiscal policy in Asia in the postcrisis period.

With respect to monetary policy, an important issue is whether to incorporate asset price inflation, and if so, how. The immediate cause of the crisis was the bursting of the US housing market bubble, which had been inflated by complex financial innovation that encouraged financial institutions to take excessive risk and overinvest in housing for subprime buyers.

Even though the impact on Asia's financial stability was limited, the origins of the crisis are relevant for the region. For one, because Asia is recovering more quickly and strongly than other parts of the world, the risk of an asset price bubble is higher than elsewhere. Indeed, even though there are no concrete signs of a bubble so far, some major economies have experienced a surge of equity and property prices. The US housing and financial market failure resulted from a combination of inadequate financial regulation and excessively lax monetary policy. Therefore, a key challenge for Asian policy makers is how to strengthen financial regulation and to effectively coordinate it with monetary policy, so as to prevent such bubbles.

In the context of exchange rate policy, the big question is about the desirability and feasibility of relatively rigid exchange rates, and they are, in turn, intimately tied to the issues of export-led growth and managing capital flows. Certainly the types of exchange rate regimes and the degrees of flexibility are far from uniform across Asia. However,

governments have kept a close watch on exchange rates out of fear of losing export competitiveness. Now, the unwinding of global imbalances implies that the region's postcrisis growth will be less dependent on exports. The consequent decline in the relative importance of exports may encourage Asian economies to become more open to flexible exchange rate regimes. At the same time, greater exchange rate flexibility will help wean the region from its disproportionate dependence on exports.

Managing volatile capital flows is a related and major issue. As a result of its robust recovery, the region is already experiencing a resurgence of capital inflows, which may lead to sharp currency appreciation. This strengthens the case for selective, well-designed capital restrictions, which would facilitate the region's transition to greater exchange rate flexibility.

With regard to fiscal policy, a fundamental question in the postcrisis period is whether to pursue heightened fiscal activism, particularly in the use of fiscal policy for countercyclical purposes. Industrial economies have a long history of using government spending and taxes in an effort to influence short-run economic conditions. Asian economies, though, have relatively limited experience in using fiscal policy for countercyclical output stabilization. By and large, Asian governments have kept their spending within their means to create a macroeconomic environment conducive to long-run growth.

Thus the broader issue linked to a more activist fiscal policy is the appropriate role and size of government. However, the countercyclical use of fiscal policy does not necessarily require a quantitative expansion of government. In particular, strengthening the region's automatic fiscal stabilizers (which currently remain underdeveloped) can, in principle, enhance Asia's capacity to use public spending and taxes to reduce short-run output volatility without impairing its fiscal sustainability.

Return to prudence but adjustments needed

In the wake of the global crisis, Asia clearly needs to rethink and redesign the three main components of its macroeconomic policy: monetary, exchange rate, and fiscal. The region can draw valuable lessons from the crisis (even though it originated elsewhere) for improving and strengthening its own macroeconomic policy. Equally clearly, the region should adapt its monetary, exchange rate, and fiscal policies to the realities of the postcrisis world. However, although relevant lessons must be learned, nothing in the global crisis calls for altering the region's monetary and fiscal prudence. This tradition has been the cornerstone of the region's macroeconomic stability, which underpinned its sustained growth.

The positive contribution of monetary and fiscal stimulus to the region's V-shaped recovery only strengthens the case for maintaining rather than abandoning that approach. The ample fiscal space that was the consequence of sustained fiscal prudence enabled the region to unleash its massive stimulus. The global crisis highlights a vital but underappreciated benefit of sound and responsible monetary and fiscal policy: the capacity to support the economy when such support is desperately needed.

Returning to the basic macroeconomic tradition of monetary and fiscal prudence will be challenging for Asia in the postcrisis world. One consideration is that the benign global economic environment of precrisis times may no longer prevail. To a large extent, the region's very rapid growth immediately before the crisis was the result of strong exports to the major industrial economies and to the US in particular. As the global imbalances unwind, however, the US will have to make adjustments that are likely to cause Asia to experience a slowdown of exports.

The resulting reduction is more desirable than the breakneck precrisis growth driven by unsustainable exports to the US. However, it has adverse implications for fiscal sustainability because, other things remaining equal, lower output growth will increase the public debt-to-GDP ratio, and, as mentioned earlier, political pressures may be at work for greater countercyclical fiscal activism in the postcrisis period. For example, central banks may come under pressure to give heightened priority to growth over price stability.

The unprecedented monetary and fiscal expansion rolled out by governments around the world has stimulated the debate about the pros and cons of countercyclical macroeconomic policy. Although the debate is welcome and relevant for industrial and developing economies alike, there is a misguided and dangerous tendency to frame the discussion from the perspective of industrial countries.

For developing countries, the overriding policy objective remains the achievement of high but sustainable output growth—historically the most effective means of reducing widespread poverty. Asia has made enormous strides in growth and poverty reduction precisely because its monetary and fiscal policy has been focused on macroeconomic stability. This is not to deny the importance of short-term output stabilization—and, in fact, short-term output stability is supportive of and conducive for long-term growth. However, what really matters is not so much the tradeoff between short-term stability and long-term growth, but the need for Asian governments to guard against excessive intervention, activism, and discretion in the postcrisis period. This could impair the region's long-term policy discipline.

The central message of the need for Asia to return to its roots of sound and responsible monetary and fiscal policies does not rule out a stepped-up role for postcrisis macroeconomic policy. Although the postcrisis economic environment will influence the evolution of Asia's macroeconomic policy, policy can also influence that new environment. Given the region's medium-term need to encourage more domestic demand and to depend less on exports to the US, both fiscal policy and exchange rate policy can make substantial contributions to that rebalancing process. Also, governments may be able to do more for short-term output stabilization, such as with automatic fiscal stabilizers, without putting fiscal sustainability at risk. In the long run, the key challenge for Asia is to adapt monetary, exchange rate, and fiscal policies to the postcrisis world without compromising the macroeconomic prudence that has benefited it so much in the past.

Monetary policy

Monetary policy frameworks and performance since the Asian crisis

After the Asian financial crisis in 1997–98, countries in the region started to get their growth momentum back. In the 2000s, developing Asian economies have generally been growing at varying but relatively high rates which, compared to the 1990s, have been in a relatively lower and more stable inflation environment (Figure 2.2.1).

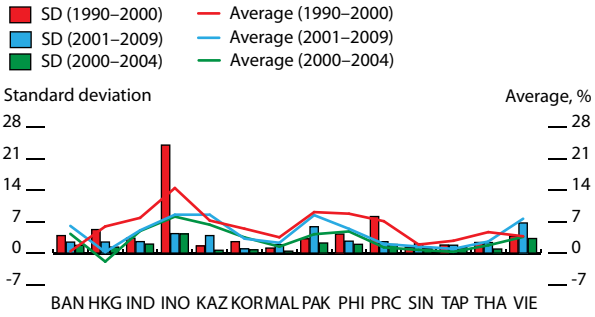
This environment is largely consistent with the present general consensus that high and volatile inflation tends to be detrimental to economic growth. Arguably, the region's relatively low and stable inflation environment may have been influenced by the trend of "great moderation" in the industrial economies, where economic growth was steady and coupled with stable inflation. However, the economics profession has also acknowledged that good macroeconomic policies also contributed to this great moderation in which Asia shared.[1]

Consequently, economies have sought an appropriate framework for monetary policy aimed at lowering inflation and maintaining its stability, and inflation targeting, as a framework for monetary policy, gains currency for its empirical ability to deliver such results.[2] In this framework, a monetary authority publicly announces a medium-term inflation target and makes an institutional commitment for achieving the target. The authority needs to be transparent about its monetary policy plans and objectives, communicating them to the public and the market makers. In addition, the authority must increase its accountability by attaining its inflation objectives.

In practice, most central banks tend to adopt a relatively flexible inflation-targeting framework; the resultant monetary policy is designed to stabilize not only inflation around its target but also the activities of the real economy. This type of framework enables a country to focus on dealing with particular shocks hitting the economy and hence its domestic interests. It also provides a firm nominal anchor for countries that are forced to abandon fixed exchange rate regimes. Therefore, the framework appears to be suitable for adoption even by emerging market economies (Mishkin 2000).

Following the Asian financial crisis 1997–98, many developing Asian economies were forced to abandon their pegged currency regime, and some, in response, adopted the inflation targeting framework (Table 2.2.1). The Republic of Korea (hereafter Korea) adopted the inflation-targeting framework in the middle of the currency crisis and implemented it in April 1998. Indonesia and Thailand adopted it in January 2000 and April

2.2.1 Average and standard deviation of inflation, selected Asian economies



SD = standard deviation.

BAN = Bangladesh; PRC = People's Rep. of China; HKG = Hong Kong, China; IND = India; INO = Indonesia; KAZ = Kazakhstan; KOR = Rep. of Korea; MAL = Malaysia; PAK = Pakistan; PHI = Philippines; SIN = Singapore; TAP = Taipei,China; THA = Thailand; VIE = Viet Nam.

Note: Calculation is based on monthly year-on-year inflation figures for each economy.

Source: ADB calculations based on data from CEIC Data Company (accessed 1 March 2010).

Click here for figure data

2.2.1 Monetary policy framework of selected Asian economies

Exchange rate anchor	Inflation targeting	Monetary aggregate target	Other
Bangladesh	Indonesia	None	India
China, People's Rep. of	Korea, Rep. of		Malaysia
Hong Kong, China	Philippines		Pakistan
Kazakhstan	Thailand		Singapore
Viet Nam			Taipei,China

Note: "Other" applies to countries that have no explicit statement on nominal anchor, but rather monitors various indicators in conducting monetary policy.

Source: Based on De Facto Classification of Exchange Rate Regimes and Monetary Policy Frameworks as of 31 April 2008. International Monetary Fund. http://www.imf.org/external/np/mfd/er/index.asp; and relevant central bank websites.

2000, respectively. In these countries, losing the de facto anchor of a US dollar peg in the crisis was the motivation for taking on the inflation-targeting framework as a new anchor. The Philippines adopted inflation targeting in January 2002 (Ito 2010).

Although only four economies in the region are formally adopting flexible inflation targeting as their framework for monetary policy, many others are implicitly implementing similar regimes. Malaysia and India, for example, are not announcing an explicit nominal anchor. Instead, they monitor various indicators in conducting monetary policy with the objective of maintaining domestic currency stability. Both countries also formally manage the short-term interest rate, their instrument for conducting monetary policy. Singapore is also aiming to promote price stability by managing its dollar exchange rate against an undisclosed trade-weighted basket of currencies of its major trading partners and competitors.

Figure 2.2.1 suggests that, within the last decade, the average level of inflation in the region has been brought down with improved stability, regardless of the framework of monetary policy adopted. Exceptions to this observation are Bangladesh, Kazakhstan, and Viet Nam. Apart from Bangladesh, however, this exception might be disregarded if the economies' inflation rate is compared to its average rate in the first half of the 2000s, when commodity prices in the international market were not volatile. This decade of relatively low and stable inflation rates in most of the region's economies, even after considering the period of high international commodity prices in the 2000s, suggests that good policy had to have contributed to the outcome.

Does inflation targeting matter in emerging economies? A study by Goncalves and Salles (2008), analyzing 36 emerging economies including 10 Asian developing member economies,[3] suggests that it does: economies that adopt a (flexible) inflation-targeting framework tend to experience lower inflation and greater reduction in growth volatility compared to those that do not. On this analysis, claims that an inflation targeting framework tends to deter economic growth seem unjustified empirically.

Inflation performances for the economies depicted in Figure 2.2.1 largely support the findings of Goncalves and Salles (2008). Table 2.2.2 provides figures on the relative gains in the mean and volatility of inflation for these economies in the last decade. The gains are

2.2.2 Relative gains in average inflation and its volatility in 2000s

	Level gain	Deviation gain
Bangladesh	15.5	0.6
China, People's Rep. of	0.3	0.3
Hong Kong, China	0.0	0.5
India	0.6	0.8
Indonesia	0.6	0.2
Kazakhstan	1.2	2.5
Korea, Rep. of	0.6	0.4
Malaysia	0.6	1.7
Pakistan	0.9	1.8
Philippines	0.6	0.6
Singapore	0.8	1.6
Taipei,China	0.3	1.0
Thailand	0.6	1.0
Viet Nam	2.0	1.8

Note: Smaller figures indicate better performance in both level and volatility. Figures below 1 indicate improvement in the inflation development, and vice versa.

Source: ADB calculations based on data from CEIC Data Company (accessed 1 March 2010).

measured as the ratio between the 2000s average figures and their 1990s counterparts. In that table, the four explicit inflation-targeting countries (Indonesia, Korea, Philippines, and Thailand) show relatively larger gains in both level and volatility compared to most of the others.[4] However, some notable exceptions beg for further discussion.

The first is Thailand, where the gain in inflation stability is relatively lower than in the other explicit inflation targeters. Thailand's rather wide range of inflation target (0%–3.5%) provides room for more fluctuations without increasing the pressure for the monetary authority to respond too actively. However, because the country started off with a relatively low inflation rate, the wide band does not seem to create big problems in terms of lowering the average level of inflation.

Another notable exception is the case of nonexplicit inflation-targeting economies—for example, Hong Kong, China, and the PRC—that adopt exchange rate anchors in managing their monetary policy. These economies seem to be demonstrating performance, in terms of improvements in the level of average inflation and its stability, that is comparable to, if not better than, that of the explicit inflation targeters in the region.

With these two exceptions, the region's experience suggests that flexible inflation targeting frameworks generally deliver better outcomes than other monetary policy regimes.

The overall picture highlights a few points regarding the conduct of monetary policy in the region. A flexible inflation-targeting framework provides one promising approach to stabilize the price environment, thereby supporting the pursuit of stable economic growth. However, alternative monetary policy regimes in the region could be as effective in providing a stable price environment. Therefore, at this stage, implementing a sound and consistent policy that credibly focuses on stabilizing the fluctuation in aggregate domestic price levels and on managing inflation expectations seems to be the key consideration for the region.

The credibility of the executing monetary authority plays an important role in assuring the success of a flexible inflation targeting framework. Credibility turns on two issues: (1) The central bank's ability to commit to its monetary policy and communicate its objectives to the public; (2) maintaining the central bank's independence in pursuing policies to achieve its target. Once the central bank gains a sufficient level of credibility, its task of managing inflation expectation becomes easier. Only then can a central bank work effectively in responding to economic shocks and in enhancing a stable environment for economic growth to take place. However, credibility seems to be something that most of the central banks in the region need to improve (Box 2.2.1).

Ito and Hayashi (2004) provide an early survey of Asian inflation-targeting experiences. They marked high Korea and Thailand for keeping the inflation rate on average within the targeted range and for communicating their intentions well to the public. In Thailand, the central bank targets not headline inflation, but the core rate, with a rather wide range (0%–3.5%). The wide band gives the central bank more room to keep actual inflation within the target range, and this objective is perceived as preferable in terms of acquiring credibility.

The track records of Indonesia and the Philippines in keeping inflation in the range was not so good. The target range is fairly narrow, and the inflation rate was more volatile than in other economies; hence the target was missed from time to time. In Indonesia, the narrow band is not only changed from year to year but also highly influenced by the budget assumptions set by the Ministry of Finance.

The lesson to learn, from the successful flexible inflation targeters, is that the target range should be set for the medium term. Doing so gives the central bank a more stable inflation target and hence induces inflation expectations to converge, in addition to maximizing the probability of hitting the target, thereby gaining credibility for the central bank.

Monetary policy in Asia during the global downturn

Most Asian economies suffered a sharp decline in real activities during the global downturn, but the nature of suffering differed from that of countries in other regions. Asian countries did not suffer a collapse of the finance sectors and/or a currency crisis. However, Asian exports fell sharply. Countries that relied on exports to the US and Europe, such as Korea, suffered the most, whereas countries with large domestic economies, such as the PRC, India, and Indonesia, managed to escape from the worst of output decline. Yet, mainly through the trade channel, real economic activities in Asian countries were badly affected, creating a widening output gap for the region.

Policy responses to the global crisis

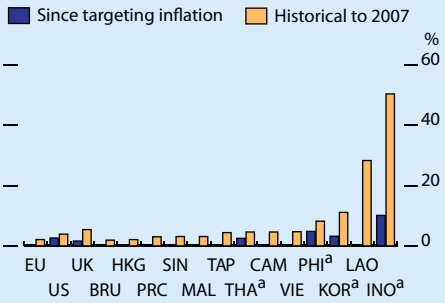
Monetary and fiscal policies in the region responded fairly well to the crisis impact. In coordination with expansionary fiscal policy designed to bolster the weakening private sector, monetary policy in the region sought to maintain the availability of adequate liquidity flows in the economy. The traditional monetary policy stance was relaxed dramatically, as indicated by decreases in the policy interest rate, and liquidity was pumped into the economy, as reflected in the large increase of money and credit in most economies (Figure 2.2.2).

Figure 2.2.2 plots the rate of relative changes in financial depth (measured in terms of M2 to GDP and total credit to GDP) and the quarterly changes in policy rates for 11 Asian economies. On average, sharp falls in policy rates (even if not fully passed on to borrowers) took place after the fourth quarter of 2008.[5] The economies cut their policy rates sequentially to ease the way to the cut that was perceived as needed to stimulate their domestic finance sectors. This measure provided the domestic financial institutions with adequate liquidity to expand, as indicated by the growth of both of the measures of financial depth displayed in Figure 2.2.2. Using the short-term interest rate as a means toward this end seems to have worked well in the countries observed. The action was supplemented by greatly expanded liquidity operations, which were needed to make a sufficient amount of liquidity available for the financial market to function. Table 2.2.3 lists the additional measures taken to ensure liquidity.

2.2.1 Central bank credibility: A revisit

Credibility is a key to keeping inflation expectations well anchored, and central banks must be seen "walking the talk." However, most Asian central banks are no epitomes of credibility. In general, their inflation track records are not in the same league as those of the advanced economies. In addition, even after adopting an inflation-targeting regime, the region's inflation targeters have not yet effected inflation levels comparable to those of non-inflation targeters. Besides the historical comparison, the inflation targeters' records after the adoption of inflation targeting are not consistently lower (despite the much more moderate inflationary environment of recent years) than non-inflation targeters, such as Hong Kong, China; Malaysia; and Singapore (Box figure).

Inflation track record (annual average)



[a] inflation targeters.

EU = European Union; US = United States; UK = United Kingdom; BRU = Brunei Darussalam; HKG = Hong Kong, China; PRC = People's Rep. of China; SIN = Singapore; MAL = Malaysia; TAP = Taipei,China; THA = Thailand; CAM = Cambodia; VIE = Viet Nam; PHI = Philippines; KOR = Rep. of Korea; LAO = Lao People's Dem. Rep.; INO = Indonesia.

Source: Based on Table 3 of Tang (2008).

Click here for figure data

Given the environment of questionable credibility, it was no surprise that inflation expectations during the 2007–2008 commodity price spike were easily unmoored, though less so in Taipei,China; the PRC; Hong Kong, China; and Korea. Further evidence was found in the upward shifts in the term structure of interest rates over time, rising core inflation rates as early as the second half of 2007, and increased minimum wages in some countries.

Given such signs, more forceful actions would have seemed appropriate. Instead, when commodity prices took off, most notably in the second half of 2007, the region's monetary policy was still in either an expansionary or accommodative mode. In Thailand, monetary policy was loosened as late as July 2007; in Indonesia, in December 2007; and in the Philippines, in January 2008.

In addition, for a long period, some central banks chose not to raise rates, claiming that the causes of the commodity price hikes were external supply shocks that were beyond their influence. The actuality was that a confluence of factors—whether cyclical or structural, domestic or global, supply or demand—were all reinforcing each other, pressuring the prices of all commodities upward.

Disappointingly, the central banks did not see this and failed to note that what matters is not the cause but rather the effects of the out-of-control price-wage-setting behavior of market agents. Most central banks, nonetheless, did eventually raise interest rates, but not by any significant amount. They were not only behind the curve, but also the monetary conditions they operated in were ill suited to combating high inflation.

From the end of June 2007 to the end of August 2008, all the region's economies, except the PRC, had negative real interest rates, whereas Indonesia, Korea, Thailand, and Viet Nam recorded nominal depreciations against the US dollar (Malaysia; the Philippines; Singapore; and Taipei,China showed small appreciations).

Such expansionary monetary policy measures have served well in helping the region mitigate the impact of the global downturn. Policy rates have been brought down to their lowest levels (according to the countries' standards) in a decade. Also, most of the economies are now operating with huge amounts of liquidity, which has served fairly well.

However, when the reason for saturating the economy with liquidity weakens, leaving such huge amounts in the economy will increase the pressure for inflation. Measures to quantitatively ease expansion need to be put in place only temporarily, and they have to be unwound immediately after serving their purpose. Although not yet serious, early signs for increasing inflation in Asia have started to appear in the PRC, India, and most ASEAN countries (Figure 2.2.3). To deal with this, a sound conduct of monetary policy is needed.

2.2.1 Central bank credibility: A revisit (*continued*)

The failure of many regional central banks to demonstrate credibility puts them at risk of repeating the mistake made by the US Federal Reserve in the early 1970s' oil price shock. In that case, the US Federal Reserve, more fearful that high oil prices would adversely affect output than the consequences of rising inflation expectations, stimulated the economy, eventually spurring an unexpected wage-price spiral and a prolonged period of high inflation.

More important, Paul Volcker, the then chairman of the Reserve, had to raise interest rates to close to 20%, resulting in two back-to-back recessions and the highest unemployment rate since the Great Depression. Similar occurrences took place in other countries with well-regarded central banks, like the UK, Australia, and New Zealand, to name a few.

Central bank autonomy, fiscal discipline, openness, and transparency are key prerequisites for credibility. Without autonomy from political interference, central banks can be held ransom by politically tinged agendas. Without fiscal discipline and autonomy, central banks are easily forced to fund government deficit. Playing this role over an extended period is a sure recipe for economic calamity.

Credibility is a virtue that is difficult to earn and easily lost. Institutional microstructure therefore has to be developed to nurture and enhance credibility. Maintaining openness and transparency helps central banks be more accountable and autonomous, and it improves monetary policy effectiveness. The more clearly the central bank spells out and acts on its policy objectives and strategies, the better understanding and higher confidence the public has in its workings, and the better inflation expectations can be anchored.

Dincer and Eichengreen (2007) examined the level of transparency (information disclosure) of 100 central banks throughout the world from 1998 to 2005 and found an evolution of a larger number of central banks toward greater transparency and openness. As expected, the requirements of an inflation-targeting framework put the inflation targeters ahead of the group.

A selected ranking of some Asian economies and their scores (in parentheses) in 2005 are as follows: the Philippines (10); Korea (8.5); Indonesia (8); Thailand (8), Hong Kong, China (7); Sri Lanka (7); Singapore (6.5); Malaysia (5); the PRC (4.5); India (2). The analysis also lends broad if relatively weak support to the notion that transparency reduces inflation and output variability. Compared to the transparency champions of New Zealand (13.5) and Sweden (13), all Asian central banks have much room for improvement, regardless whether they are inflation targeters or nontargeters, or who has a better inflation track record.

The close coordination of monetary (including financial) and fiscal policies is key to sound macroeconomic management. The central banks in developing economies are often the main financial advisors to the government, and, in most instances, they are also the chief economic advisors. In these capacities, central banks are best placed to influence the directions and goals of macroeconomic management. Not surprisingly, the key success factor in the impressive track records of the more credible Asian economies is the very close coordination of these policies, all working in sync to produce the desired outcomes.

Source

Drawn from H. C. Tang. 2008. Commodity Prices and Monetary Policy in Emerging East Asia. *ADB Working Paper Series on Regional Economic Integration* No. 23. December. Asian Development Bank, Manila.

Reference

N. Dincer and B. Eichengreen. 2007. Central Bank Transparency: Where, Why and With What Effects? *NBER Working Paper 13003*. National Bureau of Economic Research, Cambridge, Mass.

Conduct of monetary policy at the onset of the recent crisis

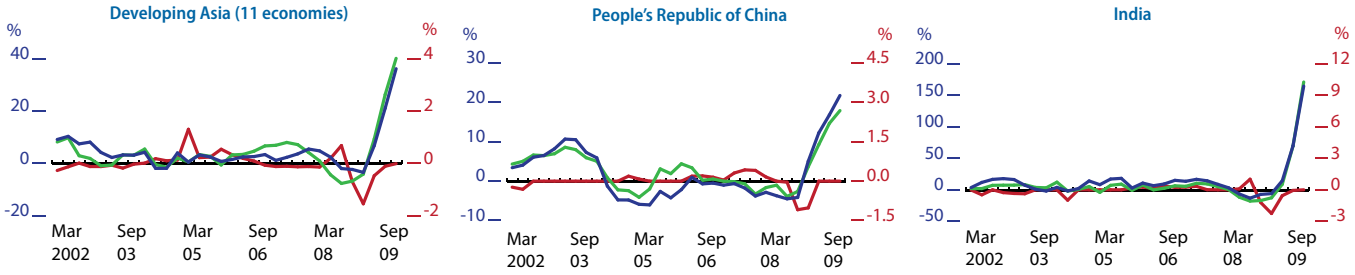
How was monetary policy conducted in the region during the onset of the global financial crisis, relative to its behavior when regional economies managed to maintain fairly stable domestic inflation rates? To answer this question, the actual policy rate can be compared with a suggested rate derived from an approximation of past monetary policy.

The conduct of monetary policy can be approximated by means of predetermined rules that explain the behavior of the policy. The so-called Taylor rule has become very popular in this regard. It states that the setting of the policy rate by a central bank can be approximated by three factors: the natural interest rate; the difference in the current inflation rate from the target inflation rate; and the GDP gap. In its empirical application, a modified version of the rule is often estimated against past data to gain insights over how monetary policy has been behaving. The

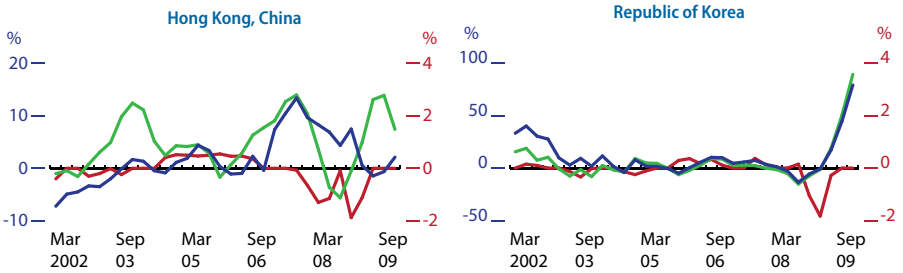
2.2.2 Developments in liquidity positions and policy rates in 11 Asian economies

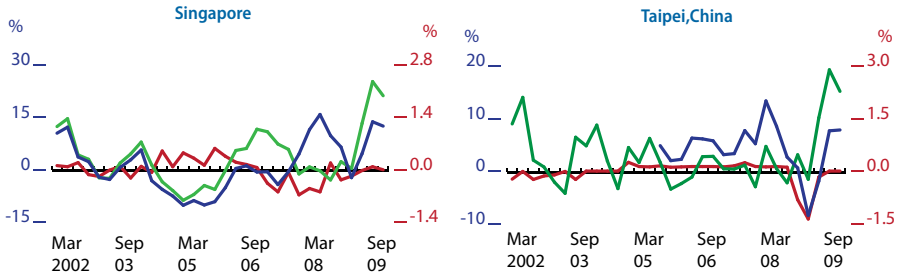
Credit/GDP (left) M2/GDP (left) Policy rate (right)

Developing Asia, PRC and India

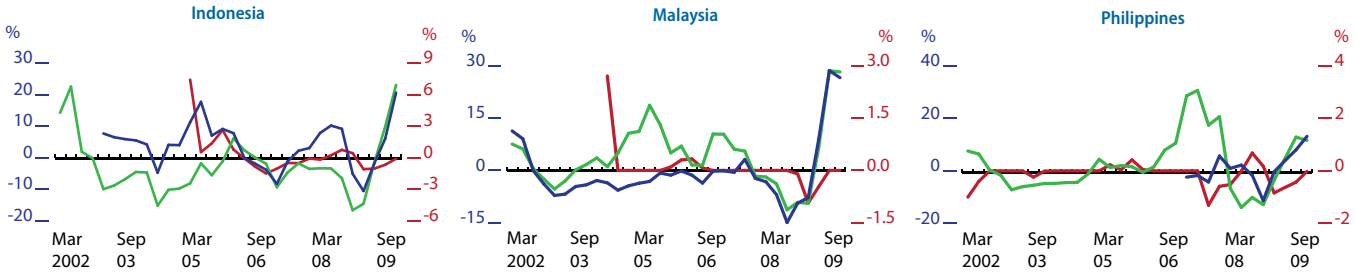


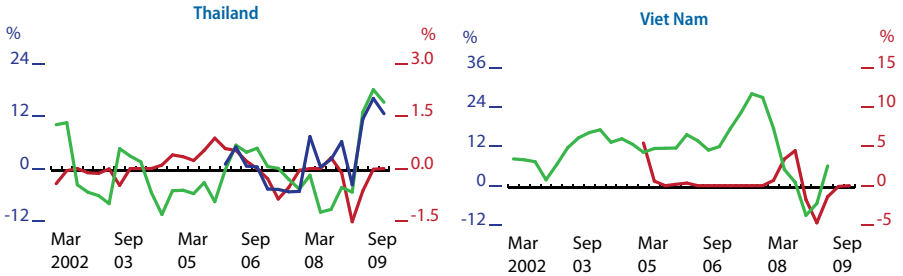
Newly industrialized economies





Southeast Asia





Notes: Developing Asia is taken to be the 11 economies shown on this page.
For Singapore, the domestic interbank interest rate is used.

Source: CEIC Data Company (accessed 1 March 2010).

Click here for figure data

2.2.3 Summary of monetary policy actions in selected Asian economies

	PRC	HKG	IND	INO	KOR	MAL	PHI	SIN	THA
Ease monetary policy	√	√	√	√	√	√	√	√	√
Liquidity assistance in local currency		√	√	√	√		√		
Lend foreign exchange			√	√	√		√	√	
Expand deposit insurance		√		√	√	√	√	√	√
Guarantee non-deposit liabilities					√				
Prepare bank capital injection	√	√	√		√				√
Create demand for assets	√		√	√	√	√			
Impose short sale restrictions		√		√	√			√	
Relax mark to market rules				√	√	√	√		

PRC = People's Rep. of China; HKG = Hong Kong, China; IND = India; INO = Indonesia; KOR = Rep. of Korea; MAL = Malaysia; SIN = Singapore; THA = Thailand.

Note: The policy actions have been proposed but not necessarily implemented.

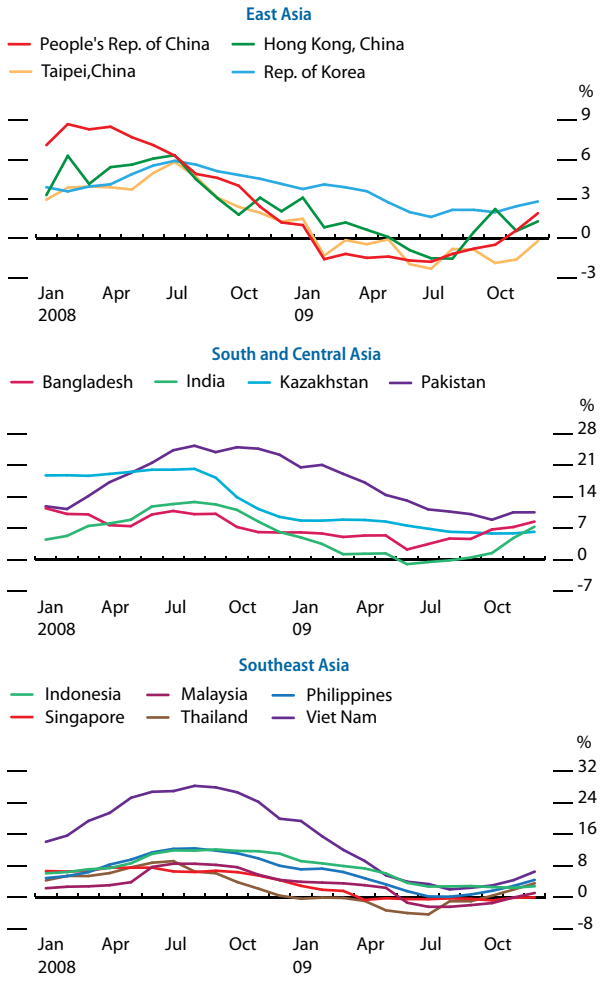
Source: Based on Table I.1 of The International Financial Crisis: Timeline, Impact, and Policy Responses in Asia and the Pacific. BIS Representative Office for Asia and the Pacific, Bank for International Settlements, August 2009.

estimation often includes a lagged policy rate to capture the degree of persistence in conducting monetary policy. In this sense, the Taylor type of rule relates to a past policy reaction of a central bank.

Using the approximation of past monetary policy behavior in Box 2.2.2, the counterfactual policy rates for each country under consideration are derived. To do this, the series reported in the two studies referred to in the box are extended up to the latest available data, and the implied policy rates are calculated based on the characterization of monetary policy reaction function reported in the box. The lead inflation figures are used to represent inflation expectations, while the output gap is roughly calculated by log differencing the actual output to its extended Hodrick-Prescott filtered trend. The counterfactual policy rate series provides the reference rates for the countries under consideration. These reference rates, however, should not be taken as the desirable path as in Taylor (2009). The rules that derive the reference series in this case are not necessarily the optimal ones; rather, they are just representations of past monetary policy that deliver relative tranquility in inflation behavior.

Figure 2.2.4 displays the difference between the actual policy rate and its reference based on the rule, normalized to a standard deviation of the estimates.[6] A value that is smaller than –1 or greater than 1 indicates a too lax or too tight monetary policy, respectively. The figure suggests that monetary policy in most of the countries has generally been consistent up to the first quarter of 2007. The fact that the policy rate difference lies within the band of –1 to 1 suggests that there is no statistically significant difference between the actual

2.2.3 Inflation trends



Source: CEIC Data Company (accessed 1 March 2010).

Click here for figure data

2.2.2 Approximation of past monetary policy

De Brouwer et al. (2006) and Ramayandi (2007) provided estimates of the Taylor type of rule for the period up to 2004 for some economies in the region: Indonesia; Korea; Malaysia; the Philippines; Taipei,China; and Thailand. They estimated the following monetary policy reaction function:

$$i_t = (1-\rho)\alpha + (1-\rho)\,\beta E_t\,\pi_{t+n} + (1-\rho)\gamma x_t + \rho i_{t-1} + \varepsilon_t$$

where, i_t is the short-term nominal interest rate (the proxy for target policy variable) at time t; $E_t\,\pi_{t+n}$ is the time t expectation of inflation at time $t + n$; x_t is the log of output gap; and ε_t is the unsystematic monetary policy shock.

The log of output gap is defined as a log difference between actual output and its Hodrick-Prescott filtered trend. Expected inflation is not observed in practice and is approximated using observed instrumental variables.[1] Therefore, the parameters [α, β, γ, ρ] are estimated using a generalized method of moments technique following Clarida et al. (1998), by utilizing the instrumental variables as the underlying information for representing the unobserved expected inflation. The summary of their estimated parameters is presented in the box table.

The estimation period for the above parameters is relevant for two reasons. First, it covers a time when inflation was the most stable for the countries under consideration (Figure 2.2.1 in the text). Second, it excludes the period when commodity prices in the international market behaved erratically, a condition that tends to induce higher volatility in domestic price inflation and that should not be the object of monetary policy aimed at stabilizing inflation.

Parameters for the policy reaction function

Economy	α	β	γ	ρ
Indonesia	-2.73	1.78	1.04	0.52
Korea, Rep. of	-7.51	3.59	0.02	0.89
Malaysia	0.56	1.66	0.19	0.69
Philippines	0.04	0.72	1.22	0.56
Taipei,China	0.79	1.49	1.00	0.92
Thailand	-3.59	2.65	0.09	0.70

Source: De Brouwer et al. (2006) and Ramayandi (2007).

[1] For the instruments, De Brouwer et al. (2006) and Ramayandi (2007) use the lagged value of short-term nominal interest rate, inflation, output gap, and relative changes in the exchange rate of the respective economies.

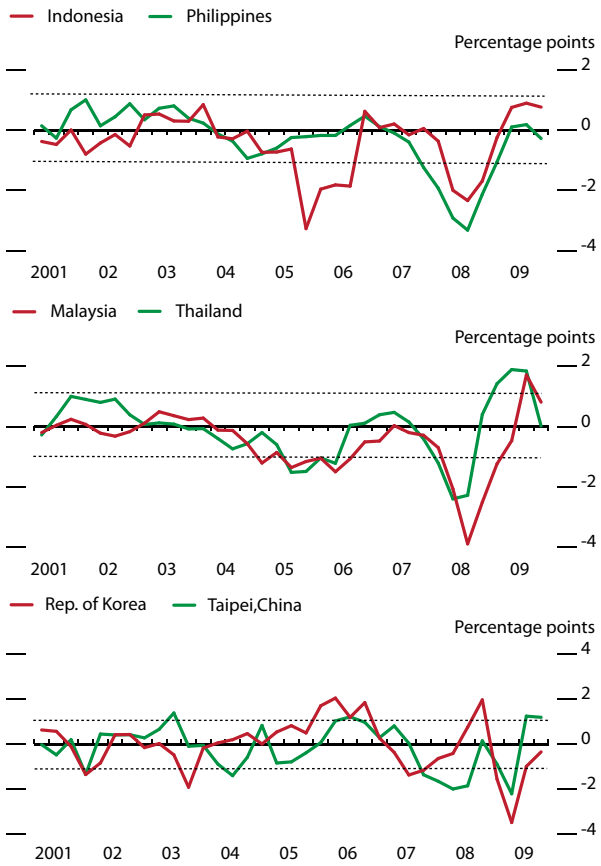
policy rate and what the rule suggested. In 2005, Indonesia's policy rate indicates huge deviations where monetary policy was suggested to be too lax. The deviations, however, were justified because massive cuts in the domestic oil price subsidy pushed up inflation and required an increase in the reference rate at that time. The central bank of Indonesia made a right decision not to overreact to the event because the cause of the price increase was not monetary.

Starting in late 2007, however, the monetary policy stances of most of the economies (except Korea) tended to become too loose, leading to an unchecked increase in inflation in all these countries. It may be argued that the passive response was also proper because the inflation was not core but rather due to rising commodity prices in the international market. This argument, however, does not seem to be justified due to a very high correlation between these countries' core inflation and commodity prices during that period (Filardo and Genberg 2009 discuss this). In other words, their central banks should have responded more actively to contain inflation in that period.

As the impact of the global financial crisis hit Asia, economies in the sample reacted by reducing their policy rates, sending them to record lows for the decade (according to each country's standard) and keeping them low since then. The current level of interest rates for economies like Korea, the Philippines, and Thailand are seen as consistent with the suggested rates from the monetary policy rule. For Indonesia; Malaysia; and Taipei,China, the current rates seem to be still higher than what

the rule suggested. This observation has implications on how a country deals with the trend of inflation in the short run if the trend starts putting pressure on the economy. Countries like Korea, the Philippines, and Thailand may be compelled to deal with such a pressure by increasing the interest rate. On the other hand, economies like Indonesia, Malaysia, and Taipei,China seem to still be able to handle the inflation pressure without having to increase the interest rate. These economies may be able to tame the immediate inflation pressure by selectively unwinding the quantity measures they put in place to deal with the global downturn.

2.2.4 Normalized difference of policy rates



Source: ADB calculations based on data from CEIC Data Company (accessed 1 March 2010).

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Monetary policy and the asset bubble

Monetary policy and asset prices

The bubble burst that initiated the global financial crisis has taught a huge lesson with respect to monetary policy: It seems that the element of financial stability can no longer be considered an external part of managing macroeconomic fluctuations, particularly when it has the potential to wreak such catastrophic damage on the aggregate economy, as witnessed in the recent crisis. This lesson has pushed the relationship between asset prices and monetary policy back to the forefront of the monetary policy debate.

Asia must also be wary of threats from asset market failures to the well-being of their aggregate economies. Gochoco-Bautista (2008) examines the risk of extreme outcomes on real output and price levels, given booms in asset markets, for eight East and Southeast Asian economies: Hong Kong, China; Indonesia; Japan; Korea; Malaysia; the Philippines; Singapore; and Thailand. Her findings suggest that booms in asset prices significantly increased the probability that these economies could experience bad extreme outcomes in the form of heavy losses in both real output and prices. Conversely, given such booms, the probability of good extreme outcomes is less likely. Consequently, booms in assets market have to be monitored closely in order to mitigate the risk of the economy's being caught in a slump. Therefore, Asia may not ignore the question about how monetary policy should be best conducted in facilitating financial stability, at the same time maintaining a low and stable inflation environment.

Ito (forthcoming) discusses two opposing views with regard to this issue.

Benign neglect. Monetary policy could neglect developments in asset prices. The main goal of monetary policy should be limited to maintaining stability in prices and output. Monetary policy makers should leave the prevention of a banking and financial crisis to financial supervision policy, a tool that has been entirely separated from monetary policy. To prevent a hard landing by the banking system, the regulatory authority can introduce prudential measures, such as a higher (and variable) capital standard, introducing and/or tightening regulation on

the loan-to-value ratio and the loan-to-income ratio ceilings, and an examination of the internal risk assessment of banks' portfolios.

Leaning against the wind. In addition to maintaining aggregate price stability, monetary policy needs to pay more attention to asset prices and react to developments in them. Because the bursting of the assets bubble most likely induces financial instability, precautionary monetary tightening is recommended to contain the bubble from growing. A low interest rate is bound to encourage risk-taking activities—reckless rather than normal—and the financial supervision policy cannot perfectly prevent risk concentration in some sectors of the economy. Asset prices should be either included in a set of target variables or treated as a special variable that should be watched carefully, along with aggregate price inflation.

Recent experience in the crisis signals that the benign neglect argument has certain limitations. The argument rests its case on having strong, effective, and reliable regulatory oversight of the country's financial market mechanisms. Yet the crisis has just demonstrated that this type of oversight may actually be missing in most cases.

Incorporating asset prices in monetary policy decisions

So should monetary policy incorporate developments in asset prices directly into its current policy setting? If so, how effective could this approach be?

The literature suggests limitations on monetary policy's ability to be generally effective when directly responding to asset prices. Cecchetti et al. (2000) strongly argue that the design of monetary policy to achieve an inflation target and to manage its expectation could show superior performance if policy instruments adjusted not only to inflation and the output gap, but also to asset prices. By leaning against unsustainable developments in the asset market, monetary policy could help keep a bubble from growing.

This argument makes much sense. However, asset prices often behave erratically and with relatively high volatility. Adjusting the policy instrument directly to asset prices will only tend to transfer their erratic behavior to the instrument. Although this effect could be justifiable when asset prices development is unsustainable and on the way to an unwanted bubble, the automatic adjustment would tend to induce more variability in the monetary instrument during normal times when asset prices development was, in fact, sustainable. More variability in a policy instrument could further penalize the economy by increasing variability in both output and inflation, making the management of inflation expectation all the more difficult for a central bank.

Studies that lend support to the leaning against the wind view typically find marginal improvements in the stability of output and inflation. These improvements are achieved through relatively very minimal reaction in the policy instrument to changes in asset prices.[7] De Grauwe (2008) added that the effectiveness of this type of policy reaction depends strongly on the degree of credibility of the central bank. The more credible central banks are potentially more effective. The small range of the optimal proportion policy instrument reaction to movements in asset prices partly reflects the fact that the main policy instrument

should not be continuously reacting to developments in asset prices. The policy may need to react more strongly when a bubble materializes, but not otherwise. In addition, with regard to Asia, the issue of central bank credibility could be another hurdle to be overcome (Box 2.2.1) before countries in the region may reap the full benefit from this kind of monetary policy setup.

To more effectively maintain macroeconomic stability, monetary policy may need to react to asset prices only when needed, that is, when a bubble is forming.[8] Otherwise, a central bank may want to keep its hands off asset markets. Unfortunately, in most cases, central banks are not equipped with an ex ante capability of determining whether movements in asset prices are fundamental, for at least two reasons: the problem of asymmetric information between a central bank and market players; and the relatively poor quality of information available to monitor unfavorable developments in asset markets (primarily property).

Given the informational constraint, a central bank may limit its reaction to asset prices by assigning a threshold in asset prices, over which it should start responding. The threshold could be designed so as to allow the policy instrument to react to changes in asset prices whenever the latter crosses the assigned threshold. Haugh (2008), for example, argues that setting a relatively high threshold (a three-standard deviation threshold rule in this case), rather than completely ignoring asset prices when designing monetary policy, may provide better outcomes in terms of providing macroeconomic stability. Although improving the approach for monetary policy to deal with unwanted bubbles in asset markets, the approach still tends to be heuristic in nature. Determining the right threshold would still be a tricky part, particularly given the problem of limited ex ante information available in assessing developments in asset markets.

The bursting of the bubble that set off the global crisis offers lessons in the possible preventive role of monetary policy. The lax monetary policy in industrial countries before the crisis has been considered one of the contributing factors in creating the asset price bubble. The hands-off stance was thought to be justified by the relatively low and stable inflation environment at that time, which was not exerting any pressure to tighten monetary policy. Low interest rates and a stable economic condition created a comfortable environment for people to systematically underestimate risks and put low-risk premiums in the financial market.

But, is a traditional monetary policy reaction function like the Taylor rule really silent about such bubbles? It would seem not. Taylor (2007) suggested that the interest rate in the US after the "dot com" bubble in 2001 was kept lower than what the Taylor rule prescribed (although the rule does not explicitly take asset prices into account). The prescribed interest rate, based on the simple Taylor rule, was higher than the actual rate, suggesting that the arguments driving the rate prescribed by the Taylor rule somewhat captured the sign of a bubble buildup in the asset markets.[9] The lower actual interest rate certainly leaves room for the bubble to flourish. Although arguably an increase in the actual rate may not have fully contained the growing bubble in asset prices, it would definitely have put a check on the supportive conditions.

The resultant policy failure is not limited to the US. Similar

indications appear elsewhere.[10] In Asia, for example, a low policy rate had been accompanied by a very high growth in credit in Indonesia and to some extent in Thailand (Figures 2.2.2 and 2.2.4 and Box 2.2.1). As demonstrated by the recent crisis, this type of policy failure may lead to a dire outcome.

Thus the need should be clear for greater discipline in conducting monetary policy for purposes of achieving its target to keep inflation and its expectation stable. In other words, resisting change in the monetary policy stance for the sake of any other reason than managing inflation and its expectation is a mistake. A failure to shift the policy instrument in a timely fashion may send false signals to the economy, create incentives for people to undervalue their risks, and plunge the economy into trouble.

Although more such discipline may not be sufficient to completely contain financial shocks when they occur, designing rules for monetary policy in direct response to changes in asset prices at all times may introduce additional volatility when financial shocks are absent, hence imputing potential costs to the aggregate economy. Analysis of the issue suggests that rules that enable monetary policy to react directly to developments in asset prices perform better than a simple Taylor rule only when the shocks come from finance sectors. When the shocks emanate from other than finance sectors, a simple Taylor rule tends to outperform the augmented rules in terms of delivering more stable output and inflation.[11]

Improving monetary policy

There is no one, single approach to improving monetary policy for all countries. The recent global financial crisis signaled that financial market stability can no longer be considered beyond the realm of monetary policy. Even though the structuring may differ from country to country, certain requirements are clear.

For one thing, conducting sound monetary policy has to involve a commitment to maintaining financial market stability. However, a single policy instrument like the short-run interest rate is a rather blunt tool for dealing with both the buildup and aftermath of financial crisis. A combination of the traditional monetary policy objective with a commitment to maintaining stability in the asset markets is necessary. This additional objective may be best attained by complementing the traditional monetary policy framework with additional policy measures that deal specifically with undesirable developments in the asset markets.

Also, instruments to restrain asset prices, in the form of micro instruments such as capital ratios, loan-to-valuation ratios, a capital gains tax, or even credit growth limits, could prove to be a better approach. The execution of these micro instruments can be given over to a separate regulatory authority, which has the explicit task of using the instruments to restrain asset prices. Another important element is a mechanism to take over large, systemically important institutions if their capital drops below a certain critical level, thereby avoiding a moral hazard while maintaining systemic stability.

Making all this work requires a financial authority to supervise and regulate the finance sector. The main responsibility of this authority would be to make the call on a bubble early and introduce prudential

policy measures when necessary. With this type of enhanced supervision and regulation, monetary policy is freed from the difficulty of pursuing too many targets with a limited number (often just one) of strong policy instruments.

Accomplishing all this with resources either within the central bank or outside it depends on the availability of experts. Often human resources are limited in emerging market economies, so supervision is most efficiently done within the central bank. In that case, however, the potential conflict of interest with monetary policy objective has to be controlled. Maintaining policy independence for the two authorities is important in order to provide enough room for both to pursue their designated objectives. Nevertheless, in as much as the objectives for both authorities are related, a smooth and effective coordination between the two is critical. Micro prudential policy should also be strengthened with a politically independent body outside or inside the central bank, so that financial stability can be maintained with day-to-day regulation and measurement. Preventing the bubble to get bigger with ongoing measures is the first line of defense.

Given the informational constraint mentioned previously, to enable monetary and financial authorities to make appropriate policy judgments and take timely action, developing and improving the indicators and their relevant measurement methodologies are crucial. Creating reliable databases for these indicators is also necessary. The information should be relevant for indicating whether speculative activities are increasing and whether they pose financial risk to the agents involved. Intercountry cooperation and coordination in exchanging such information would also be beneficial to monitoring regional trends and avoiding contagion from one country to another.

When large or systemically important financial institutions are deemed insolvent, an effective legal structure is needed to take them over. A legal framework is important to avoid panics in the financial market, which could cause turmoil in the finance sector, thereby acting as a backstop for financial stability. It also sidesteps the potential for moral hazards by assuring that both management and shareholders bear the brunt of failure. An intrusive supervision—as part of the answer—calls for crisis management protocols covering the liquidation or nationalization of failing institutions.

When these measures are exhausted or ineffective, the monetary policy can be modified so that the interest rate is hiked to ensure that the bubble does not get so large as to threaten financial stability. This measure may cause output declines and deflationary pressure, but the sacrifice may be needed to avoid even bigger sacrifices later. This approach, however, is the second best. The weaker supervision regime obliges the central bank to deviate from its regular monetary policy framework.

Exchange rate and capital account liberalization

De jure and de facto exchange rate regimes

After the 1997–98 Asian financial crisis, almost all the crisis-affected countries, except Malaysia, chose to abandon a conventional pegged exchange rate regime to implement de jure floating exchange rate regimes (Table 2.3.1), but with varying degrees of flexibility. Whereas Korea and the Philippines are implementing independently floating regimes, other countries adopted managed floating regimes with no predetermined path for the exchange rate. Malaysia implemented a conventional pegged arrangement until 2005 and a managed floating exchange rate regime since. As mentioned in the monetary section, Indonesia, Korea, the Philippines, and Thailand initiated flexible inflation targeting with a floating exchange rate regime. In Malaysia, the central bank monitors several key indicators, including inflation and output stability, in conducting monetary policy.

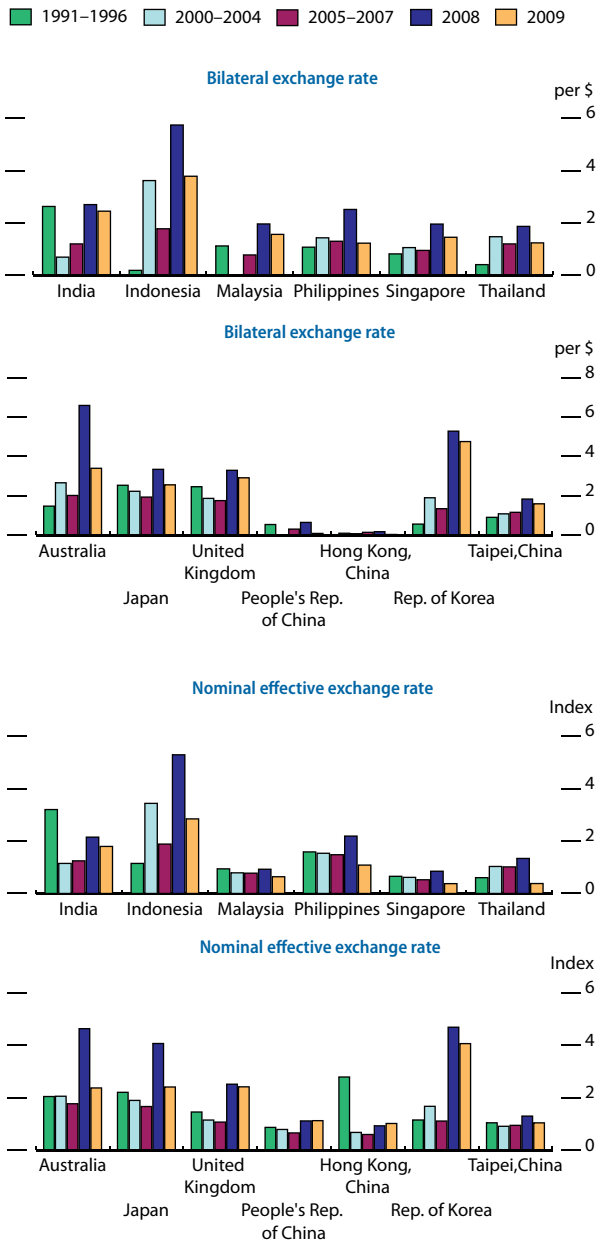
For those economies not affected by the Asian crisis, the exchange rate regime spans a wide spectrum but, except in Hong Kong, China, it tends to move toward a more flexible exchange rate arrangement. For example, in the PRC, the de jure exchange rate regime changed from a conventional pegged arrangement in 1999–2005 to a managed floating exchange rate regime with reference to a currency basket. This is the same de jure exchange rate regime announced in Singapore.

Hong Kong, China, over the last few decades has had a hard-pegged exchange rate regime in terms of a currency board arrangement. In the PRC; Hong Kong, China; and Singapore, the exchange rate is still used as an anchor in conducting monetary policy, whereas in Taipei,China, the central bank monitors various macroeconomic indicators, including inflation and output stability.

Although de jure exchange rate regimes have been edging toward increased flexibility, the volatility of exchange rates, against both the US dollar and a trade-weighted basket of currencies, remained low in the region after the Asian crisis. This has led to doubts about the inconsistency between de jure and de facto regimes, especially fear of a resurrected dollar-pegged arrangement. Between 2000 and just before the global financial crisis intensified in late 2008, exchange rate volatility in many countries was relatively limited or declining (Figure 2.3.1).

The far lower exchange rate volatility than that in a country with an independent floating regime, such as Australia, Japan,

2.3.1 Volatility of nominal effective exchange rates



Note: Volatility is measured by the standard deviation of changes in monthly nominal exchange rates.

Sources: ADB estimates based on data from International Monetary Fund. International Financial Statistics online database; CEIC Data Company (both accessed 22 February 2010).

Click here for figure data

2.3.1 Evolution of *de jure exchange* rate regimes in selected emerging Asian economies

Economy	Period	Exchange rate Regime
China, People's Rep. of	1990–1998	Managed floating
	1999–June 2005	Conventional pegged arrangement
	July 2005–present	Managed floating exchange rates with reference to a currency basket
Hong Kong, China	1983–present	Currency board arrangement
India	1990–present	Managed floating with no predetermined path for the exchange rate
Indonesia	1990–July 1997	Managed floating
	Aug 1997–June 2001	Independently floating
	July 2001–present	Managed floating with no predetermined path for the exchange rate
Korea, Rep. of	1990–1997	Managed floating
	1998–present	Independent floating
Malaysia	1991–August 1998	Managed floating
	September 1998–2005	Conventional pegged arrangement
	2006–present	Managed floating with no predetermined path for the exchange rate
Philippines	1990–present	Independent floating
Singapore	1990–present	Managed floating exchange rates with reference to a currency basket
Taipei,China	1990–present	Independent floating
Thailand	1990–June 1997	Pegged to a composite of currencies
	July 1997–2001	Managed floating with no predetermined path for the exchange rate

Sources: 1975 to 1998: International Monetary Fund, Annual Report on Exchange Arrangements and Exchange Restrictions, various years until 1998; 1998 to present: central bank websites.

or the United Kingdom, has shown the high degree of foreign exchange intervention in the region. In particular, the level of volatility in many countries does not match well with the announced de jure exchange rate regime (Figure 2.3.1). For example, the degree of volatility in the Philippines and Thailand was roughly the same after the crisis, but the exchange rate regime in the Philippines is classified by the International Monetary Fund (IMF) as independently floating whereas Thailand's is classified as managed floating.

Along with fear of a resurrected dollar-pegged exchange rate regime, a significant buildup of foreign exchange reserves has been evident in the region since 1998. In contrast to before the Asian crisis, the accumulation of foreign reserves afterward has come mainly from current account surpluses, instead of net capital inflows. Particularly in the PRC, changes in the stock of foreign exchange reserves of around US$330 billion a year during 2004–2009 stemmed from a current account surplus of US$261 billion and net capital inflows of only US$58.5 billion. Regardless of the source of reserve accretions, most studies (at least prior to the recent crisis), show that Asia holds more than enough precautionary reserves.

The reserves stock declined in all developing Asian economies during the crisis, with significant drops in India and Korea, because of the need to limit exchange rate depreciation resulting from the reversal of capital inflows (Figure 2.3.2).[12] However, after the first quarter of 2009, the accumulation of foreign exchange reserves in all developing Asia resumed

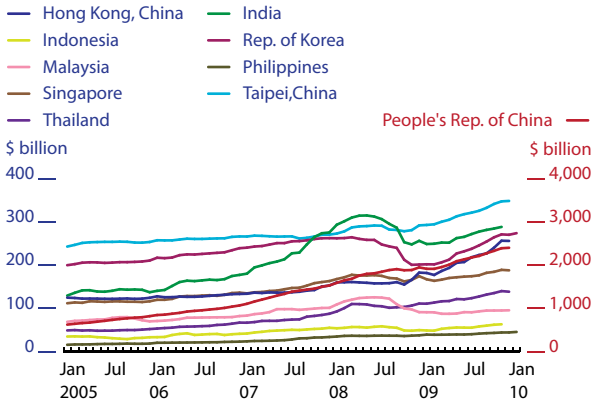
an upward path, and the regional stock of foreign reserves has become even higher than before the crisis. (In the PRC, reserve stocks reached a new high of US$2.4 trillion in December 2009.) This trend suggests a high degree of exchange rate management in the region.

To provide concrete evidence of the degree of such management, a framework proposed by Frankel and Wei (2007), which examines the degree of influence of the dollar, euro, and yen, is applied (Box 2.3.1).

The estimation results show that, except for Indonesia, the dollar still has the greatest degree of influence on the local currency (Table 2.3.2). The PRC case is the most clear cut, with the weight associated with the dollar close to 1. For the Philippines and Malaysia, the dollar weights are large (0.87 and 0.79, respectively), suggesting that both currencies still manage their currencies against the dollar. The result in the case of the Philippines is in sharp contrast to the de jure exchange rate regime, which is defined by the IMF as an independently floating regime. In India, Singapore, and Thailand, the influence of the dollar was lower than in the preceding three countries, but there is an indication of management against the dollar. In Indonesia, the statistical insignificance of the three currencies reflects more reliance on market-driven exchange rate movements.

In Korea before the recent crisis, systematic intervention was found, with statistically significant coefficients associated with the dollar and yen. This finding implies that the central bank had managed the Korean won against a basket of currencies before the crisis. However, when the crisis period is included, no systematic influential pattern emerged from either currency. The results are consistent with the recursive estimations for the dollar weight shown in Figure 2.3.3. The weight of the dollar fell sharply in Korea during the recent crisis, whereas it dropped only slightly in Singapore and Taipei,China. A distinct decline in the dollar weight is also found in India and Indonesia after the crisis because the central bank allowed the currencies to depreciate in response to capital reversals. By contrast, in the PRC the weight of the dollar is relatively stable over the estimation periods.

2.3.2 Foreign exchange reserves in selected Asian economies



Source: CEIC Data Company (accessed 5 February 2010).

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Three key reasons for intervention in the foreign exchange market

The foregoing analysis makes apparent that most developing Asian currencies remain fairly heavily managed, either against the US dollar or a basket of currencies, and that the intervention did not occur only during the crisis. A de jure exchange rate regime exaggerates the degree of de facto exchange rate flexibility. The empirical literature has suggested three main reasons for intervening in the foreign exchange market and building up foreign exchange reserves.

Insurance. Authorities build up reserves as insurance against crisis. Although the debate on how much is "too much" will go on, the buildup of reserves has proved helpful in redressing the adverse effects of the

2.3.1 Model for measuring de facto exchange rate flexibility

The model is based on the Frankel and Wei framework (2007), as shown in the equation.

$$\Delta e_t = \alpha_0 + \alpha_1 \Delta US_t + \alpha_2 \Delta JP_t + \alpha_3 \Delta EU_t + \mu_t$$

where e is defined as the local currency per special drawing rights. The extent of fixity is captured by α coefficients, measuring the influences of the dollar, euro, and yen.

The model is estimated for nine developing Asian economies (the PRC; India; Indonesia; Korea; Malaysia; the Philippines; Singapore; Taipei,China; and Thailand) during 1999M2–2009M9. For India, Indonesia, and Korea, where exchange rates depreciated notably during the recent crisis, another model is estimated by excluding the recent crisis period.

Excluding the crisis period, the data are for 1999M2–2007M12. The crisis period is excluded to appropriately measure the de facto exchange rate flexibility of these three countries during normal times.

2.3.2 Degree of de facto exchange rate flexibility in selected emerging Asian economies

	People's Rep. of China	Indonesia		India		Rep. of Korea		Malaysia	Philippines	Singapore	Taipei, China	Thailand
		(1)	(2)	(1)	(2)	(1)	(2)					
Const	-0.06	0.11	0.08	0.11	-0.02	0.07	-0.17	-0.03	0.13	-0.06	0.04	0.01
	(0.004)*	(0.78)	(0.85)	(0.37)	(0.79)	(0.71)	(0.26)	(0.68)	(0.31)	(0.42)	(1.64)	(0.94)
Dollar	0.95	0.34	0.76	0.61	0.86	-0.23	0.42	0.79	0.87	0.38	0.44	0.43
	(0.00)*	(0.39)	(0.14)	(0.00)*	(0.00)*	(0.38)	(0.02)*	(0.00)*	(0.00)*	(0.00)*	(0.00)*	(0.01)*
Yen	-0.002	-0.3	-0.07	-0.1	0.03	-0.19	0.33	-0.04	0.01	0.03	0.05	0.09
	(0.88)	(0.15)	(0.83)	(0.22)	(0.71)	(0.32)	(0.01)*	(0.25)	(0.9)	(0.51)	(0.27)	(0.19)
Euro	0.001	0.29	0.32	-0.06	0.05	-0.33	-0.15	0.09	0.1	0.1	-0.03	0.04
	(0.98)	(0.5)	(0.6)	(0.59)	(0.54)	(0.06)	(0.37)	(0.17)	(0.4)	(0.18)	(0.65)	(0.75)
Adj R^2	0.95	0.04	0.02	0.31	0.53	0.13	0.26	0.63	0.34	0.17	0.32	0.22
DW	2.37	1.9	1.85	1.93	2.01	1.91	1.72	1.84	1.97	1.94	1.83	1.84
Sample	01M3: 09M9	99M2: 09M9	99M2: 07M12	99M2: 09M9	99M2: 07M12	99M2: 09M9	99M2: 07M12	99M2: 09M9	99M2: 09M9	99M2: 09M9	99M3: 09M9	99M2: 09M9

Notes:

Figures in parentheses are p-values and * reflects those parameters significant at 10%–15% or better.

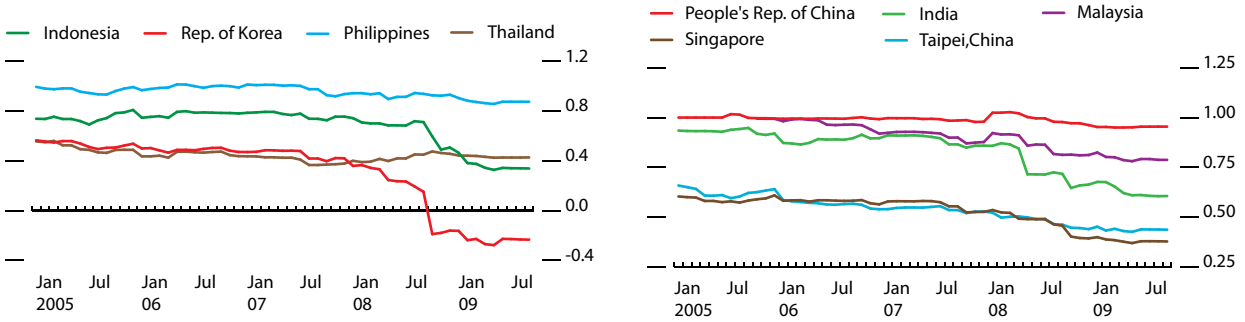
A 1-month lag dependent variable is included in all regressions and a 1-month lag term for the US dollar per SDR is included for the People's Republic of China, India, Malaysia, the Philippines, and Thailand if its inclusion helps to reduce serial correlation.

Source: R. Rajan. Forthcoming. The Evolution and Impact of Asian Exchange Rate Regimes. Background paper prepared for *Asian Development Outlook 2010*, Asian Development Bank, Manila.

recent crisis, particularly in containing the significant depreciation of real exchange rates.

Stimulating exports and growth. During normal periods, central banks intervene in the foreign exchange market to stimulate exports and growth (i.e., for mercantile purposes). Central banks' behavior and the bias of their intervention can be used as evidence for this reason. (Box 2.3.2 explains how to estimate central bank behavior and the bias of their intervention.) In most developing Asian economies, the estimation results show asymmetric intervention in the foreign exchange market with a strong bias toward preventing appreciation rather than depreciation (Table 2.3.3).[13] The degree of the bias, however, varies depending on the preferences of central banks. Singapore and Thailand appear to react against exchange rate appreciation more than

2.3.3 Recursive least squares estimates for US dollar weight



Note: Countries in the left panel have flexible inflation-targeting regimes; economies in the right panel have adopted other monetary regimes but have inflation as the de facto target.

Source: See Table 2.3.2.

Click here for figure data

2.3.2 Central bank intervention reaction function

This box shows the empirical model for estimating the preference of central banks in intervening in the foreign exchange market. The model assumes that the central bank intervenes in the foreign exchange market to minimize the following intertemporal criterion.

$$\min_{(r_t)} E_{t-1} \sum_{\tau=0}^{\infty} \delta^{\tau} L_{t+\tau} \quad (1)$$

where δ is the discount factor and L_t is the period loss function.

The loss function is specified as the deviations of international reserves (r) and of exchange rate (e) from their targets, as shown in equation (2):

$$L_t = 1/2\ (r_t - r^*)^2 + \lambda/2\ \{(e_t - e^*)^2 + \gamma/3\ (e_t - e^*)^3\} \quad (2)$$

where λ (> 0) is the relative weight; γ is the asymmetric preference parameter on exchange rate stabilization; e_t denotes the percentage change in the exchange rate (the nominal effective exchange rate); r^* is the optimal level of reserves; and e^* is the central bank's target exchange rate, which is assumed to be 0 in this case. If $\gamma < 0$, deviations of the same size but opposite sign yield different losses, and thus the rate of appreciation is weighted more heavily than the rate of depreciation:

$$\partial L_t / \partial(e_t) = \lambda[e_t + (\gamma/2)\ (e_t)^2\ ] < 0, \textit{ for } e_t < 0$$

Minimizing equation (1) by choosing r_t subject to the constraint, $e_t - e^* = a_0 + a_1 r_t + \varepsilon_t$, leads to the following intervention reaction function of the central bank:

$$r_t = r^* + \lambda a_1 E_{t-1}\ \{e_t + \gamma/2\ (e_t)^2\} \quad (3)$$

Replacing expected values with actual values, the empirical version of the intervention reaction function can be simplified:

$$r_t = c + \alpha e_t + \beta(e_t)^2 + \upsilon_t \quad (4)$$

where $\alpha = \lambda a_1$, $\beta = \lambda a_1\ \gamma/2$

Equation (4) is estimated based on monthly data for the sample period between 2000M1 and 2009M7, for six emerging Asian economies: India, Korea, the Philippines, Singapore, Thailand, and Indonesia.

The reduced-form parameters (α, β) allow identification of the asymmetric preference on exchange rate stabilization, γ. It can be shown that the asymmetric preference parameter is $\gamma = 2\beta/\alpha$.

This parameter is the main concern of the empirical analysis. The positive and statistical significance of γ implies that the central banks do not intervene asymmetrically: they intervene to guard against appreciation of the exchange rate but do not intervene when the rate shows a depreciation trend.

other countries (i.e., for mercantile purposes), whereas Indonesia and the Philippines exhibit more symmetric intervention (i.e., low γ).

Central banks may intervene against exchange rate appreciation because the exchange rate still plays a role in influencing trade. However, with production and trade moving toward a global sharing structure in developing Asia—that is, the division of the production process into vertically separated stages that are carried out in different countries—central banks have more room to let the exchange rate appreciate, with less concern for export loss.

Given such global production sharing, trading in parts and components accounts for a notable share of total trade in the region.[14] The PRC has been established as a key assembly point, importing most parts and components from other Asian countries and producing finished products to mostly developed countries. The quantitative analysis presented in Table 2.3.4 shows that parts and components trade is remarkably less sensitive to changes in real exchange rates than finished products trade. The effect of the real exchange rate on machinery and transportation exports, which contain a high proportion of parts and components trade, is less than that on other export components. Particularly, in the longer term, the effect of the exchange rate is found

2.3.3 Intervention reaction function and policy preference estimates: 2000M1–2009M7

Country	ς	α	β	γ = 2β/α	J-test
India	1.202***	-0.432***	-0.148***	0.687***	16.25
	(0.089)	(0.102)	(0.035)	(0.123)	
Korea, Rep. of	0.568***	-0.131***	-0.019**	0.291*	14.58
	(0.086)	(0.032)	(0.007)	(0.155)	
Philippines	1.328***	-1.014***	-0.132**	0.259***	14.05
	(0.138)	(0.093)	(0.054)	(0.103)	
Singapore	0.991***	-0.923***	-0.716***	1.551***	12.66
	(0.144)	(0.302)	(0.236)	(0.529)	
Thailand	0.506***	-0.437***	-0.997***	4.567***	13.69
	(0.084)	(0.086)	(0.078)	(0.647)	
Indonesia	1.621***	-0.722***	-0.041***	0.113***	16.62
	(0.151)	(0.104)	(0.012)	(0.022)	

Notes: ***, **, and * denote rejection of the null hypothesis that the true coefficient is zero at the 1%, 5%, and 10% significance levels. The standard errors of γ are obtained using the delta method.

Standard errors using a four-lag Newey-West covariance matrix are reported in parentheses. e_t is measured using the nominal effective exchange rate (NEER). J-test refers to the Hansen's test of over-identifying restrictions, which is distributed as a $\chi^2(m)$ under the null hypothesis of valid over-identifying restrictions. A constant, lagged values (1 to 10, 12, and 15 months) of r_t, e_t as well as current and lagged values (1 to 4, 8, and 15 months) of the US Federal Fund Rate.

Source: See Table 2.3.2.

to be statistically significant only in Indonesia and Malaysia. This result implies that the sensitivity of aggregate trade flows to relative price changes diminishes as the share of parts and components trade increases.

Exchange rate volatility. Central banks often use the impact of exchange rate volatility to justify intervening in the foreign exchange market. Aside from the issue of the exchange rate level or trend, countries with flexible exchange rate regimes evidently may experience more nominal exchange rate volatility than a country adopting a relatively fixed exchange rate regime. Given relative price rigidities, this implies a corresponding fluctuation in the real exchange rate, and it would be of less concern if the exchange rate volatility is in line with underlying

2.3.4 RER coefficients in eight East and Southeast Asian economies

	Short-run coefficient			Long-run coefficient		
	Total merchandise (TE)	Manufacturing (ME)	M&T	Total merchandise (TE)	Manufacturing (ME)	M&T
China, People's Rep. of	0.60*	0.69*	0.61*	0.50**	0.50**	
Indonesia	1.17*	1.44**	0.72*	4.52*	2.15*	0.97*
Malaysia	0.64*	0.65*	0.48*	1.48*	1.37*	1.06*
Philippines	0.20**					
Korea, Rep. of	1.12*			1.17*	0.14***	
Singapore		0.89 (-2)***	0.53 (-2)**			
Thailand	0.34*	0.18*	0.14*	0.70*	0.39***	
Taipei,China	0.38 (-3)**	0.33 (-3)***				

M&T = machinery and transportation; ME = total manufacturing exports; TE = total merchandise exports.

Note: The values in the parentheses show the lag period of the significance. * significant at the 5% level; ** significant at the 10% level; and *** significant at 15% level.

Source: J. Jongwanich. 2010. Determinants of Export Performance in East and Southeast Asia. *World Economy*. 33(1). pp. 20–41.

macroeconomic fundamentals. However, high-frequency exchange rate movements can be driven by "speculative" elements, especially speculative (short-term) capital flows, rather than by underlying macroeconomic fundamentals. This circumstance would cause not only excessive volatility of the exchange rate but also a significant misalignment of the rate from its equilibrium or fundamental level.

However, the impacts of exchange rate volatility on key variables, especially in developing and emerging market economies, are still inconclusive, and mixed results are found in the recent empirical literature.[15] Although further analysis of the nexus of exchange rate volatility and other key economic variables is still needed, the excessive volatility of exchange rates that emerged from speculative elements is definitely undesirable. Price signals become distorted, and the exchange rate can diverge from its equilibrium level, leading to a destabilized situation in an economy.

Regional concerns on exchange rate management after the crisis

The analysis of exchange rate management in developing Asia shows that most countries have implemented de facto "middle-ground" exchange rate regimes involving extensive intervention in the foreign exchange market. The recent crisis has provided positive support for middle-ground exchange rate management and has highlighted the possible flaws in implementing either hard-pegged or freely floating regimes, the so-called corner solution (Ghosh and Ostry 2009).

However, as mentioned in Part 1, extensive postcrisis intervention in the foreign exchange market could have serious implications for macroeconomic management. The quick and strong economic recovery in developing Asia, together with low interest rates in most developed countries, began to bring huge short-term capital inflows into the region. Given extensive intervention combined with excessive liquidity, real exchange rate appreciation and economic overheating could follow. In particular, the sudden reversal of short-term capital flows could endanger financial and economic stability and bring about a currency and financial crisis.

Exchange rate management

To redress the risks associated with middle-ground exchange rate regimes, central banks in the region should allow the exchange rate to adjust and fall into line with its so-called equilibrium or fundamental level.[16] The equilibrium exchange rate is defined as the exchange rate that simultaneously attains internal and external balances. Internal balance is reached when the economy is at full employment output and operating in a low-inflation environment. External balance is characterized as a sustainable balance-of-payments position over the medium term, ensuring desired net flows of resources and external debt sustainability. Allowing the exchange rate to adjust and fall into line with the equilibrium level has several benefits: it provides a mechanism

for absorbing shocks; exchange rate misalignment can be limited; and allocations of resources can become more efficient. Given capital inflows, it can also help reduce real returns so that incentives to bring in further capital inflows are subdued.

Intervention in the foreign exchange market is still plausible to dampen excessive swings (i.e., volatility) in the exchange rate, which an uncertain and imperfect market can deliver. However, the intervention should be done to mimic the equilibrium exchange rate of a well-functioning market, not override it to produce a nonequilibrium exchange rate.

On a practical basis, defining the equilibrium exchange rate is not straightforward because it is unobservable in the real world. To arrive at the equilibrium level, several issues need to be taken into account, including model specifications and quantitative techniques.[17] One analysis uses an internal and external balance approach to determine the appropriate level of the current account balance and then applies a macroeconomic model to produce the equilibrium exchange rate (Williamson 1994). In another analysis, the concept of uncovered interest rate parity is applied to build an equilibrium exchange rate model (Clark and MacDonald 1998).

Even though establishing a unique level of equilibrium exchange rate seems difficult, it is possible to identify a so-called rational-beliefs range, or band, that is wide enough to encompass the uncertainties of the model and yet sufficiently narrow to have policy implications. International institutions such as the IMF, World Bank, and regional banks could play a role in arriving at such a range and provide policy advice to the governments in the region.

Recent analysis from Cline and Williamson (2010) shows the estimation of the equilibrium exchange rate in 2009 (Table 2.3.5). Compared to the actual exchange rate, the misalignment in the form of undervalued currencies is evident in many developing Asian economies, reflecting significant intervention in the foreign exchange market.

Five economies where undervaluation against the US dollar in December 2009 was significant and more than 20% are the PRC (40.7%); Hong Kong, China (32.3%); Malaysia (30.5%); Taipei,China (28.5%); and Singapore (24.7%). In the Philippines and Thailand, the undervaluation against the US dollar was around 12%–15%. In only three countries (Indonesia, Korea, and India) do exchange rates exhibit a slight overvaluation in response to rapid increases in capital inflows. In terms of a trade-weight average basis, however, Cline and Williamson (2010) show that only four economies do the currencies exhibit noticeable undervaluation, namely the PRC (21.2%); Malaysia (17.7%); Taipei,China (13.6%); and Singapore (10.3%).

Other studies also find exchange rates in the region, especially the yuan, to be undervalued, but the extent of undervaluation varies.

2.3.5 Actual and fundamental equilibrium exchange rates, per US dollar

	Against the US dollar			Against a trade-weighted basis
	FEER	Actual	% change to reach FEER	% change to reach FEER
China, People's Rep. of	4.9	6.8	40.7	21.2
Hong Kong, China	5.9	7.8	32.3	-0.3
India	47	47	-1.5	-5.2
Indonesia	9,884	9,395	-5	-0.6
Korea, Rep. of	1,201	1,164	-3	-0.5
Thailand	29.7	33.3	12.4	-0.4
Malaysia	2.62	3.42	30.5	17.7
Singapore	1.13	1.4	24.7	10.3
Philippines	40	46	14.8	-0.4
Taipei,China	24.9	32	28.5	13.6

FEER = fundamental equilibrium exchange rate.

Source: W. R. Cline and J. Williamson. 2010. Notes on Equilibrium Exchange Rates. *Peterson Institute Policy Brief* 10-2. January.

Bergsten (2010) argues that the yuan is undervalued by almost 25% on a trade-weight average basis and by about 40% against the dollar. Ferguson and Schularich (2009) point to an undervaluation of the yuan relative to the dollar of about 30%–50%. Reison (2009) suggests that the yuan is undervalued by 12%.

Regional cooperation for exchange rate policy and reserve management

Regional cooperation could play a crucial role in ensuring a well functioning middle-ground exchange rate regime. As mentioned, one of the key reasons for extensive intervention in the foreign exchange market is the fear of losing competitiveness. In particular, when the PRC insists on maintaining its limited flexibility of exchange rate, other Asian countries are unlikely to allow the exchange rate to strengthen in response to their balance of payment surplus. To resolve the dilemma, policy coordination among developing Asian economies should be initiated.

Certainly, coordination does not imply putting all the countries in the region in a common exchange rate straight jacket. Indeed, this approach would be inadvisable at this point, given the different stages of development and unlikelihood that all countries would give up their independent monetary policies. However, some sort of loose coordination among these countries could still be possible. Given an equilibrium exchange rate guideline, these countries could agree on a *gradual* adjustment of their exchange rates toward the equilibrium level.

The coordination of exchange rates could also help redress the global imbalance issue that could reemerge in the aftermath of the global crisis. Thorbecke and Smith (2010) show that the adjustment of the PRC currency alone would have very limited effect on trade adjustment in the region but that an across-the-board appreciation of East and Southeast Asian currencies could have more powerful effect in reducing the distortion, especially for the PRC. They use a panel dataset, including the PRC's exports to 33 countries, and find that a 10% yuan appreciation would reduce ordinary (mostly labor-intensive) exports from the PRC by 12% and processed exports (sophisticated, capital-intensive goods) by less than 4%. But a 10% appreciation of all East and Southeast Asian currencies would reduce processed exports from the PRC by 10%.

However, exchange rate adjustments should be viewed as a facilitator for the global imbalance issue only. To solve the imbalance problem, policy measures need to be implemented to reduce precautionary saving in Asian countries and improve the quantity and quality of investment, since the economic fundamentals—saving and investment—in surplus and deficit countries are the key determinants of the imbalance problem (ADB 2009a).

Regional cooperation can also play an important role in reserve management. The recent crisis provided strong evidence for the usefulness of holding foreign exchange reserves to weather financial stress. So it is plausible for developing Asian economies to hold a certain level of foreign exchange reserves to absorb shocks in addition to using

the exchange rate channel. However, holding too many foreign exchange reserves, currently evident in the region, can come with significant costs.

Several initiatives have been introduced, including reserve pooling of US$120 billion through the multilateralized Chiang Mai Initiative (CMI), but the effective drawings on this initiative are very limited. In fact, the region came through the current global crisis with no drawings on the CMI, but with some use of the Federal Reserve's swap facility, suggesting a need to promote a stronger sense of solidarity and the opportunities available in the region.

The Asian Bond Funds and Asian Bond Market Initiative need to be further developed to link the financial systems of the region more closely, but closer coordination will require more dynamism and drive than recently shown. Although the ultimate aim of these initiatives is to develop a deep and dynamic commercial bond market, their basic building block is a strong government bond market, with enough depth to absorb change in foreign demand and to ensure participants sufficient liquidity. Strengthening regional cooperation in these matters could result not only in the better use of foreign reserves but also in the indirect and gradual reduction of foreign reserve holdings for individual countries, allowing the exchange rate to adjust and be in line with its equilibrium level.

Capital account liberalization

Capital and financial liberalization has been implemented in most developing Asian economies since the late 1980s. Restrictions have been gradually phased out with an aim of enhancing a country's capacity to garner the benefits of capital flows. Fundamentally, capital flows should provide benefits to a receiving country because they allow that country to allocate resources more efficiently, to enhance domestic saving, and to transfer technological and managerial know-how. Economies with greater financial openness should also be able to stabilize themselves through risk sharing and portfolio diversification (Ito et al. 2009). However, evidence over the past two decades has led to questions on the costs and benefits of capital and financial liberalization, and over the past decade, it has been blamed as a key factor in the boom-and-bust cycle in many developing countries, including the sudden reversal of capital inflows in the Mexican crisis of the early 1990s and the Asian financial crisis later in the decade.

Blaming capital and financial account liberalization policy for inducing economic instability is, however, inappropriate. Such policy takes place in context with the other two macroeconomic policies (monetary and exchange rate), in the so-called Impossible Trinity or Trilemma hypothesis. The hypothesis states that a country may simultaneously choose any two, but not all, of the following three goals: monetary independence, exchange rate stability, and financial and capital account openness. Policy makers must decide within the constraints of choosing two out of the three policy goals.

As discussed in previous sections, after the 1997 Asian financial crisis, many countries still wanted to preserve their monetary autonomy with extensive intervention in the foreign exchange market. To guard against a possible adverse effect from a significant buildup of capital inflows in the early 2000s, capital restrictions were reintroduced in many developing

countries. For example, in response to the turn in bank flows, the PRC authorities restricted the borrowing of dollars by foreign bank branches in that country in September 2006. Such a restriction was also introduced in Korea in April 2007 and in India in August 2007. In Thailand, the unremunerated reserve requirement on fixed income flows was initiated in September 2006 after measures taken in 2003 to limit the buildup in nonresident holdings of baht accounts had proved unsuccessful.

The index of de jure financial openness constructed by Chinn and Ito (2008)[18] confirms that, after the Asian financial crisis, restrictions on capital accounts were introduced more often in many Asian economies, including Indonesia, Malaysia, and Thailand (Figure 2.3.4). For the rest of developing Asia, de jure financial openness was relatively stable or slightly increasing (i.e., had higher de jure financial index values).

In fact, concerns over capital liberalization and the rapid increase in capital inflows would be limited if:

- A country allows the exchange rate to act as another channel in absorbing shocks.
- The flows are driven by fundamental factors.
- Countries have the absorptive capacity, especially the financial institutions, to deal with such inflows.

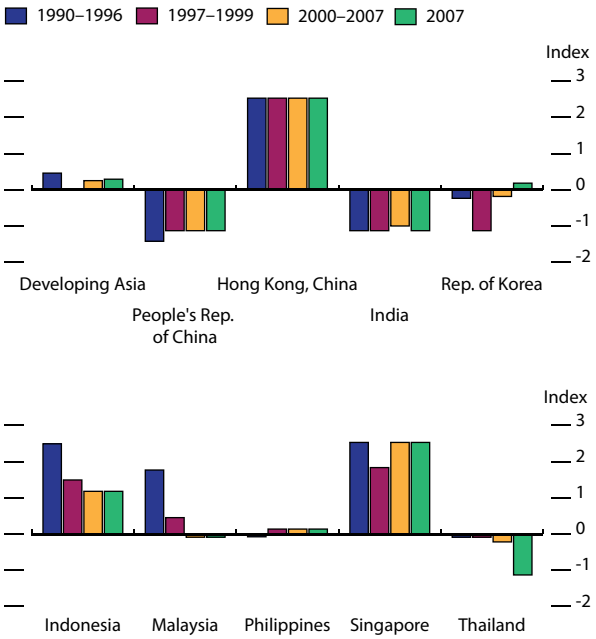
In that case, countries should accept the inevitability of a pickup in international inflows and their consequence, especially on real exchange rate appreciation. However, these conditions, especially allowing the exchange rate to be a channel in absorbing shocks, are not met in most of developing Asia. In such situations, a capital account restriction is needed and viewed as a useful tool to guard against economic instability as well as to preserve monetary autonomy.

A number of empirical studies[19] have found the ability of capital controls to restrict capital movements doubtful. The controls could come with significant costs, especially when they lead to deterioration in the business environment; also, they could lose their effectiveness when they become more permanent, because in time economic agents find ways of evading them. Thus capital restrictions should not be viewed as a long-term tactic.

In the medium to longer term, central banks should allow the exchange rate to adjust and act as a channel in absorbing external shocks, while economies should build their absorptive capacity for dealing with capital flows, especially in the form of finance sector reform and foreign exchange market development (Ito et al. 2009; ADB 2009b). If banks are well capitalized and diversified, they are more resilient to volatile capital flows and exogenous shocks. More developed equity and bond markets could promote greater risk diversification, helping to minimize the financial stability risks associated with capital flows. Hedging instruments, as well as a deep and liquid foreign exchange market, should be gradually developed to reduce excessive swings in exchange rates without the need for much intervention in the foreign exchange market.

Still, using these measures does not preclude implementation of capital restrictions and controls as part of policy instruments that are intended to deal with surging capital flows in the short run, even if a

2.3.4 *De jure* measure of financial openness, selected economies



Notes: The index ranges from -2.5 to 2.6. Higher values indicate higher degrees of financial and capital openness.
Developing Asia is taken to be the nine economies in this figure.

Source: M. Chinn and H. Ito. 2008. A New Measure of Financial Openness. *Journal of Comparative Policy Analysis* 10(3). pp. 309–322.

Click here for figure data

market-driven exchange rate regime is implemented.[20] The justification for imposing some control measures is based on the fact that capital flows are sometimes driven not by fundamental factors but by speculative aims, which are very volatile and disruptive. They tend to produce excessive swings in exchange rates, and a sudden reversal of capital flows can lead to significant misalignments of the exchange rate and endanger financial and economic stability. Instead of either allowing the exchange rate to adjust or implementing a sterilized foreign exchange intervention at the risk of overheating the economy, introducing capital controls could be useful in tackling the problem at its source. In any case, capital restrictions and controls should be well designed and initiated with caution because restrictions could lead to a serious deterioration in market sentiment.

Types of capital account restrictions

Capital controls can be introduced to restrict both capital inflows and capital outflows, but the justifications for their use are slightly different. Although controls on capital inflows are introduced typically during a boom to restrict excessive and volatile capital, restrictions on outflows are normally imposed during a bust to limit downward pressure on a domestic currency and the depletion of foreign exchange reserves. In normal times, restrictions on capital outflows are mainly made to preserve saving for domestic investment, but liberalizing such outflows may act as a safety valve for speculative capital inflows (Box 2.3.3).

Regardless of purpose, capital controls can take two broad forms: administrative and market-based.[21] Administrative control measures restrict capital through outright prohibitions, an approval procedure that is either rule-based or discretionary, and explicit quantitative restrictions. Most administrative control measures seek to directly affect the volume of cross-border financial transactions. This type of control was introduced in many developing countries during the boom periods to restrict capital inflows. For example, in the early 1990s, Malaysia prohibited nonresidents to purchase money market securities and in September 2006, the PRC authorities restricted the borrowing of dollars by foreign bank branches in the PRC.

Market-based controls restrict capital by introducing additional costs associated with cross-border financial transactions. They include:

- Explicit taxes on cross-border financial flows (e.g., the Tobin tax).
- Implicit taxes in the form of non-interest-bearing compulsory reserve requirement (e.g., unremunerated reserve requirements).
- Dual (two-tier) or multiple exchange rate system or other indirect prudential controls (e.g., reporting requirements for specific transactions).

Market-based controls could affect only the price of capital or both the price and volume in cross-border transactions.

Explicit taxation involves the imposition of taxes on external financial transactions or on income resulting from the holding of foreign (or domestic) assets by nonresidents (or residents). Tax rates can be differentiated among the components of capital flows to discourage certain types and maturities. However, many problems can arise. The

2.3.3 Capital outflows liberalization

Easing restrictions on capital outflows is another option to redress the adverse impact of speculative capital inflows. This type of policy allows residents to diversify their risks and mitigates economic overheating, especially when the real exchange rate appreciates as the result of excessive capital inflows. Jongwanich (forthcoming) shows that, after the Asian financial crisis, capital outflows, including both FDI and other forms of capital flows, such as portfolio investment and bank loans, tend to have a greater impact on real exchange rate movements than capital inflows. Among all types of capital flows, portfolio outflows generally have the greatest impact on real exchange rate depreciation.

India and Thailand have initiated a liberalization policy to encourage capital outflows. In 2005, firms in India were allowed to invest up to 200% of their net worth, with an upper limit of $100 million a year, without approval from the Reserve Bank of India, and were permitted to transfer funds through any authorized foreign exchange dealer. In August 2009, the central bank of Thailand relaxed its rule on capital outflows by letting Thai companies with minimum assets of $150 million invest directly in foreign securities without going through mutual or private funds.

Expanding intraregional capital flows is another means to encourage capital outflows, and it should be of particular interest to countries in the region. Recent data show that such flows have been limited: intraregional flows of portfolio investment were only 17% of total portfolio flows in 2007, though up from 9% in 2001. However, stimulating intraregional capital flows would take time because the administrative infrastructure required, particularly in finance sectors throughout the region, would have to be set up.

In addition, the effectiveness of this measure depends on having sufficient pent-up demand for foreign assets. Without it, easing capital outflow controls can lead to repatriation of funds and even to additional net capital inflows. In addition, a key concern for encouraging capital outflows from developing Asia at this stage is that it may support the recycling of excessive saving without a structural adjustment in economic fundamentals.

To improve both the quantity and quality of investment in the region, countries would be better off liberalizing capital outflows while redressing the problems both of excessive saving and the inefficient use of saving.

Source

J. Jongwanich. Forthcoming. Capital Flows and Real Exchange Rates in Emerging Asian Countries. *ADB Economics Working Paper Series*. Asian Development Bank, Manila.

policy measure can be evaded easily through derivative instruments, and how such a tax should be managed is unclear—inefficient management could lead to considerable administrative costs, overwhelming the benefits of the controls.

In contrast to an explicit tax, implicit taxation in the form of unremunerated reserve requirements (URRs) requires banks and nonbanks to deposit a certain share of cross-border transactions at zero interest rate with the central bank for a given time. This measure implicitly reduces effective investor returns and discourages cross-border transactions. The control may be placed on a particular type of capital to discourage a certain maturity of capital transactions.

However, the effectiveness of URRs remains inconclusive because they are sensitive to choice of methodology, including the coverage of flows and the degree of reserve requirements. Le Fort and Lehman (2003) found that URRs reduced the volume of capital flows in the short run but lost effectiveness over time; also that the adverse impacts fell harder on small and medium-sized firms than on large firms with access to a wider range of financing instruments. Edwards (1999) argues that URRs may have protected the financial market in Chile from small shocks but they could not prevent the economy from large shocks (as in the recent crisis). Kawai and Takagi (2008) reviewed evidence of other countries implementing URRs and found the ability of URRs to affect volume and composition of private capital flows doubtful. Implementation of URRs in Thailand in 2006 also showed that the market reaction against the URRs was strong enough to make the authorities reverse policy.

In a dual (two-tier) exchange rate system, a central bank attempts to split the foreign exchange market between residents and nonresidents by either requesting or instructing domestic financial institutions not to lend to borrowers engaged in speculative activity. The two-tier market approach attempts to increase costs for speculators in domestic credit, who need to establish a net short domestic currency position, while allowing nonspeculative domestic credit demand to satisfy normal market exchange rates (Ariyoshi et al. 2000).

This measure generally needs to be implemented in tandem with administrative control measures to directly restrict financial institutions from lending to speculative borrowers. In the late 1990s, this measure was implemented in Thailand, with the goals of segmenting the onshore and offshore markets and of limiting the reversal of capital inflows. Thai banks were required to suspend all transactions with nonresidents who could facilitate a buildup of baht positions in the offshore market. However, because of serious macroeconomic imbalances in the country, the central bank could not defend the position, and the baht leaked out from the onshore market. Eventually, the central bank abandoned the two-tier policy.

Creating effective controls

Designing capital control measures is not an easy task, and no one control measure is effective across all countries at all times. However, past experience suggests that, to enhance the effectiveness of capital control measures, administrative capacity, including the competence of the bureaucratic system, is extremely important, and in many developing Asian economies, it should be improved. The ease with which restrictions are circumvented is mitigated somewhat when a country has a strong monitoring and enforcing system. Johnston and Ryan (1994) show that capital controls implemented in industrial countries were more effective than in developing countries since they could adjust their control measures better in response to the adaptation of speculative investors.

In addition, capital control measures can be more effective if they are imposed on investor-based controls, instead of transaction-based controls. Investor-based control can enable central banks to easily track who is investing in the country and how flows are coming in (Kawai and Takagi 2008). The qualified foreign investor scheme implemented in the PRC and the foreign institution investor classification applied in India are examples of investor-based controls that restrict short-term capital movements. Kimball and Xiao (2005) and Shah and Patnaik (2005) provide evidence of effectiveness of investor-based controls in managing capital accounts in the PRC and India. They also show that the volatility of capital flows in these countries is far lower than in other countries, even in India where a rapid expansion of capital flows has been evident.

Grenville (forthcoming) argues that a normal withholding tax on interest income could become more effective in controlling speculative capital flows if it is levied by the source of investment income, instead of by the investor's country. Finally, the capital control policy could become even more effective if there is cooperation among regional and global bodies. Such cooperation could endorse actions in principle and determine when their use is appropriate.

Fiscal policy

Introduction

In contrast to industrial countries, developing Asia has only limited experience in using government spending and tax changes to smooth the business cycle. Nevertheless, the recent crisis has awakened the region's interest in countercyclical fiscal policy. In fact, countries throughout developing Asia quickly adopted huge fiscal stimulus packages to cushion the impact of the crisis. The stimulus is widely believed to have contributed to the region's surprisingly speedy and robust recovery. What made such a decisive fiscal response possible was the region's healthy state of public finances, the result of a long history of fiscal prudence and discipline. The key challenge now facing the region's fiscal policy is how to contribute meaningfully to sustainable growth in the postcrisis period without compromising its valuable tradition of fiscal sustainability.

Asia's uncharacteristic and unprecedented fiscal activism brings a number of important issues to the fore. First, this section looks at the fiscal stimulus programs implemented by Asian governments. The next logical question is how much the fiscal stimulus in fact contributed to the region's recovery. A related issue is the potential of government spending and tax cuts to contribute to output stability in the postcrisis period. Given the enabling effect of Asia's fiscal space, evident in its relatively low public debt-to-GDP ratio, it would be desirable to empirically validate the conventional wisdom that Asia's public finances are in good shape as a result of responsible fiscal behavior in the past.[22] Two related, forward-looking issues are the implications of the stimulus on the region's medium-term fiscal sustainability; and the role of fiscal policy in addressing Asia's postcrisis medium-term structural challenges, particularly rebalancing growth toward domestic sources.

Size and structure of developing Asia's fiscal stimulus packages

The collapse in exports, coupled with the weakness of private consumption and investment, galvanized Asian governments to introduce fiscal stimulus packages, that is, the discretionary loosening of a government's fiscal stance. This section presents a broad overview of the size and structure of the region's fiscal stimulus.

Measuring the size of the stimulus is complex because of an inherent tendency for the fiscal balance to deteriorate during recessions, as tax revenues fall and government spending rises. With this qualification in mind, taking a look at the fiscal stimulus is still worthwhile. Although the PRC grabbed the headlines with its massive CNY4 trillion ($585 billion) package, which amounted to a huge 13% of GDP, many other Asian countries rolled out large fiscal stimulus programs of their own

(Figure 2.4.1). In fact, the average stimulus size in 15 developing Asian economies was equal to 7.5% of GDP, almost three times the level of 2.8% for the G7 nations. Many countries have since injected additional stimulus. According to Khatiwada (2009), for 2009, the economic stimulus announced by 32 countries (including all the G20 countries) amounted to 1.4% of global GDP, with almost 90% of it coming from G20.

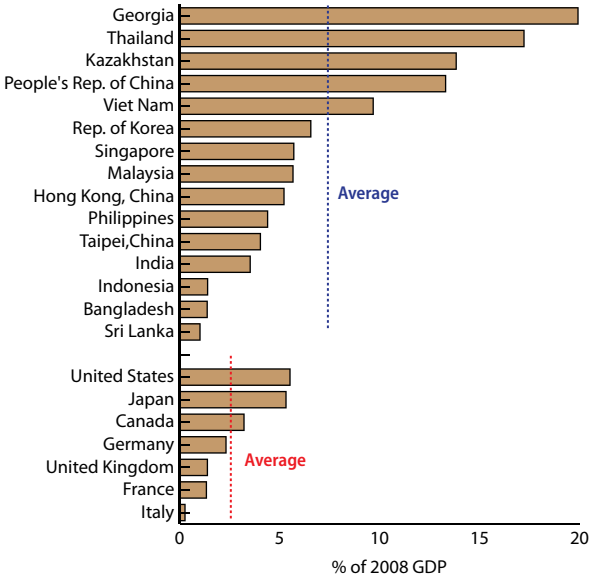
Tax cuts account for more than a third of the stimulus plans of industrial economies, while infrastructure projects make up about half of the packages in "developing and emerging" economies. The share of infrastructure spending in the total fiscal package is three times as high in these economies as in industrial countries (Figure 2.4.2). Developing Asia's fiscal stimulus packages are consistent with this pattern.

Among the G20 countries, implementation rates appear to be higher for revenue measures and social transfers than for infrastructure projects (IMF 2009b). The implementation of capital expenditures usually takes a longer time as the government pronouncement needs to be followed by the allocation of budget, the transfer of resources to different levels of government, the choice of contractors, procurement, and funds disbursement.

Hur, Jha, Park, and Quising (forthcoming) offer a detailed description of the fiscal stimulus programs implemented by 12 major Asian economies. The general picture that emerges is one of heightened fiscal activism during the global crisis. By and large, the evidence supports the view that the developing Asian governments boldly used countercyclical fiscal policy to offset the slowdown of economic activity. The structures of the stimulus packages may differ across countries; for example, the PRC has given high priority to promoting small and medium-sized enterprises, whereas Korea is pushing fiscal measures that will contribute to a cleaner environment. Whatever the makeup of the package, the countries across the region have aggressively boosted public spending and cut taxes to support demand and growth.

On balance, the region's stimulus packages are tilted toward higher spending, particularly on infrastructure investments. Government spending dominates tax cuts as the main component of the fiscal stimulus package, although there are exceptions, such as in Indonesia. This tendency is consistent with the region's long-standing progrowth orientation; more and better infrastructure will benefit growth well beyond the short run. Even given delays in some cases (as in Indonesia, for example), Asian governments have generally rolled out the stimulus measures quickly and decisively. Although the magnitudes of the stimulus packages differ across the countries, the general regional trend was toward stimuli sizable enough to have an effect. Overall, an examination of the fiscal stimulus packages confirms that Asia has in fact proactively used fiscal tools for countercyclical purposes during the global crisis. Such activism marks a sharp departure from the region's traditional fiscal conservatism.

2.4.1 Stimulus plans of selected economies



Source: Y. Zhang, N. Thelen, and A. Rao. 2009. Social Protection in Fiscal Stimulus Packages: Some Evidence. UNDP/ODS Working Paper. http://www.undp.org/developmentstudies/docs/ socialprotection_fiscalstimulus_march2010.pdf

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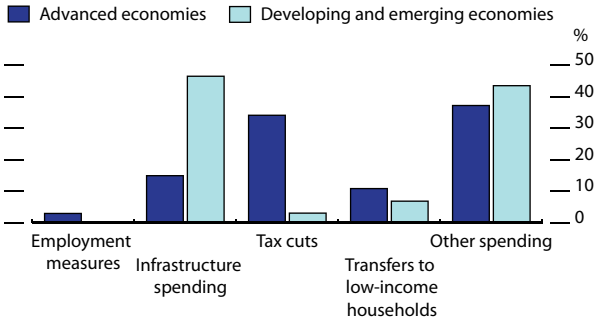
2.4.2 Composition of fiscal packages



Source: S. Khatiwada. 2009. Stimulus Packages to Counter Global Economic Crisis: A Review. International Institute for Labour Studies Discussion Paper 196/2009. http://www.ilo.org/public/english/bureau/inst/publications/discussion/dp19609.pdf. p. 19.

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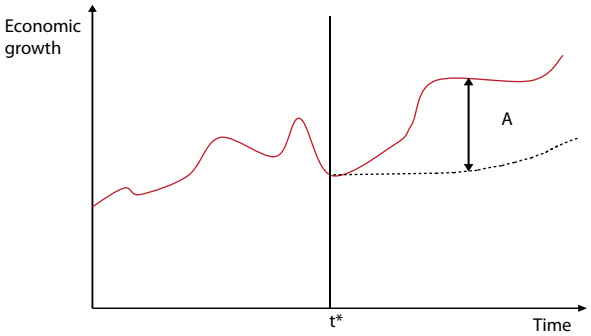
Has Asia's fiscal stimulus contributed to its recovery?

Empirical framework

This subsection provides a broad overview of the methodology and data used for empirical analysis.[23] The sample consists of 18 of the G20 economies, including the PRC, India, Indonesia, and Korea, plus six other developing Asian economies: Hong Kong, China; Malaysia; Philippines; Singapore; Taipei,China; and Thailand. The total sample of 24 countries thus includes eight major industrial countries, six non-Asian developing countries, and 10 developing Asian economies. The data set is an unbalanced panel of quarterly data where the length of each country's data is determined by availability.

Broadly speaking, the empirical framework consists of two stages. The first stage involves using an econometric model to generate dynamic GDP forecasts of each sample country during the global crisis: the fourth quarter of 2008, and the first and second quarters of 2009. This sample period was selected because, during this period and especially the fourth quarter of 2008 and the first quarter of 2009, Asia's crisis-induced downturn reached its peak as a result of collapsing exports and weak private demand. By the second quarter of 2009, some Asian countries already began to recover, and by the third quarter recovery was under way in many more.

2.4.3 Path of forecast and actual output



Note: The solid line represents the path of actual output, the dotted line the path of forecast output, and t* the time the global financial crisis broke out, i.e., the third quarter of 2008.

Source: S. K. Hur, S. Jha, D. Park, and P. Quising. Forthcoming. Did Fiscal Stimulus Lift Developing Asia Out of the Global Crisis? A Preliminary Empirical Investigation. *ADB Economics Working Paper Series*. Asian Development Bank, Manila.

The second stage involves a cross-country regression in which the gap between the actual GDP and forecast GDP is regressed on a number of explanatory variables. Using panel data from the 24 sample countries, the analysis seeks to answer the following question: Which variables help explain why actual GDP growth exceeded forecast GDP during the crisis period?

In Figure 2.4.3, t^* represents the time the global crisis broke out—the third quarter of 2008. The solid line represents the actual output path, and the dotted line represents the forecast output path. The distance A thus represents the gap between the forecast and actual output paths during the crisis. The explanatory variables include lagged domestic GDP growth, global GDP growth, government revenue, government expenditure, the policy interest rate, the term spread, and the real effective exchange rate. Of particular interest is the impact of the two fiscal variables—government revenues and expenditures—on A. The expected effect of expenditures is positive, whereas that of revenues is negative. The expected effect of both lagged domestic GDP growth and global GDP is positive. Lower policy interest rates and smaller term spreads are proxies for expansionary monetary policy. Finally, the depreciation of the real effective exchange rate should boost exports and output.

In addition to these explanatory variables, three interaction variables for government expenditures and revenues are included. Of these, the most important is the dummy for developing Asia, which captures the output impact of fiscal policy for the developing Asian subsample. A

second variable captures the impact of fiscal soundness, and a third variable captures the effect of economic openness on the output impact of fiscal policy.

Empirical results

Table 2.4.1 reports only the statistically significant results of the empirical analysis. For the whole sample of 24 countries, monetary policy variables—policy interest rate and term spread—have a negative and significant effect. Lagged domestic GDP growth has a positive and significant effect. In terms of insignificant results, which are not reported in the table, neither fiscal policy variable—government expenditures and revenues—has a significant effect on the gap between actual and forecast GDP. Global GDP growth and real depreciation are also insignificant. However, interestingly, the interaction term between government expenditures and the dummy variable for developing Asia is positive and significant at the 5% level. Therefore, although government expenditures are insignificant for the whole sample, they are positive and significant for the developing Asian subsample. On the other hand, government revenues are insignificant for the Asian subsample, as they are for the whole sample.

Overall, the empirical results lend support to the popular belief that the fiscal stimulus boosted aggregate demand and output in developing Asia during the global crisis. In particular, government spending appears to have had a positive effect on output. The above results suggest that the fiscal stimulus may have been more effective in developing Asia than elsewhere. This is consistent with the widespread belief that the region's fiscal response was more decisive—that is, quicker and bigger—than in other parts of the world. At a more fundamental level, however, a great deal of caution is needed in interpreting the results, given the narrow time window of the sample period.[24] At best, the empirical analysis marks a preliminary first step toward better understanding the actual contribution of Asia's fiscal stimulus to its remarkable V-shaped rebound. Much more research needs to be done for a more definitive assessment.

2.4.1 Regression results: Dependent variable is gap between actual output and forecast output

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lagged GDP growth	0.750***	0.777***	0.670***	0.703***	0.657***	0.705***	0.640***	0.695***
	(0.11)	(0.10)	(0.11)	(0.10)	(0.12)	(0.11)	(0.13)	(0.13)
Term spread		-0.715*		-0.774**		-0.738*		-0.721*
		(0.37)		(0.37)		(0.38)		(0.39)
Policy interest rate	-1.198**	-1.278***	-1.058**	-1.121**	-1.147**	-1.189**	-1.088**	-1.157**
	(0.48)	(0.47)	(0.47)	(0.45)	(0.5)	(0.49)	(0.54)	(0.53)
Government expenditure for Asian countries			0.283**	0.286**	0.331**	0.318**	0.339**	0.326**
			(0.13)	(0.12)	(0.14)	(0.13)	(0.14)	(0.14)
Observations	60	60	60	60	57	57	57	57
R-squared	0.56	0.57	0.61	0.62	0.63	0.64	0.63	0.64

Note: Standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

Source: S. K. Hur, S. Jha, D. Park, and P. Quising. Forthcoming. Did Fiscal Stimulus Lift Developing Asia Out of the Global Crisis? A Preliminary Empirical Investigation. *ADB Economics Working Paper Series*.

Can countercyclical fiscal policy stabilize output as Asia returns to normalcy?

The evidence of the preceding section supports the belief that developing Asia's unprecedented fiscal stimulus has contributed to the region's recovery. However, there is a risk that policy makers may make unwarranted conclusions about the desirability of countercyclical fiscal policy in the postcrisis period from its apparent effectiveness during the crisis period. To guide them as the region returns to normalcy, this section empirically investigates whether countercyclical fiscal policy helped stabilize output in the precrisis normal times. The section also explores the status of automatic stabilizers in Asia as well as policy directions for improving their effectiveness.

Effectiveness of countercyclical fiscal policy in Asia: Evidence from historical time-series data

The effectiveness of countercyclical fiscal policy depends on the relative importance of tax cuts versus government spending. Intuitively, government spending can be seen as having a higher influence on output because it has a more immediate and direct impact on aggregate demand through government's direct purchase of goods and services (e.g., public works and infrastructure). On the other hand, tax cuts have a smaller impact on aggregate demand because households and firms may save the additional income resulting from tax cuts. Since tax cuts and government spending may have differential effects on output, the composition of fiscal policy matters.

Using historical time-series data from 10 developing Asian economies, Jha et al. (forthcoming) estimate the dynamic effects of unanticipated fiscal shocks. In contrast to the empirical analysis of the preceding section, which examines panel data from a group of countries during the global crisis, the analysis of this section looks at data from individual countries over a much longer time span. Table 2.4.2 shows the short- and long-run impacts of a revenue shock on output. If the discussion is limited to statistically significant effects, a tax cut has a positive short-run effect in Indonesia, Malaysia, and the Philippines and a positive long-run effect in the Philippines. A tax cut has a *negative* effect on Singapore's output in both the short and the long run and on Taipei,China's long-run output. This surprising result may arise from a high propensity to save among households or from leakages through trade and remittances. Table 2.4.3 shows the short- and long-run impacts of positive expenditure shocks on output. If the discussion is limited to statistically significant results, higher government spending has a positive short-run effect in the Philippines and Singapore and a negative long-run effect in Hong Kong, China and Thailand.

Overall, the historical time-series evidence provides at best only limited support for the countercyclical effectiveness of policy in developing Asia, particularly in the South-East Asian economies. In both the short and long run, government spending and tax cuts have a positive effect on output in many countries, but most of the effects are insignificant. This finding strengthens the case for caution against interpreting the apparent usefulness of the anticrisis fiscal stimulus

2.4.2 Impacts of positive revenue shocks (higher taxes) on real GDP (%)

Shocks on	Impacts in	Real GDP
China, People's Rep. of	SR	0.0171
	LR	0.003
Hong Kong, China	SR	-0.0023
	LR	-0.0178
India	SR	-0.0017
	LR	-0.0185
Indonesia	SR	-0.0064*
	LR	-0.0038
Korea, Rep. of	SR	0.0006
	LR	-0.0076
Malaysia	SR	-0.0070*
	LR	-0.0087
Philippines	SR	-0.0119*
	LR	-0.0309*
Singapore	SR	0.0063*
	LR	0.0529*
Taipei,China	SR	0.0003
	LR	0.3959*
Thailand	SR	0.0035
	LR	0.0076

LR = long run; SR = short run.

Note: * significantly different from zero.

Source: S. Jha, S. Mallick, D. Park, and P. Quising. Forthcoming. Whither Tax Cuts or Government Spending? Some Evidence from Developing Asia. *ADB Economics Working Paper Series*.

2.4.3 Impacts of positive expenditure shocks on real GDP (%)

Shocks on	Impacts in	Real GDP
China, People's Rep. of	SR	0.0065
	LR	-0.01
Hong Kong, China	SR	-0.0015
	LR	-0.0174*
India	SR	0.0027
	LR	-0.0526
Indonesia	SR	-0.0004
	LR	0.0018
Korea, Rep. of	SR	0.0086
	LR	-0.0083
Malaysia	SR	0.0023
	LR	0.0098
Philippines	SR	0.0053*
	LR	-0.0113
Singapore	SR	0.0057*
	LR	0.023
Taipei,China	SR	-0.0021
	LR	0.1073
Thailand	SR	-0.0017
	LR	-0.0577*

LR = long run; SR = short run.

Note: * significantly different from zero.

Source: S. Jha, S. Mallick, D. Park, and P. Quising. Forthcoming. Whither Tax Cuts or Government Spending? Some Evidence from Developing Asia. *ADB Economics Working Paper Series*.

as a mandate for pursuing greater fiscal activism beyond the crisis. The limited evidence in favor of countercyclical fiscal policy is perhaps unsurprising given the relative absence of countercyclical fiscal policy in the region. For example, in comparison to the industrial countries, automatic stabilizers remain underdeveloped in developing Asia. Therefore, one policy option for improving the countercyclical effectiveness of fiscal policy in the region is to strengthen automatic stabilizers (Box 2.4.1).

State of fiscal health in Asian countries

What enabled Asian governments to quickly unleash big stimulus packages was ample fiscal space built up over years of sustained fiscal prudence. Fiscal space will also help the region's governments cope with large shocks in the future. This section assesses the state of fiscal health in developing Asia by examining the evolution of fiscal balances and public debt across the region and over time. It also explores the response of the ratios of primary fiscal balances to public debt in order to assess whether Asian governments have made the necessary adjustments to deteriorating debt positions. Primary fiscal balance (the overall fiscal balance minus interest payments on public debt) is especially important because it provides an indication of current fiscal effort. Interest payments are predetermined by the size of budget deficits in the past.

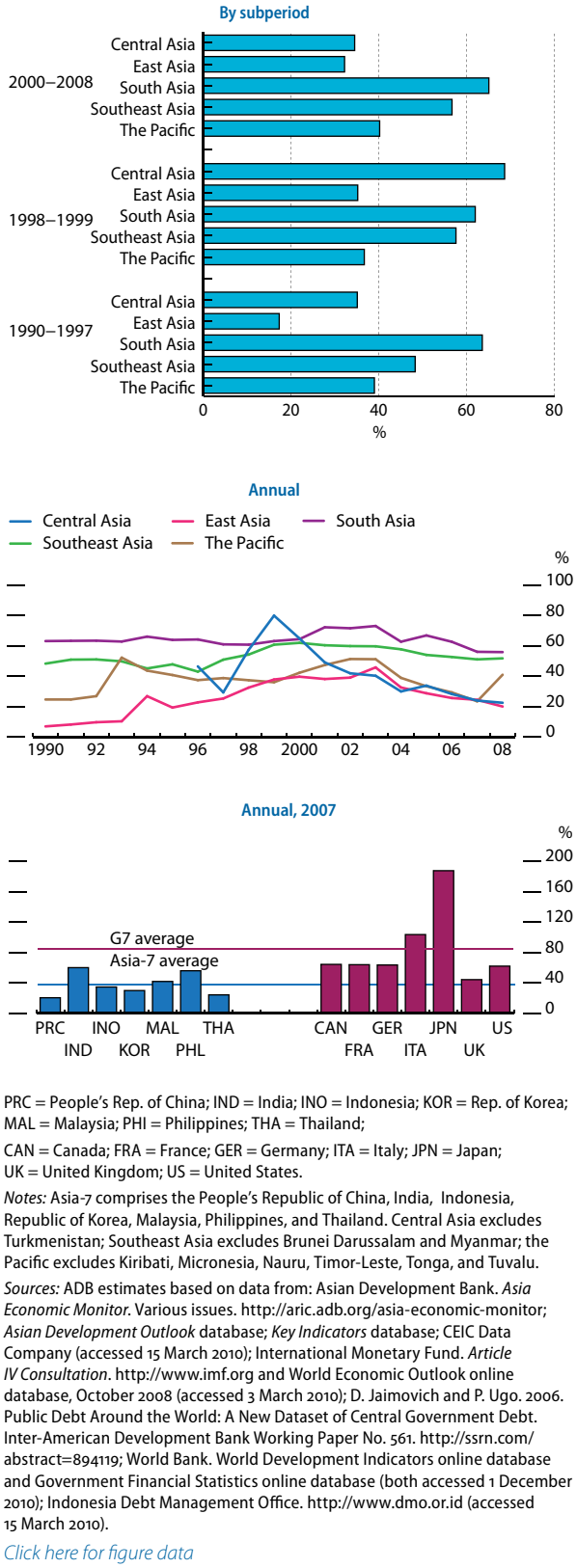
Fiscal balances and public debt in developing Asia

Fiscal sustainability refers to whether the government budget can be smoothly financed without generating explosive increases in public debt (or money supply) over time. When this condition is met, the budget is said to be sustainable; when it is not, it is unsustainable. Even though fiscal sustainability is very important, there is no universal agreement about how best to assess it. However, a descriptive analysis of the evolution of debt ratios and fiscal balances over time, combined with estimates of fiscal policy reactions—how governments have traditionally responded to rising debt levels—can be useful tools in assessing the prospects for fiscal sustainability.

Table 2.4.4 and Figures 2.4.4 and 2.4.5 display key fiscal indicators for the region for 1990–2008 as a whole and over three subperiods. To highlight relevant shifts in the indicators, the three subperiods chosen are the years leading up to, during, and after the Asian crisis of 1997–98. In line with ADB classifications, the region is broken down into five subregions: Central Asia, East Asia, South Asia, Southeast Asia, and the Pacific. Both overall and primary fiscal balances in Table 2.4.4 are measured as the difference between receipts and spending so that a positive sign implies a fiscal surplus and a negative sign, a deficit.

Several descriptive observations can be made on the basis of the fiscal indicators shown:

2.4.4 Debt-to-GDP ratios



PRC = People's Rep. of China; IND = India; INO = Indonesia; KOR = Rep. of Korea; MAL = Malaysia; PHI = Philippines; THA = Thailand;

CAN = Canada; FRA = France; GER = Germany; ITA = Italy; JPN = Japan; UK = United Kingdom; US = United States.

Notes: Asia-7 comprises the People's Republic of China, India, Indonesia, Republic of Korea, Malaysia, Philippines, and Thailand. Central Asia excludes Turkmenistan; Southeast Asia excludes Brunei Darussalam and Myanmar; the Pacific excludes Kiribati, Micronesia, Nauru, Timor-Leste, Tonga, and Tuvalu.

Sources: ADB estimates based on data from: Asian Development Bank. *Asia Economic Monitor.* Various issues. http://aric.adb.org/asia-economic-monitor; *Asian Development Outlook* database; *Key Indicators* database; CEIC Data Company (accessed 15 March 2010); International Monetary Fund. *Article IV Consultation*. http://www.imf.org and World Economic Outlook online database, October 2008 (accessed 3 March 2010); D. Jaimovich and P. Ugo. 2006. Public Debt Around the World: A New Dataset of Central Government Debt. Inter-American Development Bank Working Paper No. 561. http://ssrn.com/abstract=894119; World Bank. World Development Indicators online database and Government Financial Statistics online database (both accessed 1 December 2010); Indonesia Debt Management Office. http://www.dmo.or.id (accessed 15 March 2010).

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2.4.1 Automatic stabilizers in developing Asia

What are they?

Automatic stabilizers are taxes and transfers that change automatically to dampen economic cycles without requiring any explicit action by the government. Such countercyclical stabilizers are triggered by built-in tax codes or spending rules that increase net government expenditure in a downswing and reduce it in a boom. For example, public spending on food stamps or employment programs automatically goes up as more people apply for benefits.

Why are they useful?

Instituting automatic stabilizers for countercyclical stabilization has several advantages. Above all, they are not only endogenous and predictable but also timely, targeted, and temporary, thereby promoting economic stability and social protection without jeopardizing fiscal sustainability.

Once designed and established, automatic stabilizers have the advantage of being outside the political process and thus free from political interference. This is an especially important feature for developing countries where discretionary fiscal policy may be inefficient and inequitable due to weak institutions, governance, and policy environment. In addition, automatic stabilizers have a strong element of social protection and social safety nets.

However, allocating benefits on the basis of need rather than political economy factors requires good design, implementation, and governance.

Industrial versus developing economies

Industrial economies typically support automatic stabilizers such as progressive and well-administered income taxes, corporate taxes, indirect taxes, and committed social spending, all of which are rule-based (and so they automatically adjust during economic swings and contain a pro-poor element). The larger governments of Europe have built strong automatic stabilizers.

In contrast, most poor countries have very small governments and weak automatic stabilizers. Their income taxes and transfer programs are thus too limited to have a sizable impact (Box table).

Moreover, in low-income countries, automatic stabilizers are procyclical due to institutional failures and a lack of access to finance during economic downturns (Kraay and Servén 2008). Developing economies usually rely on discretionary fiscal policies that are often not designed to stabilize the economy. Empirical evidence from the past 30 years suggests limited success of these countries in using discretionary fiscal policy to stabilize output fluctuations (Kraay and Servén 2008).

Overall, conventional stabilizers are weak on the revenue side, and very few exist on the expenditure side. Income

Selected fiscal indicators of different income groups of countries

Country group	Total spending/ GDP (%)	Direct taxes (+ social security contributions)/ total revenue (%)	Transfers/GDP (%)
Low income	19.5	26	6.5
Middle income	27.8	35.6	11.1
High income	32.9	53.6	18.4

Source: Luis Servén. 2009. Comments on Antonio Fatás, Workshop on fiscal policy. IMF. June. http://www.imf.org/external/np/seminars/eng/2009/fispol/pdf/serven.ppt

- For the period as a whole and across the region, fiscal balances are narrowly dispersed.[25] Fiscal balances are in small deficits over the entire 1990–2008 period, but the deficits are somewhat higher in the Pacific and especially in South Asia (at over 5% of GDP). With the exception of Central and South Asia, which were not hit hard by the Asian crisis,[26] other subregions saw their fiscal deficits increase in the late 1990s, but the deficits were then generally pared back.
- Across the entire period, the experiences with primary fiscal balances range widely, with some subregions averaging surpluses and others averaging deficits. Southeast Asia, however, is the only subregion running a large primary surplus, whereas subregions such as South Asia have on average been running relatively large and persistent primary deficits.
- With the exception of the Pacific grouping, where government spending and revenues are close to or above 40% of GDP, the average levels of government spending and revenues across the region are relatively low and clustered mainly at the low end of the 20%–25% of GDP range. These ratios are well below the averages in many other parts of the world, particularly in developed Europe.

2.4.1 Automatic stabilizers in developing Asia (*continued*)

taxes are not necessarily progressive, and they are often poorly administered and riddled with evasion. Weak fiscal institutions and poor enforcement result in low tax revenue. Another reason for weak stabilizers in developing economies is inefficient delivery mechanisms for social spending, such as employment guarantees.

Among Asia's social protection policies, social insurance and social assistance and welfare programs account for most of the automatic stabilizers.[1] Yet, in as many as 15 of 32 Asian economies, these programs account for barely 2% or less of GDP. Hence, such spending is largely ineffective from an economic perspective.

Designing effective automatic stabilizers

A major problem with discretionary welfare programs is the political difficulty in withdrawing them once economic conditions improve. The effectiveness of such spending will increase if it is based on a set of well-defined criteria and is not discretionary.

To provide insurance against recessions, automatic stabilizers must be countercyclical. This can be done, for example, by making expenditure decisions automatic through legislatively mandated increases if food price inflation exceeds a certain prespecified level.

To be cost effective, social programs must also be designed to be pro-poor. For example, food and fuel subsidies distort prices, do not target the poor well, and can be replaced by cash transfers. Moreover, identification of the target group eligible for social programs should be made dynamic so that the list of beneficiaries automatically adjusts in tandem with changing economic conditions. Although the administrative costs of identifying beneficiaries can be high, the costs can be offset by more efficient delivery mechanisms.

Making spending on social insurance and social assistance pro-poor boosts their impact on demand as well because the poor tend to spend more out of additional income. Introducing incentives can also create a pro-poor stabilization effect in social programs (Ravallion 2009). For example, fixing wages in employment guarantee programs at suitable levels enhances self-selection of the poor to the programs.

As developing Asia emerges from the crisis, it is time to build automatic stabilizers with desirable characteristics to better prepare the region for future shocks. One big advantage of well-designed stabilizers is that they do not threaten fiscal sustainability.

At the same time, the capacity to design and implement effective and efficient stabilizers depends critically on the level of institutions and governance. In countries where these are inadequate, strengthening the overall fiscal policy environment must precede the establishment of stabilizers.

[1] Social insurance programs cover the risks associated with unemployment, sickness, maternity, disability, industrial injury, and old age. Social assistance and welfare programs include programs targeted at the disabled, the indigent, those affected by disasters, and other vulnerable groups, cash in-kind transfers, and temporary subsidies for utilities, housing, and other needs.

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- Public debt ratios in the region display considerable heterogeneity and variation over time. Across much of the region, public debt ratios have on average been relatively low (below 40%–50% of GDP), with the notable exceptions of Southeast and South Asia. In Southeast Asia, the ratio has been in the range of 50%–60% of GDP in the period since the Asian crisis. In South Asia, on the other hand, the ratio has been persistently above 60%. Public debt rose sharply in Central Asia in the late 1990s but then was brought down by means of a number of fiscal adjustment and debt restructuring programs.
- Across the region, interest payments on the public debt have been around 1%–3% of GDP and show no clear tendency to increase over time. Generally, subregions with the highest debt-to-GDP ratios also have the highest levels of interest payments relative to GDP. However, the relationship between interest payment and debt is not always very close since it is influenced by funding costs, including access to concessionary funding.

2.4.4 Fiscal indicators, percentage of GDP

Subregion	Period	Public debt	Primary surplus	Fiscal surplus	Government expenditure	Government revenue	Interest payments
Central Asia	1990–1997	35.1	-4.7	-7	21	14	1.3
	1998–1999	68.7	-3.5	-5.5	20.2	14.7	1.4
	2000–2008	34.5	1	0.2	25	25.2	0.8
	All years	38	0.3	-0.7	24.3	23.6	0.9
East Asia	1990–1997	17.3	-0.8	-1.4	18.2	16.7	1
	1998–1999	35.2	-3.5	-3.7	23.8	19	1.7
	2000–2008	32.2	0.9	0.2	21.8	22	1
	All years	27	-0.2	-0.8	20.7	19.7	1.1
Southeast Asia	1990–1997	48.3	4.8	2.4	19.4	21.8	2.8
	1998–1999	57.6	-1	-2.8	21.4	18.7	2.1
	2000–2008	56.7	0.3	-1.7	20.7	19.1	2.2
	All years	53.9	1.7	-0.4	20.3	20	2.4
South Asia	1990–1997	63.6	-2.6	-6	27.5	21.6	3.3
	1998–1999	62	-1.9	-5	24	19.1	3.1
	2000–2008	65.1	-2.1	-5.1	25.5	20.5	2.9
	All years	64.2	-2.3	-5.4	26.1	20.8	3.1
The Pacific	1990-97	39	1.9	-0.2	38.7	38.5	2.4
	1998-99	36.7	-0.5	-2.1	36.4	34.3	2.2
	2000–2008	40.2	-1.7	-2.4	42.7	40.1	1.5
	All years	39.5	-0.4	-1.7	40.7	38.9	1.8

Source: As Figure 2.4.4.

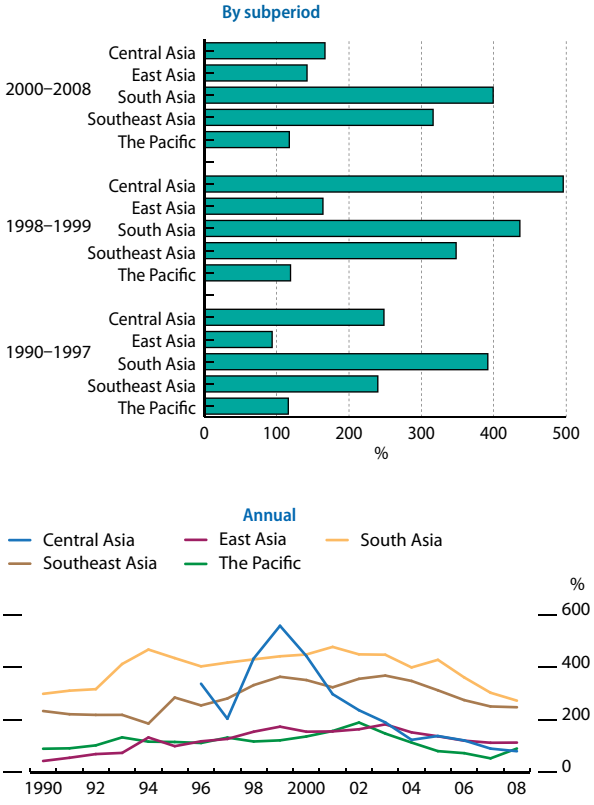
The balance of evidence from the evolution of fiscal balances and public debt across developing Asia over time indicates that the region is in relatively good fiscal shape.

Asia's tradition of fiscal responsibility: Fiscal reaction functions

Fiscal reaction functions are a powerful tool in assessing debt sustainability because they involve so-called decision rules for primary fiscal balances, particularly for how primary balances respond to change in public debt and other variables. Intuitively, the basic assumption is that primary surpluses tend to increase as public debt increases over time, thus supporting sustainability. The intensity with which primary surpluses adjusts to rising public debt is a good measure of fiscal adjustment efforts in the past. Ultimately, it gives some indication of Asian governments' capacity to deal responsibly with both current and future debt pressures (even though of course the past is a less than perfect guide to future).

The fiscal reaction tests, based on broad and representative samples of countries over the period 1990–2008, point to a significant degree of responsibility in managing public debt. The empirical framework is based on Mendoza and Ostry (2007). The first four columns of Table 2.4.5 report the estimation results from a number of regression models based on data from an unbalanced panel of the whole sample of 33 developing Asian economies. The last four columns do the same for a balanced

2.4.5 Debt-to-revenue ratios



Notes: Central Asia exclude Turkmenistan. Southeast Asia excludes Brunei Darussalam and Myanmar. Pacific excludes Kiribati, Micronesia, Nauru, Timor-Leste, Tonga, and Tuvalu.

Source: As Figure 2.4.4.

Click here for figure data

2.4.5 Primary surplus: Econometric estimation results, 1990–2008

Regressors	Large sample (33 developing Asian economies)				Small sample (7 developing Asian economies)			
	(1) FGLS (linear)	(2) OLS FE (linear)	(3) SGMM (linear)	(4) FGLS (quadratic)	(5) FGLS (linear)	(6) OLS FE (linear)	(7) SGMM (linear)	(8) FGLS (quadratic)
L.debt	0.0578***	0.12445***	0.1279	0.1651***	0.04973***	0.06253***	0.0733***	-0.0637*
L.debt^2				-0.0009***				0.0011***
GDP Gap	0.0987***	0.1503	0.1733*	0.1096***	0.08141***	0.05428*	0.1408***	0.08147***
GEXP Gap	-0.1333***	-0.1263***	-0.1575***	-0.1421***	-0.1648***	-0.16143***	-0.1843***	-0.1614***
Observations	417	384	384	417	126	119	119	126

FGLS = feasible generalized least squares; OLS FE = ordinary least squares within-estimator, allowing for fixed (country) effects; SGMM = system general method of moments.

Notes:

For a description of the regression models, please refer to C. Adams, B. Ferrarini, and D. Park. Forthcoming. Fiscal Sustainability in Developing Asia. *ADB Economics Working Paper Series*. Asian Development Bank, Manila.

The regression is based on two-tailed Wald tests of zero coefficients (* significant at 10%; ** significant at 5%; *** significant at 1%).

L.debt: Debt-to-GDP ratio lagged one year (using two-year averages in regressions involving the sample of all economies).

L.debt^2: Squared debt-to-GDP ratio lagged one year (using two-year averages in regressions involving the sample of all economies).

GDP Gap: GDP deviation from Hodrick-Prescott trend, in %.

GEXP Gap: Total government expenditure deviation from Hodrick-Prescott trend, in %.

Economies included:

Large sample (33): Afghanistan; Armenia; Azerbaijan; Bangladesh; Bhutan; Cambodia; People's Rep. of China; Fiji Islands; Georgia; Hong, Kong, China; India; Indonesia; Kazakhstan; Rep. of Korea; Kyrgyz Rep.; Lao People's Dem. Rep.; Malaysia; Maldives; Marshall Islands; Mongolia; Nepal; Pakistan; Palau; Papua New Guinea; Philippines; Solomon Islands; Sri Lanka; Taipei,China; Tajikistan; Thailand; Uzbekistan; Vanuatu; and Viet Nam.

Small sample (7): People's Rep. of China, India, Rep. of Korea, Indonesia, Philippines, Malaysia, and Thailand.

Source: As Figure 2.4.4.

panel of seven regional countries. In all the estimation equations, the dependent variable is the primary fiscal surplus and the key independent variable is the lagged value of the debt ratio. Additional variables include the square of lagged debt, which captures nonlinear fiscal response to debt, and two control variables—primary government spending relative to trend and output gap—which capture temporary influences on fiscal policy.

The central result from the regressions for both the whole sample and the subsample is that lagged public debt has a significant and positive effect on primary fiscal balance, where both variables are defined as shares of GDP. The implication is that countries tighten their fiscal stance in response to a deterioration of the debt position. The estimated coefficients for lagged debt are also broadly in line with other studies (such as IMF 2003; Mendoza and Ostry 2007). The estimated coefficients for the two control variables have the expected sign and are significant. All in all, the results are consistent across different regression models and thus lend fairly robust support to the hypothesis of a fiscally responsible Asia.

The basic thrust of the estimation results is best grasped visually. Figures 2.4.6 and 2.4.7 show the estimated relationship between primary fiscal surpluses and the previous period's public debt, each as a share of GDP. Figure 2.4.6 is derived from the whole sample; Figure 2.4.7, from the subsample of seven countries. A prevalence of responsible fiscal policies would entail upward-sloping fiscal reaction functions, that is, Asian governments on average expand primary surpluses in reaction to heightened public debt. Both figures depict an upward-sloping reaction

function, but they take different shapes, reflecting the different underlying samples of countries.

Countries obviously differ sharply in terms of both the average level and the variability of fiscal balances and public debt, as well as in their capacity to react to increasing debt pressures. Although the results hide country-specific factors and are not representative of all the sample countries, they do suggest that, on average, primary fiscal balances in the region respond in a stabilizing manner to increases in debt ratios.

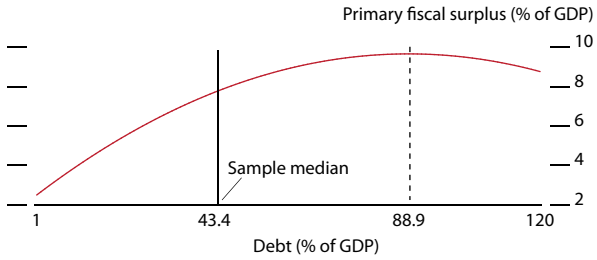
Moreover, the nonlinear shape of the fiscal reaction functions provides some evidence of differential effects whereby the primary balance function either has a U shape or an N shape. In a U-shaped function, fiscal adjustment first moderates as debt ratios increase but then strengthens when a certain critical debt ratio is reached—a wake-up call effect. In an N-shaped function, fiscal response initially strengthens but falters when debt levels reach very high levels—a fatigue effect. Importantly, Figures 2.4.6 and 2.4.7 show that in the U-shaped function the turning point lies well below the median debt ratio, whereas in the N-shaped function the turning point lies well above it. In other words, most countries fall within the upward-sloping section of the estimated reaction functions, suggesting that the region as a whole has been fiscally responsible.

Based on these results, two broad conclusions can be drawn:

- Across the region, the evidence is consistent with a statistically significant positive response of the primary surplus-to-debt ratios, that is, consistent with stabilizing behavior. Reflecting considerable heterogeneity across countries and over time, however, the average fiscal behavior in the region is not easily captured by a single one-size-fits-all specification of the linkage between primary fiscal balances and debt ratios.
- The evidence is consistent with nonlinear responses of the primary balance-to-debt ratios and with the existence of debt tipping points. These may be of either the U- or the N-shape kind, with different implications for the effects of fiscal slippages on the adjustment effort.

Overall, the evidence in this section confirms the view that developing Asia enjoyed healthy public finances as it entered the crisis. The fiscal space that allowed the region to implement an unprecedented fiscal stimulus during the crisis was the result of a tradition of fiscal prudence. This tradition includes making necessary fiscal adjustments in response to rising debt ratios. Maintaining fiscal prudence will be pivotal to securing the fiscal space the region will need to tackle future shocks, but the evidence of this section provides grounds for optimism about the region's capacity to do so.

2.4.6 N-shaped primary balance response function

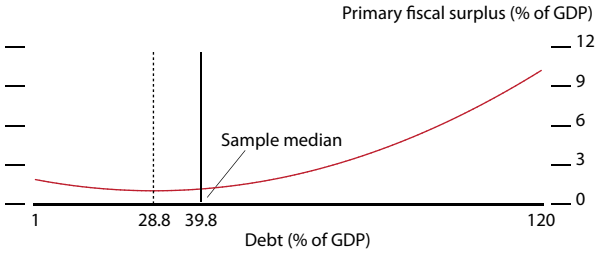


Note: Based on feasible generalized least squares regression on the whole sample. Debt data are 2-year averages, with 1-year lag.

Source: As Figure 2.4.4.

Click here for figure data

2.4.7 U-shaped primary balance response function



Note: Based on feasible generalized least squares regression on a sample of seven countries: People's Republic of China, India, Indonesia, Republic of Korea, Malaysia, Philippines, and Thailand. Debt data are lagged 1 year.

Source: As Figure 2.4.4.

Click here for figure data

Fiscal sustainability in the postcrisis period and fiscal policy for rebalancing

The preceding section confirmed that developing Asia entered the global crisis in good fiscal shape. However, as the crisis recedes, concerns are growing about the impact of the region's anticrisis fiscal stimulus on its fiscal sustainability. The first subsection projects the postcrisis evolution of the region's debt position under three assumptions about the normalization of fiscal policy. As examined extensively in ADB (2009a), the single biggest structural challenge facing developing Asia in the postcrisis period is its rebalancing in the direction of domestic demand. In this context, the second subsection examines the potential contribution of fiscal policy to this rebalancing in four regional countries.

Effect of anticrisis fiscal stimulus on Asia's debt sustainability

This section analyzes the implication of the region's anticrisis fiscal stimulus on its debt sustainability. Three alternative scenarios about the unwinding of the stimulus are applied to a group of countries for whom detailed projection data are available.

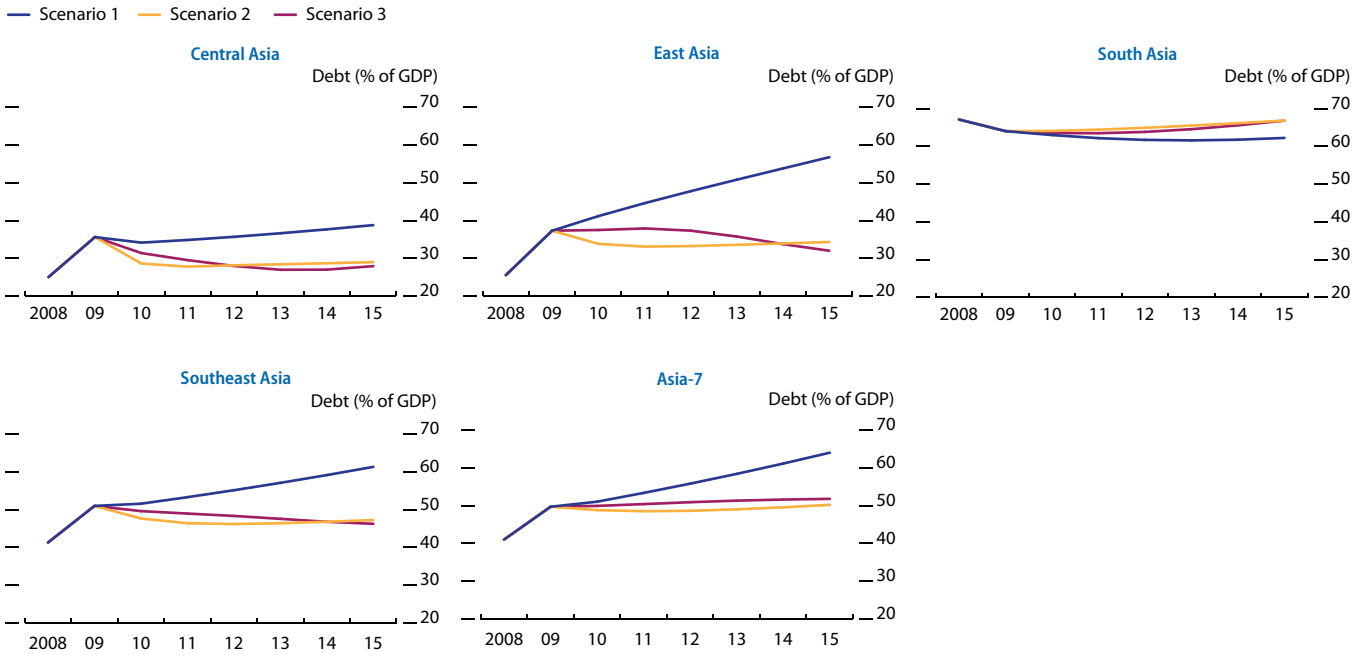
The first scenario—Scenario 1—holds fiscal stimuli constant at their 2009–10 levels and projects the implications for debt ratios on the basis of projected nominal GDP in *Asian Development Outlook*. A further assumption is that interest rates will rise gradually from their current low levels in the context of monetary policy normalization.

Scenarios 2 and 3 are based on the fiscal policy reaction functions estimated in the previous section and allow for the fiscal stimulus to be unwound on the basis of historical adjustment patterns. To incorporate regional heterogeneity into these scenarios, the projections use the upper and lower bounds for the 95% confidence intervals for the average value of the fiscal adjustment to debt ratios.[27] An upper bound of 0.08 is used to capture very forceful fiscal adjustment—Scenario 2—and the lower bound of 0.04 is used to capture much slower fiscal adjustment—Scenario 3.

The baselines for the last two scenarios incorporate estimates of the fiscal balances for the selected group of countries in 2009 and 2010. As indicated in Figure 2.4.8, a failure to unwind the stimulus after 2010 would generally lead to elevated public debt ratios and, in some instances, a sharp escalation above current levels. The key exception to this pattern is in South Asia, where rapid GDP growth in relation to interest rates contributes to a steady decline in the debt ratio.

Therefore, generally, delaying the removal of the stimulus for too long is undesirable, especially for countries with borderline fiscal sustainability that cannot afford sharp rises in debt ratios. As expected, forceful fiscal adjustment generally brings about sharper declines in debt ratios than does moderate fiscal adjustment. However, the dynamics of the model, along with the narrowing of the gap between growth rates and interest rates over the projection period, imply that the difference between these adjustment paths is not always very large. Intuitively, in the near term, the combination of rapid cyclical recovery and low interest rates means that continued large fiscal deficits does not necessarily lead to large increases in debt-to-GDP ratios. Over time, however, as the gap between

2.4.8 Fiscal stimulus unwinding scenarios



Notes:

Scenario 1: Fiscal stimuli constant at 2009/2010 level. Scenario 2: Forceful adjustment of the primary balance (rho=0.08). Scenario 3: Modest adjustment of the primary balance (rho=0.04).

Asia-7 comprises the People's Republic of China, India, Indonesia, Republic of Korea, Malaysia, Philippines, and Thailand. Central Asia excludes Turkmenistan. East Asia excludes Hong Kong, China; Mongolia; and Taipei,China. Southeast Asia excludes Brunei Darussalam, Cambodia, and Singapore. South Asia excludes Afghanistan, Bhutan, Maldives, and Nepal.

Source: As Figure 2.4.4.

Click here for figure data

growth rates and interest rates tends to narrow, pressure on public debt ratios start to increase if fiscal deficits remain large.

Based on the scenario results, the need to unwind fiscal stimulus packages differs across countries and regions. Countries with currently high debt need to unwind at a faster pace than in the past, especially in circumstances where the gap between growth rates and interest rates may be narrowing. On the other hand, it may be possible for countries with more fiscal space to maintain their fiscal stimulus for somewhat longer. Even in those cases, however, it is vital that the governments put in place an effective and credible medium-term plan for fiscal normalization. Overall, the scenario results indicate that all countries must guard against a deterioration of fiscal sustainability due to the fiscal stimulus, especially in the medium term.

The role of fiscal policy in developing Asia's rebalancing process

By definition, the fiscal stimulus programs rolled out by Asian governments during the global crisis contribute to rebalancing because they strengthen domestic demand. However, rebalancing based on public spending is at best a short-term solution to the region's quest for balanced, sustainable growth in the postcrisis world. Beyond the crisis, sustainable rebalancing that weans the region from its excessive dependence on exports requires robust private consumption and investment. The key to strengthening Asia's private consumption and investment in the medium and long term is to remove the structural

impediments and distortions that has constrained domestic demand and favored the production of exportable goods. Fiscal policy can play a useful role in removing such impediments and distortions, but the specific role of fiscal policy in the rebalancing process will differ from country to country.[28]

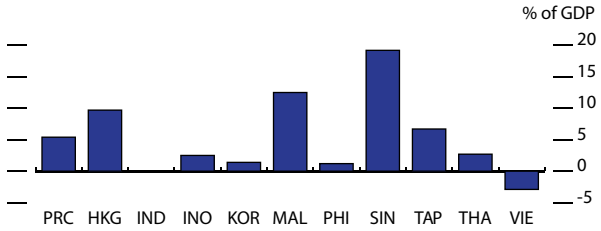
The great deal of heterogeneity in the region's current account positions (Figure 2.4.9) implies that the rebalancing process will necessarily differ across countries. For example, some countries are already more or less balanced; so their need for rebalancing demand is limited. In some countries, the current account surplus may be the result of oversaving, but in others it may reflect underinvestment. The appropriate remedy for rebalancing will differ according to the source of the imbalance. Countries suffering from oversaving will need to create an environment that encourages households to consume more. Countries suffering from underinvestment will need to create a better investment climate to induce firms to invest more. As different Asian economies thus face different challenges in terms of rebalancing their economies, the role of fiscal policy in the rebalancing process is likely to vary.

In the case of the PRC, the balance of evidence indicates that the external surplus is overwhelmingly driven by oversaving (Figure 2.4.10). Therefore, in the PRC, the role of fiscal policy in the rebalancing process should be to boost domestic consumption. Specifically, reallocating public spending from investment to health care, education, pensions, social protection, and social safety nets would mitigate the risk and uncertainty confronting PRC households and encourage them to spend more. Increased social spending is preferable to tax cuts as a means of promoting consumption. Given the small number of income tax payers in the PRC, tax cuts will have only a limited effect on overall consumption and domestic demand.

Among specific consumption goods, housing deserves particular attention because it is the major driver of private consumption in the PRC. In this context, fiscal policy can play a key role in both the supply and the demand side of housing. A wide range of fiscal subsidies and incentives could be introduced to attract the participation of the private sector in low-income housing. Consumers would benefit from tax exemptions, cash subsidies, or housing allowances and capital grants.

In contrast to the PRC, Korea's current account position has been more or less balanced, averaging 1.4% during 2000–2008. Therefore, rebalancing primarily by shifting aggregate demand from exports to domestic demand is not relevant for Korea. The severe impact of the global crisis on Korea can be explained by the disproportionate role of manufacturing in the economy (Figure 2.4.11). Therefore, rebalancing requires instead a supply-side shift in the composition of output from manufacturing to services (Ha, Lee, and Sumulong 2010). Given the need

2.4.9 Average current account balance for 2000–2008, selected Asian economies

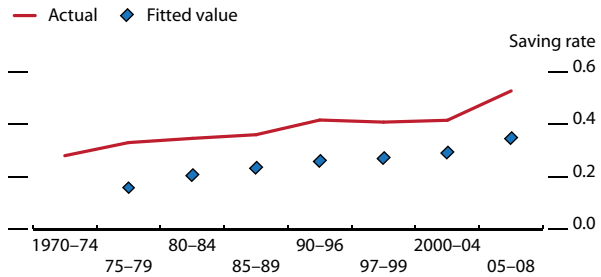


PRC = People's Rep. of China; HKG = Hong Kong, China; IND = India; INO = Indonesia; KOR = Rep. of Korea; MAL = Malaysia; PHI = Philippines; SIN = Singapore; TAP = Taipei,China; THA = Thailand; VIE = Viet Nam.

Source: Asian Development Outlook database.

Click here for figure data

2.4.10 Actual and fitted value of saving rate, People's Republic of China



Note: The model that generated the fitted values is that of Park and Shin (2009) and includes standard explanatory variables used in much of the literature, including GDP growth rate, level of per capita GDP, and demographic variables.

Sources: Estimates of Park and Shin (2009) based on data from A. Heston, R. Summers, and B. Aten, Penn World Table Version 6.2, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, September 2006; B. Bosworth and G. Chodorow-Reich. 2007. Saving and Demographic Change: The Global Dimension. http://ssrn.com/abstract=1299702; International Monetary Fund. International Financial Statistics online database (accessed 8 January 2009); World Bank. *World Development Indicators*. Various issues. Washington, DC: World Bank.

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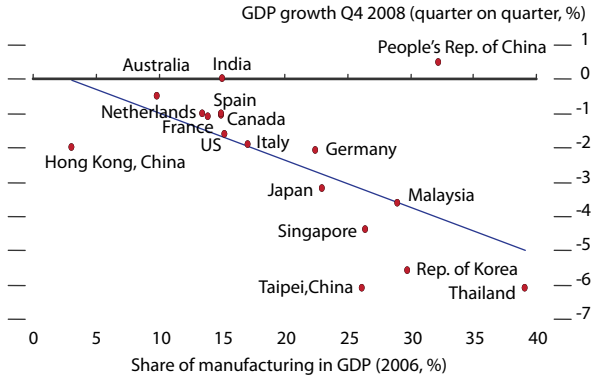
2.4.11 Growth rates in Q4 2008 and share of manufacturing



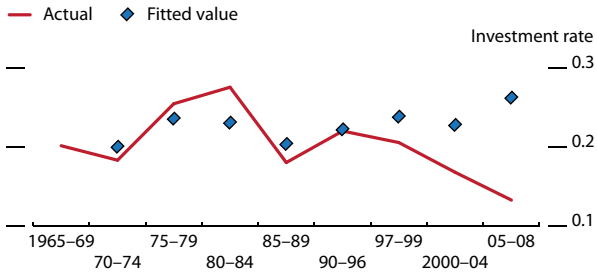
Source: D. Cho. 2009. The Republic of Korea's Economy in the Swirl of Global Crisis. *ADBI Working Paper Series* 147. Asian Development Bank Institute, Tokyo. p. 5.

Click here for figure data

for rebalancing and the central role of a vibrant services sector in that process, Korea might be well advised to consider proactive fiscal measures for enhancing productivity in the services sector: tax breaks for R&D in services industries and/or fiscal incentives to boost the services sector.

In the case of the Philippines, consumption already plays a big role in demand and growth, and underconsumption has never been a policy concern. If the purpose of rebalancing is to achieve a more dynamic and robust domestic economy, then rebalancing in the Philippines means strengthening investment. Yet the country's investment rate has recently fallen below the levels predicted by fundamental economic determinants of investment (Figure 2.4.12), and a chronically poor investment climate accounts for the weak investment.

2.4.12 Actual and fitted value of investment rate, Philippines



Sources: Estimates of Park and Shin (2009) based on data from A. Heston, R. Summers, and B. Aten, Penn World Table Version 6.2, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, September 2006; B. Bosworth and G. Chodorow-Reich. 2007. Saving and Demographic Change: The Global Dimension. http://ssrn.com/abstract=1299702; International Monetary Fund. International Financial Statistics online database (accessed 8 January 2009); World Bank. *World Development Indicators*. Various issues. Washington, DC: World Bank.

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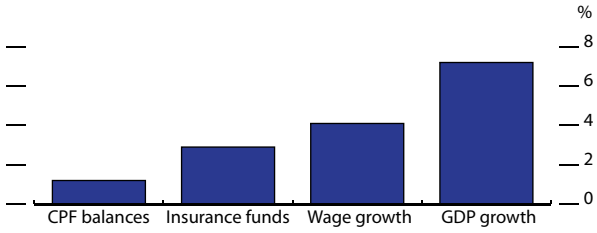
Appropriate fiscal measures can help in a number of ways to create a more conducive business for both domestic and foreign investors. In particular, given that poor infrastructure is a major deterrent to private investment in the Philippines, more public spending in that area can ease infrastructure bottlenecks and attract investment. However, the relative lack of fiscal space seriously limits the government's capacity to allocate additional resources for this purpose.

Singapore has large and persistent current account surpluses, driven by extraordinarily high saving rates. In Singapore, the need for rebalancing is driven by rapid population aging due to a low fertility rate. Rapid population aging requires that society set aside more resources for the elderly. Singaporeans rely on a mandatory saving scheme, administered by the Central Provident Fund (CPF), to finance their retirement.

A key quasifiscal measure that has been widely suggested for improving the ability of CPF to deliver adequate old age income support is to end the implicit tax on CPF wealth. The real rate of return credited to CPF members was a meager 1.2% during 1987–2008 (Figure 2.4.13). A second major way for fiscal policy to contribute to the rebalancing process is expanding social sector expenditures, including social pensions. Given its exceptionally strong fiscal position, the government seems uniquely well positioned to take this route.

2.4.13 Annual returns on CPF balances and insurance funds versus real growth indicators, Singapore, 1987–2008



CPF = Central Provident Fund.

Note: Figures for CPF balances and insurance funds refer to real rates of return.

Source: ADB estimates based on data from Central Provident Fund Board. Various issues. *Annual Report*. http://mycpf.cpf.gov.sg/CPF/About-Us/Ann-Rpt/Ann_Report.htm; CEIC Data Company (accessed 1 March 2010).

Click here for figure data

In summary, developing Asian economies can adopt a wide range of fiscal measures to balance their economic structures. However, the appropriate fiscal measures will differ across countries because the need for and definition of rebalancing are far from uniform.

Recapitulation

Developing Asia's large and decisive fiscal response to the economic slowdown resulting from the global financial crisis represents an exceptional response to an exceptional shock. The preliminary empirical analysis in this section yields evidence affirming the widespread belief that developing Asia's fiscal stimulus contributed to the region's recovery

from the crisis. However, drawing policy implications about normal, noncrisis periods from the crisis experience would take a big leap of faith. Further evidence in this section indicates the need to be extremely cautious about maintaining heightened countercyclical fiscal activism once the crisis recedes and normalcy returns.

The main positive lesson from developing Asia's experience during the crisis is that the healthy public finances that the region enjoyed as it entered the crisis served the region well. For the region as a whole, the evidence points to sufficient fiscal space accumulated as a result of sustained fiscal prudence. By and large, Asian governments have been fiscally responsible and, when fiscal sustainability was at risk, made the necessary adjustments.

Once the crisis recedes, Asia should revert to its basic tradition of fiscal prudence. Strengthening medium-term fiscal policy frameworks will be helpful in this context. However, the return to fiscal responsibility still allows for fiscal policy to contribute meaningfully to sustainable growth in the postcrisis period. For example, institutional improvements such as well designed automatic stabilizers can help Asia cope better with output volatility at minimal fiscal cost. Fiscal policy can also facilitate the region's medium-term transition to a more balanced economic structure. The key challenge for Asian fiscal policy now is to adapt itself to the postcrisis world so that it can contribute to sustainable growth without compromising the fiscal sustainability that has served the region so well.

Key policy messages

Developing Asia's tradition of sound and responsible monetary and fiscal policy served it well during the global crisis. Ample monetary and fiscal space had been built up from a history of fiscal conservatism that kept public spending within budgets and monetary policies that gave top priority to price stability. The result was that the region had the resources and the credibility to quickly roll out a massive stimulus that contributed to the region's V-shaped recovery.

The overarching message emerging from the analysis in this chapter is this: Once the crisis recedes, the region should return to its long-standing tradition of macroeconomic prudence, one that fosters macroeconomic stability and long-run growth.

The global crisis has changed the region's monetary and fiscal landscape in many respects, including a newfound recognition that monetary and fiscal tools can be useful for coping with large shocks. However, the global crisis has done nothing to change the central importance of long-run growth for still-poor Asia or the proven need for prudent monetary and fiscal policies. The hundreds of millions of Asians lifted above poverty lines by sustained growth are proof of the risks of tinkering with a macroeconomic policy philosophy that has consistently delivered.

Within the broad framework of returning to the region's sound and responsible monetary and fiscal roots, however, there is plenty of scope for enhancing the capacity of monetary, exchange rate, and fiscal policies to contribute to the region's sustainable growth in the postcrisis period. For example, well-designed and well-implemented automatic fiscal stabilizers can contribute to greater output stability at no cost to fiscal sustainability. A pivotal postcrisis challenge for central banks across the region will be to better coordinate financial regulation and monetary policy so that the two can jointly prevent asset price bubbles, which can have devastating consequences, as highlighted by the global crisis. Against the backdrop of global rebalancing and the declining role of exports as a growth engine, the region also needs to fundamentally rethink its precrisis exchange rate philosophy, which gave undue weight to export competitiveness. Capital controls against volatile short-term inflows can facilitate the transition to less rigid regimes.

At an even more fundamental level, given the potentially more challenging postcrisis global environment and political pressures for greater activism, the region should further strengthen the institutions, governance, and overall policy environment that will be indispensable for sound and responsible policy.

Macroeconomic policies can also make a substantial contribution to shaping the postcrisis global environment in a manner that will benefit the region's sustainable growth. Macroeconomic policies can contribute to the region's pursuit of a more balanced economic structure. Governments in the region can promote rebalancing by using fiscal policy to remove the structural distortions that constrain demand from households and

firms. The role of fiscal policy is to provide an environment conducive to private consumption and investment.

This shift requires, among other things, strengthening health, education, pensions, and social protection to reduce household uncertainty and thus boost private consumption. Greater exchange rate flexibility will also be needed as part of the package of policies to achieve more balanced growth. On the demand side, more flexible exchange rates will increase domestic demand by reducing the price of importables and thus boosting purchasing power. On the supply side, greater exchange rate flexibility will speed up the development of the nontradable sector.

A mutually supportive constellation of monetary, exchange rate, and fiscal policies will be required to deliver sustainable growth for the region in the postcrisis period.

Monetary policy and financial regulation

The global crisis underlines the huge risks of unsound monetary policy and inadequate financial regulation. A key challenge for Asia is to better monitor and prevent asset price bubbles while maintaining the primary focus on goods price inflation. The overall objective of monetary policy, which is identical to that of the precrisis period, must be to provide a stable macroeconomic environment for firms and households.

- *The main focus for monetary policy should be geared toward stabilizing the fluctuation in the aggregate domestic price level and managing its expectation*. A flexible inflation-targeting framework is still viable for monetary policy. Empirical observation suggests that this monetary policy framework, which usually works through the operational target of interest rates, has been able to deliver relatively low and stable inflation. However, the operating target should not be seen as a one-size-fits-all for every country in the region. Other types of operational targets, such as a quantity or exchange rate, could just as well deliver similar outcomes. What matters is that monetary policy be conducted in a disciplined manner to deliver low and stable inflation with sustained economic growth. Policy independence from external interference is conducive for monetary discipline and favorable inflation outcomes.
- *Financial supervision and regulation need to be strengthened and better coordinated with monetary policy to prevent asset boom and bust cycles*. The global financial crisis has shown that a narrow focus on managing aggregate inflation may lead to asset bubbles. Therefore, in addition to addressing its traditional objectives, monetary policy should also aim to maintain asset market stability. This additional objective is best served by complementing the traditional flexible inflation-targeting framework with additional policy measures that deal specifically with asset markets. Setting up a financial authority to supervise and regulate the finance sector, whether within or outside the central bank, is crucial to monitor and detect bubbles, and to introduce prudential policy measures. As with monetary policy, financial regulation would benefit from policy independence. Collection and analysis of high-frequency macroeconomic and financial indicators would provide valuable information for both monetary and financial authorities.

Exchange rate policy and capital controls

Clearly, the transition to a more balanced economic structure in the postcrisis period will benefit substantially from more flexible exchange rate regimes. Exchange rate policy must therefore shift away from an excessive focus on export competitiveness. However, volatile short-term capital inflows may cause excessive appreciation and complicate the transition to more flexible exchange rates, and capital controls may ease the transition.

- *Exchange rates should be allowed to adjust and reflect the fundamentals-driven rate, and intra-Asian coordination on exchange rate policy and reserve management needs to be strengthened.* "Too much" intervention in the foreign exchange market could lead to exchange rate misalignment, with adverse implications for macroeconomic management. More flexible exchange rates driven by fundamentals provide a mechanism to absorb shocks, result in a more efficient allocation of resources, and promote the region's rebalancing process. Intra-Asian coordination on exchange rate policy will mitigate the fear of losing export competitiveness vis-à-vis neighboring economies, which has been a major barrier against greater exchange rate flexibility for the region as a whole. Cooperation on reserve management can also contribute to flexibility by reducing the need for Asian countries to individually build up excessive levels of reserves.
- *Capital controls against volatile short-term inflows can safeguard macroeconomic stability and facilitate the transition to more flexible exchange rates*. In contrast to long-term capital inflows such as FDI, short-term capital flows are often volatile and disruptive. They can cause overheating pressures and their sudden reversal can wreak financial havoc. Short-term inflows can also lead to sharp currency appreciation, thereby eroding a country's competitiveness. Such episodes can decelerate the momentum toward greater exchange rate flexibility. However, capital controls should be selective, and targeted toward potentially more destabilizing types of inflows. In light of the well-known distortions and efficiency costs that they introduce, capital controls should be gradually withdrawn as a country reaches higher levels of financial development. Easing restrictions on capital outflows could be another option to redress the adverse impact of speculative capital inflows.

Fiscal policy

Ample fiscal space, the consequence of a history of responsible fiscal behavior, served Asia well during the global crisis, a fact strongly suggesting the need to maintain fiscal discipline in the postcrisis period, in preparation for large future shocks. Although the region should return to its tradition of sound fiscal policy, fiscal policy can nevertheless help the region adapt better to the postcrisis world. In particular, fiscal policy can speed up the rebalancing process.

- *Asian countries should continue to maintain their fiscal discipline, and strengthen their medium-term fiscal policy frameworks.* Years of sustained fiscal prudence gave the region ample fiscal space, which allowed it to unleash an unprecedented fiscal stimulus during the crisis. The stimulus has contributed to the region's recovery from the

global crisis. This finding highlights an important additional benefit of fiscal discipline: adequate fiscal space to cope with large shocks. In the postcrisis period, the region would do well to revert to its basic tradition of fiscal prudence. However, given the potentially more challenging global environment, securing adequate fiscal space for future shocks requires strong and credible medium-term fiscal policy frameworks. In principle, fiscal rules are more consistent than discretion as frameworks for strong, medium-term fiscal policy but more fundamentally, responsible fiscal behavior ultimately requires sound institutions, governance, and overall policy environment.

- *Asian governments can tap into a wide range of fiscal measures to facilitate sustainable and more balanced growth in the postcrisis period.* Although the overall policy direction must be the recovery of fiscal discipline, there is still plenty of scope for fiscal policy to help Asia meet the difficult macroeconomic and structural challenges of the postcrisis period. For example, strengthening automatic stabilizers through better design and implementation can contribute to output stability and social protection without impairing fiscal sustainability. Fiscal policy can make substantial contributions in terms of addressing Asia's paramount postcrisis structural challenge of rebalancing, and country-specific fiscal measures can mitigate the structural distortions that stand in the way of more vibrant domestic demand. In countries that perform poorly in key areas, such as revenue mobilization, the priority must be improving institutional capacity.

Overall policy messages

Asia's unprecedented monetary and fiscal response to the unprecedented global financial crisis, and its contribution to the region's V-shaped recovery, will open up a debate on the appropriate role of fiscal, exchange rate, and monetary policies in the postcrisis period. The debate is timely and welcome but should not lose sight of the huge benefits of the region's long-standing tradition of monetary and fiscal discipline. The debate should also consider the relationship *between* the three sets of policies.

- *As the global crisis recedes, Asia should gradually return to its basic macroeconomic framework of monetary and fiscal prudence.* This framework has delivered enormous benefits for the region, in the form of macroeconomic stability and sustained growth, and will continue to do so. Monetary policy that is geared toward low and stable inflation and fiscal policy that keeps public spending within government budgets create the best environment for households and firms to plan rationally and for the economy to grow. However, a broader return to monetary and fiscal policy discipline does not rule out significant contributions of macroeconomic policy to sustainable growth. From rebalancing to preventing asset bubbles to enhancing social protection, macroeconomic policy can play an important role. However, playing that role should not come at the expense of compromising the macroeconomic stability that has paved the way for the region's remarkable success in the past.
- *More systematic coordination between different macroeconomic policies will enhance their effectiveness.* During the global crisis, Asian governments, like those elsewhere, jointly pursued monetary and fiscal

expansions. Higher public spending and tax cuts, accommodated by lower interest rates, helped lift the region out of recession. By the same token, closer coordination between different policies will magnify their impact in the postcrisis period. For example, disciplined monetary policy must go hand in hand with adequate financial regulation to prevent asset bubbles. Regardless of the specific institutional arrangements, there must be better coordination between the two. Rebalancing would benefit substantially if the wide range of fiscal measures to remove structural impediments against domestic demand were accompanied by more flexible exchange rates. In fact, pursuing one without the other may do very little to move the region toward more balanced economies.

Concluding observations

One of the hallmarks of the Asian development model has been sound and responsible monetary and fiscal policy. This conservative approach to macroeconomic policy has delivered huge benefits to the region in the form of macroeconomic stability and sustained growth. The Asian governments' decisive monetary and fiscal expansion during the global crisis highlights an additional important but underappreciated benefit of macroeconomic prudence: the resources and credibility required to address large negative shocks.

Therefore, the broad direction of Asia's postcrisis macroeconomic policy must be a return to its roots and to its precrisis tradition of keeping inflation low and public spending within the government's means. Nonetheless, there is significant scope for improving the capacity of monetary, fiscal, and exchange rate policies to contribute to sustainable growth in the postcrisis period.

Finally, as illustrated in the joint role of exchange rate and fiscal policy in the rebalancing process, the different components of macroeconomic policy must be mutually consistent and supportive. Within a stronger and better macroeconomic policy framework, there is every chance that the region's remarkable economic success will continue into the more challenging postcrisis world.

Endnotes

1 See, for example, the discussion in Goodfriend (2007).

2 See, among others, Bernanke et al. (1999).

3 Namely, the PRC; India; Indonesia; Korea; Malaysia; Pakistan; Philippines; Singapore; Taipei,China; and Thailand.

4 Note, however, that this higher gain does not necessarily imply that their average levels of inflation are lower than other countries in the group (Box 2.2.1).

5 Both Hong Kong, China and Singapore appear as exceptions, where the interest rate dropped as early as in 2007. These two economies anchor their monetary policy to an exchange rate. As a result, the trend in the interest rate tends to move with the trend of the interest rate in the reference country's currency.

6 This particular representation allows for a direct comparison among series of different countries under consideration

7 See, for example, Cecchetti et al. (2000) and De Grauwe (2008) for a more recent study.

8 See, among others, the discussion in Gruen et al. (2005).

9 To put balance on the assessment, however, it also has to be remembered that the output gap (one of the arguments in the standard Taylor rule equation) is not observable in practice. Consequently, it also faces similar informational constraints, as in the measures for deviation between asset prices and their fundamental values.

10 Ahrend et al. (2008) discuss the eurozone.

11 Discussed in IMF (2009a).

12 In the recent crisis, depreciation in emerging Asian countries (except Korea at 40%, Indonesia at 30%, and India at 20%), was less than 10%, compared to an average of 70% during the Asian crisis.

13 During the Asian crisis and its immediate aftermath, there was much discussion of the problems associated with a weak currency. Particularly, the worry over was that the depreciation of the exchange rate would pass through into inflation. Intervention during those periods was against depreciation. However, some recent empirical studies such as those by Ghosh and Rajan (2007) and Jongwanich and Park (2009) show a decline of exchange rate pass-through into domestic prices in Asian countries.

14 In developing Asia, parts and components exports increased from 13% of the total to 32%, and imports from 22% of the total to 30%, from 1992 to 2007.

15 For example, Tenreyro (2003) and Broda and Romalis (2003) find a small impact of exchange rate volatility on trade, whereas McKenzie (1999), Frankel and Rose (2000), and Glick and Rose (2002) show a statistically significant and negative relationship between volatility and trade.

16 The analysis so far does not rule out the country in implementing a hard-pegged exchange rate regime as in Hong Kong, China, but the pegged rate should be consistent with economic fundamentals.

17 See for example, Williamson (1994), who introduced the fundamental equilibrium exchange rate. Under this model, the equilibrium exchange rate is the rate that allows the economy to simultaneously attain internal and external balances. Internal balance is reached when the economy is at full employment output and operating in a low inflation environment. External balance is characterized as a sustainable balance of payments position over the medium term, ensuring the desired net flows of resources and external debt sustainability. Clark and MacDonald (1998) underpin the equilibrium real exchange rate on the basic concept of uncovered interest parity (UIP) and use econometric analysis to build up an equilibrium rate called the behavior equilibrium exchange rate (BEER). Edwards (1989) and Baffes et al. (1999) also use the concept of internal and external balance approach to reveal the equilibrium exchange rate, but, instead of explicitly assuming the level of sustained current account balance, they use econometrics, like Clark and MacDonald, to reveal the equilibrium level.

18 The de jure measures attempt to measure regulatory restrictions on capital account transactions using the information about regulatory restrictions on cross-border capital flows reported in the Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER), published by the IMF (Chinn and Ito 2008; Kose et al. 2006).

19 See for example, Edwards (1999), Le Fort and Lehman (2003), and Kawai and Takagi (2008).

20 The IMF has substantially rethought its position on the use of capital controls in emerging economies and concluded that capital controls are sometimes justified as a part of policy instruments in dealing with surging capital inflows (Ghosh and Ostry 2009).

21 Capital controls can be classified as direct and indirect controls (Ariyoshi et al. 2000) or in some studies (Neely 1999), the control measures are classified as quantity and price measures. These classifications seem to be comparable since because most of administrative

controls are direct and quantity- based controls while, whereas market-based measures are mostly indirect and price- based measures.

22 Ample fiscal space, in particular a low public debt-to-GDP ratio, is conducive for counter-cyclical fiscal policy in at least two ways. First, it enables governments to run up large fiscal deficits at less cost to fiscal sustainability. Second, fiscal stimulus is likely to be less effective if it is implemented by highly indebted governments.

23 Hur, Jha, Park, and Quising (forthcoming) present a comprehensive description of the empirical framework and results.

24 Indeed, some of our results change when we rerun the regressions by extending the data up to the third quarter of 2009. For example, government spending has a positive and significant effect for the whole sample, suggesting that it took longer for fiscal policy to have an impact for the whole sample than for the developing Asian subsample. However, the central result—the positive and significant effect of government spending on Asian output—remains.

25 All balances are measured as the difference between revenues and expenditures. A positive sign denotes a surplus and a negative sign a deficit.

26 Fiscal developments in Central Asia during the 1990s were heavily influenced by the international treatment of the debts of the former Soviet Union.

27 For simplicity, the control variables in these equations are held constant.

28 Park (forthcoming) provides an in-depth analysis of the role of fiscal policy in Asia's rebalancing. In a related paper, Hur, Mallick, and Park (forthcoming) empirically examine the impact of Asian fiscal policy on Asia's private consumption and investment.

Background papers

Monetary Policy

Grenville, S. Forthcoming. The Evolving Post-crisis World. *ADB Economics Working Paper Series*. Asian Development Bank, Manila.

Ito, T. Forthcoming. Monetary Policy and Financial Stability: Is Inflation Targeting Passé? *ADB Economics Working Paper Series*. Asian Development Bank, Manila.

Exchange Rate and Capital Controls

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