

# Policy Suggestions for Greater Financial Stability

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## 1 Introduction

Currently, much of Asia and South-East Asia is growing at an impressive rate. China is growing particularly fast, as more recently are some of the low-income countries, such as Vietnam, Cambodia and Laos. This is allowing a very large reduction in poverty in these countries. Dynamism in Asia also plays a major role in facilitating growth in the rest of the developing world, and therefore increases poverty reduction there.

One of the potential risks that could undermine continued rapid growth in East Asia would be a financial crisis, particularly if it spread throughout the region. As discussed in the introduction, the financial – and most importantly – the development costs of crises are extremely high. Indeed, even today, ten years after the East Asian crisis, crisis-hit countries, though growing fast, are still growing less than they did before 1997 and their investment rates are quite significantly below their pre-crisis levels.

The articles in this *IDS Bulletin* (see, e.g. Park and Wyplosz) show that the risk of financial crisis on the whole seems to have diminished quite significantly in the region; this is both because of national efforts at improving financial sectors and their regulation, strengthening macroeconomic fundamentals (although it is always good to remember that rather good fundamentals characterised East Asia before the crisis) and – perhaps above all – very large foreign exchange reserves countries have been able to accumulate, in relation to short-term debt.

However, although national efforts have been very important in East Asia, new risks and threats seem to come from the international economy.

As pointed out in the Introduction, the uncertainties posed by the risk of an abrupt unravelling of global imbalances, or of sharply rising oil prices, may drastically change the prospect for East Asia. Increased dependence of these countries on export-led strategies may have created more vulnerability to trade cycles. Though attempts by the IMF to strengthen its multilateral surveillance by interacting with major actors, including in the developed world, is a step in the right direction for encouraging reduction of imbalances, it is unclear how effective such efforts will be. Furthermore, the legitimacy and effectiveness of the IMF is weakened by its governance structure, which has been only very partially and insufficiently modified.

Furthermore, relatively little progress has been made on reform of the international financial architecture, both for preventing and better managing crises as enthusiasm for such reforms have weakened among developed countries. For example, progress has been very slow towards the creation of an IMF precautionary financial arrangement that would effectively provide rapid and non-conditional liquidity to countries with good macro-fundamentals threatened by a self-fulfilling crisis. There have been ample discussions and studies after the Contingent Credit Line was discontinued but, as yet, no action (see, e.g. Griffith-Jones and Ocampo 2006). Similarly, progress on international mechanisms for orderly debt restructuring have stalled, even though some more limited positive steps have been taken, such as introducing collective action clauses into bonds issued by a number of countries, including in East Asia. International financial regulation has hardly advanced to tackle, for example, speculative activities of highly leveraged institutions, which could pose some serious threats for financial stability (for more detailed discussion on these issues, see Stiglitz *et al.* 2006).

Of significance, particularly in East Asia, are regional initiatives. These are potentially particularly important due to slow progress on reform of international financial governance. As Park *et al.* (2006) discusses, there are three pillars essential for regional financial and monetary coordination – liquidity assistance, monitoring and surveillance, and exchange rate coordination. Perhaps the most important progress has been made in the Chiang Mai Initiative (CMI), which would provide liquidity to assist countries threatened by crises. This is an important step. However, CMI currently has restrictions which may quite significantly limit its effectiveness, such as the fact that any country requiring short-term liquidity must negotiate its activation with all swap-providing countries individually, as the commitments are bilateral, instead of multilateral. Exchange rate coordination is also an important issue, on which there is much discussion in the region but, as yet, no concrete action – which is understandable given the complexities involved.

### 1.1 New policy challenges

A new policy challenge is posed by the explosive growth of derivatives. Derivatives instruments are used by companies and other actors to hedge net exposures, such as in foreign exchange. For example, importers and exporters hedge their foreign exchange exposure so that their costs or revenues become less volatile. Similarly, firms borrowing in foreign currency can hedge the value of their debt payments. This can be very valuable for the firms. However, problems can arise if large corporations (usually foreign investors) have net foreign exchange exposure and do not fully hedge it, which is called here ‘passive speculation’. This can happen because a large part of their debt is in foreign currency and their income is in local currency (e.g. telecoms). The problem is that when downward pressure emerges on the local currency, such companies may rapidly hedge their net foreign exchange exposure. As we will discuss below, regulatory measures could be designed to avoid such ‘passive speculation’, for example, by ensuring that large corporations with significant net foreign exchange exposure are fully hedged. This could have positive effects both for the firm and from a macroeconomic perspective.

More open speculation occurs when international – and national – hedge funds (HFs) or investment banks (IBs) – often based off-shore or operating through special purpose branches within countries – speculate on developing country currencies via the

carry trade. A recent example is the carry trade between the Chilean peso and the Brazilian real where the basic idea is to capture the substantive differential between these currencies’ interest rates via derivatives; however, when exchange rates start changing, this carry trade can be very rapidly unwound, with large changes in exchange rates beyond that warranted by fundamentals (Dodd and Griffith-Jones 2006). Such carry trade is of course particularly important with the yen and may be involving a number of emerging economies in East Asia with potentially destabilising impacts on their currencies and economies.

The challenge for regulating such transactions is a difficult one, given that they occur off-shore and occur OTC (over the counter) – that is outside the exchanges and use synthetic instruments such as non-deliverable forwards (NDFs). We return to these new and complex challenges below.

As pointed out above, there has been progress at the national level to reduce financial vulnerability. Progress on international financial architecture, on the other hand, is insufficient; regionally, there is encouraging but not sufficient progress.

Furthermore, new policy challenges arise, such as how to respond to a possible slowdown in the world economy. In this article, we will focus on additional new specific areas that East Asian countries need to focus on: (a) the challenges of introducing Basel II and avoiding negative effects, (b) the potential for using new instruments, such as GDP-linked bonds, to reduce risks of crises and help protect growth in slowdowns, and (c) new risks, such as the potential vulnerabilities arising from derivatives instruments and their explosive growth globally.

### 2 The policy challenges

Many of the broad policy challenges for financial and macroeconomic stability have been rightly focussed in recent years on sustainability, including in external and fiscal accounts, as well as in the financial sector. There is an additional dimension in the procyclical bias of financial markets (both international and domestic) and of business cycles (Borio and White 2004; Goodhart 2004; Griffith-Jones and Ocampo 2006). Indeed, ‘excessive procyclicality’ has been identified by BIS and IMF officials as ‘those fluctuations that cause some combination of unnecessary amplifications of the real economy and

damage to the soundness of the financial system' (Gerlach and Gruenwald 2006). To avoid this excessive procyclicality, the emphasis on sustainability (which East Asian countries have, on the whole, followed very successfully in the last decade) should be accompanied by an emphasis on countercyclical dimensions of financial policies. This includes: (a) helping smooth out boom–bust cycles through regulation, (b) designing market borrowing mechanisms that better distribute cyclical risks faced by developing countries, such as local currency and GDP-indexed bonds, and (c) manage new risks, such as those posed by derivatives.

### 2.1 Challenges for banking stability

The financial systems in East Asia have undergone major changes since the 1997–8 financial crisis. Increased degree of diversification and deepening has taken place, evidenced by significant growth of assets as a proportion of GDP, especially in the equity and bond markets. The banking systems across Asia have gone through an ample process of re-capitalisation, consolidation and growing presence of foreign banks. As mentioned above, the financial indicators for the banking systems have improved significantly, with non-performing loan (NPL) ratios nowadays in single digits, the ratio of operating costs to total assets declining, thus showing increased efficiency, and relatively higher profitability (Ghosh 2006). However, some countries still have important weaknesses (in this *IDS Bulletin*).

Prudential banking regulation and supervision have been strengthened in the region, with greater adherence to the Basel Core Principles for Banking Supervision (BCP) and higher capital adequacy ratios across-the-board under the Basel Capital Accord (Basel I).

However, as the banking systems in Asia become increasingly integrated with the international financial markets, traditional financial indicators may not be sufficient to capture potential sources of risks facing the financial system. It is important that a more dynamic regulatory approach is adopted to appropriately address the emerging issues associated with the implementation of Basel II in the region (financial systems are inherently procyclical and Basel II may accentuate that), and the inter-linkages between key macroeconomic variables – which can exhibit sharp variations as a result of rapidly changing international conditions – and the financial system.

### Basel II

Most Asian countries intend to implement Basel II at some point in the coming years. Indeed, a survey from the Financial Stability Institute (FSI) of the BIS shows that all Asian respondents (16 in total) to the survey expressed the intention to adopt the new capital framework (FSI 2006). These intentions, which may actually result in a slower than initially predicted implementation process, should be seen as a positive development, as Basel II has the important purpose of further strengthening the soundness and stability of the international banking system, through encouraging banks to improve their risk management practices, incorporating new risks into allocation of capital and enhancing transparency.

But Basel II also introduces a number of issues that were not present under Basel I. A key issue is the fact that, by encouraging banks to adopt risk sensitive models for determining capital charges, it may reinforce the procyclical behaviour of the banking sector. These models, to be used by banks adopting the internal rating based (IRB) and the advanced (A-IRB) approaches, will tend to increase the measured probability of default during economic downturns. As a consequence, the assets of a portfolio will be downgraded, which in turn will lead to higher capital charges. This concern has been expressed by policymakers and academics alike (see Global Risk Regulator 2007).

Recent empirical research supports the claim that the use of the IRB approach to measure risk may cause higher variation in the capital charge over the business cycle, as compared with the Basel I types of rules for measuring risk (Goodhart and Segoviano 2004; Gordy and Howells 2004; Kashyap and Stein 2004). This in itself may lead to both increased cost and reduced quantity of credit. Furthermore, the fact that it is harder to increase capital during economic downturns may reinforce the tendency in credit reduction, ultimately leading to a credit crunch and a deepening of the economic downturn, with further impacts on banks' portfolios. Thus, there is a tension between micro- and macro-prudential regulation objectives in that what may be good for an individual bank may turn out to be bad for the economy as a whole, with possible implications for systemic risk.

A reason why the measured risk by these models tends to be so much time-variant is that even when they are forward-looking, their time horizons are

**Table 1 Total 2004 capital adequacy in selected Asian countries**

| Country     | (%)  |
|-------------|------|
| Indonesia   | 19.4 |
| Philippines | 18.6 |
| Singapore   | 16.3 |
| Hong Kong   | 15.4 |
| Malaysia    | 14.2 |
| Thailand    | 12.6 |
| Korea       | 12.1 |
| Taiwan      | 10.7 |

Source Moody's (2005), based on bank regulators in each country.

often limited to one year (Borio *et al.* 2003). These models therefore result in assigning borrowers ratings in light of their current (or over a limited time-horizon) default status – what is called the ‘point-in-time’ approach. But if models could instead look ‘through-the-cycle’, so as to reduce or eliminate variations in the ratings caused by changing conditions during the cycle, then their procyclicality effects could be avoided or at least significantly reduced (Borio *et al.* 2003). It would be thus advisable that country regulators encourage banks to use through-the-cycle models. However, banks generally use a point-in-time approach due to lack of data on default data over longer periods (Craig *et al.* 2006). Thus, adoption of through-the-cycle models by a large number of banks may take a long time.

In the meantime, to effectively compensate for the procyclical bias in Basel II, it is crucial that regulators incorporate countercyclical elements into prudential regulation and supervision. In this regard, the adoption of forward-looking dynamic provisioning would be highly appropriate. Under this system, provisions are made when loans are disbursed based on expected losses. It thus addresses ‘latent’ risks, which are estimated for homogeneous categories of credit, on the basis of a full business cycle (Griffith-Jones and Ocampo 2006; Fernández de Lis *et al.* 2001). In this way, provisions build up during economic expansions to be drawn upon during downturns. However, where provisioning meets obstacles from the accounting profession (often accountants do not like the fact that, as a result of ex-ante provisioning the value of loans on the balance sheets is less than their face value), countercyclical capital requirements could be considered

instead, to ensure that banks have a capital buffer to be used in bad times (Lowe and Stevens 2006).

Moreover, forward-looking provisioning, or alternatively countercyclical capital, could be complemented with other countercyclical prudential regulation. These could address, for example, excessive growth of credit relative to some benchmark, and the bias in lending to sectors characterised by systematic risks, such as mortgages.

Most Asian large banks intend to adopt one of the two Basel proposed IRB approaches (Fitch Ratings 2005); moreover, most regulators in the region – 88 per cent of the respondents of the FSI survey mentioned earlier – plan to grant permission to banks for the use of the IRB approach (and 63 per cent the A-IRB approach) at some point within the 2007–15 timeframe (FSI 2006). Thus, the risk that procyclicality in Asia’s financial systems increases in the coming years as a result of the use of the IRB approaches, is concrete. This is a development that should be avoided for the sake of the economies of the region, already subjected to volatile behaviour due to external and other shocks, and for the stability of the banking systems, which are also affected by volatile macroeconomic variables.

The standardised approach, which is the alternative to the IRB approaches, may also lead to increased procyclicality in bank credit, if risk weights for different types of assets are determined by external rating agencies. This is because, as observed by Taylor and Goodhart (2006), although their ratings are fairly stable, they tend to be adjusted quite strongly to changing conditions of the borrower, and to overreact positively with the economic cycle. However, country regulators have the option of adopting a simplified version of the standardised approach, especially in countries where the coverage of rating agencies is very limited. Under this approach, fixed weights are used, and are determined by the regulator. This option would help address the issue of procyclicality in Basel II, as in this case risk-weights would not be time variant. This is an option particularly appropriate for low-income countries.

Against these potentially worrying developments, it should be noted that many Asian countries have capital adequacy ratios (CARs) well above the minimum required by Basel (Table 1), which can serve as a capital buffer to help dampen procyclicality. But it

is not certain that this is the case in all Asia, especially in countries with weaker and weakly regulated banking systems; moreover, it is likely that even where CARs are well above the minimum regulatory capital, variations in regulatory capital requirements over the business cycle are followed by variations in actual capital (Taylor and Goodhart 2006).

As regards the impact of variations in actual capital over the business cycle on the real economy, the evidence is that when US banks adopted Basel I in the early 1990s, banks' portfolios moved towards less risky assets to meet the minimum capital requirements (Van Roy 2005; Berger and Udell 1994), and this may have had an impact on credit provision to the real sector (Goodhart *et al.* 2004).<sup>1</sup> Of course, it is difficult to gauge the impact of credit decline on the US economy in the early 1990s because firms may have resorted to other forms of finance, which may have been made available given the degree of diversification of the US financial system. A credit reduction is more likely to have a bigger effect on the real economy of countries where the banking sector dominates as the main source of capital, as is the case in Asia, given the lack of alternative forms of finance (Jackson *et al.* 1999).

In addition to the role Basel II may play in reinforcing procyclicality, it is equally important that in order to support growth on a sustainable and equitable basis, Basel II does not induce banks to skew credit away from the corporate sector in favour of retail credit too strongly, which is a trend that is already emerging in Asia, even before the adoption of Basel II. And that credit allocation within the corporate sector does not end up in credit portfolio concentration. This is because the use of risk-sensitive models to determine capital charges for different corporates may result in both more expensive and rationed credit to borrowers perceived as of higher risk, and more and cheaper credit to borrowers perceived as of lower risk. For reasons such as asymmetry of information and some biases in Basel II that reinforce it, small borrowers such as small- and medium-sized enterprises (SMEs) are likely to be judged as of higher risk than the larger ones, such as large companies. In addition to creating equity issues, this possible pattern in credit allocation implies risk concentration, thereby making financial institutions more vulnerable to shocks and unexpected changing circumstances. This goes against the intended objective of regulatory

measures, which is to reduce risks and vulnerabilities to which banks are normally exposed.

Apart from the challenges that Basel II will pose to the banking systems in Asia, particularly in terms of increased procyclicality, there is the challenge for the region's supervisors of how to supervise the banks adopting these more advanced approaches. At present, Asia's supervisors lack the resources and technical skills needed for an effective supervision of the more complex options (Fitch Report 2005). Indeed this is a problem even in developed countries. In light of this, it is advisable that implementation of Basel II is pursued in a gradual fashion, with emphasis initially on implementing Pillars II and III, and the adoption of the standardised approach under Pillar I, before moving on to the more sophisticated, risk-based approaches.

The avoidance of new sources of procyclicality is important, particularly in Asia where specific features in the region's financial systems have contributed to a procyclical behaviour in the system. A crucial one has been the use of extensive reliance on collateral – e.g. property – by banks in their lending operations, which has been pointed out as reinforcing financial procyclicality in the region. This happens because asset prices, whose underlying assets are used as collaterals, increase strongly during upturns thereby pushing up the value of collaterals. This, in turn, fuels expansion of credit. However, while the use of collaterals contributes to over-expansion of credit in upturns, in downturns the fall in asset prices reinforces credit contraction. Moreover, as banks attempt to liquidate assets in response to losses, asset prices decline even further opening up new fronts of credit exposures (Craig *et al.* 2006: 70).

It is therefore crucial that measures are taken to reduce the excessive use of collaterals, so that one can weaken the mechanism through which asset prices bubbles and busts can fuel credit expansion and contraction. This would encourage banks to rely on risk assessment as key criteria for lending. In that regard, it would be desirable that borrowers' credit risk is assessed over the longer term, to avoid underpricing of lending, which happens when credit risk is assessed over the short term. An alternative is to lower the ratio of loans to collateral assets during booms. Finally, as suggested earlier, forward-looking provisioning should be implemented to dampen financial procyclicality, as banks would have a buffer to use when losses materialise in downturns.

### ***Inter-linkages between macroeconomic variables and the financial sector***

The financial crisis of 1997/8 has shown too well the risks arising from the inter-linkages between macroeconomic variables and the financial sector. These inter-linkages imply market risks for the financial sector, arising from sharp variations mainly from interest and exchange rates. These risks are all the more important where large maturity and currency mismatches exist, for example in the balance sheets of the banking sector, and between the banking sector and the rest of the economy.

In response to the effects that sharp variations in key macroeconomic variables, such as interest rates and especially the exchange rate had on the banking systems in Asia during the 1997/8 crisis, the countries have made strides in enhancing prudential regulation. However, every country should ensure that specific regulatory measures to reduce possible mismatches in the economy are in place. For example, restrictions on banks' open foreign-currency positions and even strict prohibition of currency mismatches in their portfolios should be adopted. Forbidding banks from holding currency mismatches in their portfolios may, however, encourage non-financial agents to borrow directly from abroad. This is worrying if borrowers are operating in non-tradable sectors. In this case, additional prudential regulation is warranted, for example in the form of quantitative limits for external borrowing by firms that generate their revenues in domestic currency. In any case, regulators should closely monitor the currency risk of non-financial firms operating in non-tradable sectors, which may eventually become credit risks for banks (Griffith-Jones and Ocampo 2006).

Currency mismatches is an important issue for emerging Asian countries, which have nowadays fairly liberalised capital accounts. But even among low-income countries in the region where extensive capital restrictions remain, it is possible to find a number of countries where mismatches, especially currency ones, are a serious problem. This is the case because these countries are fairly (in a few cases highly) 'dollarised'. Typically, such low-income countries attract large aid flows as a proportion of their GDP, and permit dollar-denominated bank accounts. The counterpart of these deposit liabilities is that banks tend to lend in dollars to avoid currency mismatches. However, lending may be channelled not only to exporting firms but also to firms that

generate revenues in domestic currency. This leaves banks vulnerable due to the credit risk that may arise from exchange rate adjustments, as it can affect the borrower's ability to honour their debt. The major challenge for these countries is to be able to find ways to de-dollarise the economy as economic growth and financial development takes place, and as they become less dependent on aid flows. That is an area where Latin America offers successful lessons of de-dollarisation.

### **2.2 New market instrument opportunities**

There is, at present, an opportunity for developing countries to design and issue instruments that can better diversify risks they face mainly due to their increasing insertion in the world economy (especially of a cyclical nature) than with traditional external debt. High international liquidity and continued significant appetite for emerging countries' risk facilitates issuing such instruments amongst foreign investors.

Additionally, in the case of East Asia, high domestic savings could make issuing local currency bonds on local markets easier as these markets have grown significantly in the last decade – even though they are still restricted mainly to government bonds and the highest quality corporates. Increasing the proportion of debt issued in local currency is a valuable defence against currency mismatches that contributed so much to cause or deepen currency and debt crises in Asia in 1997/8. Furthermore, the development of domestic capital markets creates a more stable source of local funding for both the public and private sectors.

There has been significant progress in issuing local currency debt by developing countries, including in East Asia. This debt has been mainly brought by local investors. There is also growing interest in local currency denominated bonds by international investors.

Innovative proposals have been advanced to make local currency investments more attractive on a stable basis by international investors. Dodd and Spiegel (2005) have suggested raising capital in international markets by forming diversified portfolios of emerging market local currency debt issued by sovereign Governments. These portfolios would – by using risk management techniques of diversification – generate a return-to-risk that competed favourably with other major capital market security indices, including those of major US and

European securities indices in international capital markets.

The World Bank and the regional development banks could also design pilot projects of diversified local currency bond issues that could encourage private agents to emulate them. Indeed, the second Asian Bond Fund (ABF2) launched in December 2004 by the 11 EMEAPs (Executives' Meeting of East Asia-Pacific Central Banks) is a pilot project of this type with great potential value. All central banks invested in bonds denominated in domestic currencies of the eight EMEAP emerging economies<sup>2</sup> (Park *et al.* 2006).

#### **GDP-linked bonds**

There has been increasing interest in creating bonds linked to the growth of a countries' GDP. Their servicing would be higher in times of rapid growth and lower when growth was slow or negative. At the 2006 spring meetings of the IMF and the World Bank, both potential issuers and investors expressed a clear appetite for such bonds. Furthermore, a number of economists, such as Robert Shiller, John Williamson and Kristin Forbes have favoured the issue of securities whose servicing was linked to growth.

GDP-linked bonds would have important advantages when compared with conventional debt for borrowers and investors, as well as significant externalities for the international financial system (Griffith-Jones and Sharma 2006). For borrowers, issuing such bonds would help stabilise public spending throughout the cycle, as governments would service more debt when they could better afford to, and less in more difficult times. This would provide space for higher government spending or lower taxes during slowdowns or crises. It would also curb expansionary policy in times of rapid growth. Issuing these bonds would also significantly reduce the likelihood of costly and disruptive defaults and debt crises. A temporary reduction of a country's debt service when the economy deteriorates would facilitate a more rapid and greater recovery. Simulations show that gains for borrowing countries may be substantial in bad times; Borensztein and Mauro (2004) show that if Mexico had half of its government debt as GDP-indexed bonds, it would have saved about 1.6 per cent during the crisis of 1995.

For investors, defaults are costly as they result in expensive renegotiation and sometimes in very large

losses. As GDP-linked bonds would help reduce the probability of default, effective total payments will tend to be higher than with conventional bonds. Furthermore, GDP-linked bonds would give investors the opportunity of taking a position on a range of countries' growth rates, offering a valuable diversification opportunity. If GDP-linked bonds became widespread across countries, investors could take a position on growth worldwide – the ultimate risk diversification.

For international institutions, there would be benefits from the decreased likelihood of debt crises. Reduced risk of crisis contagion would also benefit other countries. These externalities and the fact that financial innovations are difficult to introduce justify some initial public action (e.g. from the World Bank or regional development banks), to help develop this market instrument. The World Bank or the Asian Development Bank could, for instance, make loans to several developing countries whose servicing would be linked to GDP. The loans could then be grouped, securitised and sold to the financial markets. Furthermore, the second Asian Bond Fund (ABF 2) could include GDP-linked paper in its portfolio.

GDP-linked bonds should be a core element of government financing both for developed and creditworthy developing countries. Developed countries are the best equipped to issue GDP-linked bonds immediately, because of the relatively high trust that is placed in their capital markets and in their GDP accounting. Their doing so would have a valuable demonstration effect around the world.

Developing countries stand to gain more from issuing these bonds as their GDP tends to be more volatile. The issuance of even small quantities of these bonds by creditworthy emerging economies would help set in motion an important process of financial development. Indeed, it would be very helpful for the development of a GDP-linked bond market if several governments (preferably both developed and developing) started issuing such bonds simultaneously.

Institutions like IDA or the Asian Development Bank could also consider lending in a GDP-linked manner to low-income countries – countries that are particularly vulnerable to external shocks. Furthermore, slowdowns of growth or – even worse – declines of GDP can cause particularly severe damage to poor people's welfare in low-income countries.

**Table 2 Derivative products**

|                        | China | Indonesia | Korea | Malaysia | Philippines | Thailand | Hong Kong<br>(China) | Singapore |
|------------------------|-------|-----------|-------|----------|-------------|----------|----------------------|-----------|
| <b>Index</b>           |       |           |       |          |             |          |                      |           |
| Futures                | N     | Y         | Y     | Y        | N           | N        | Y                    | Y         |
| Options                | N     | N         | Y     | Y        | N           | N        | Y                    | Y         |
| Options on futures     | N     | N         | N     | N        | N           | N        | N                    | Y         |
| <b>Stock</b>           |       |           |       |          |             |          |                      |           |
| Futures                | N     | N         | N     | N        | N           | N        | Y                    | Y         |
| Options                | N     | N         | Y     | N        | N           | N        | N                    | N         |
| <b>Currency</b>        |       |           |       |          |             |          |                      |           |
| Futures                | N     | Y         | Y     | N        | N           | N        | N                    | N         |
| Options                | N     | N         | Y     | N        | N           | N        | N                    | N         |
| <b>Interest-rate</b>   |       |           |       |          |             |          |                      |           |
| Futures                | N     | N         | Y     | Y        | N           | N        | Y                    | Y         |
| Options on futures     | N     | N         | N     | N        | N           | N        | N                    | Y         |
| <b>Bonds</b>           |       |           |       |          |             |          |                      |           |
| Futures                | N     | N         | Y     | Y        | N           | N        | Y                    | Y         |
| Options on futures     | N     | N         | Y     | N        | N           | N        | N                    | Y         |
| <b>Commodities</b>     |       |           |       |          |             |          |                      |           |
| Futures                | Y     | Y         | Y     | Y        | N           | N        | N                    | Y         |
| Options on futures     | N     | N         | N     | N        | N           | N        | N                    | N         |
| No. of products traded | 1     | 3         | 9     | 5        | 0           | 0        | 6                    | 9         |

Notes China: Zhengzhou and Dalian Commodity Exchange and Shanghai Futures Exchange. Indonesia: Jakarta Futures Exchange and Surabaya Stock Exchange. Korea: Korea Stock Exchange and Korea Futures Exchange. Malaysia: Malaysia Derivatives Exchange. Philippines: Manila International Futures Exchange was closed. Singapore: SGX-DT. Thailand Futures Exchange plans to open in 2006.

Source *East Asian Finance: The Road to Robust Markets* (Ghosh 2006), reproduced with permission from the World Bank.

The history of financial innovation is essentially one of learning by doing. Inflation-indexed bonds met initial scepticism, relating to problems such as precise measurement of inflation. In fact, once these bonds started to be issued, inflation statistics improved further. Inflation-indexed bonds are now widely accepted across the world; in the UK, they represent around one-quarter of government debt. A similar evolution can be envisaged for GDP-linked bonds.

Introducing GDP-linked bonds would create a market for the economies themselves. The widespread impression that the stock market of a country is a market for the entire economy is mistaken. Stock markets are claims on net corporate profits that can constitute as little as 10 per cent of GDP.

GDP bonds seem very well suited for Islamic investors, as the fact that they are like a stock instrument implies the sharing of risk between investors and issuers, rather than the payment of interest; they would therefore seem to be Sharia compliant bonds as they seem naturally consistent with the philosophy of Sharia law. Islamic finance could be initially specifically relevant for Muslim countries in East Asia such as Indonesia and Malaysia. Furthermore, Malaysia is reportedly (*Financial Times*, 6 February 2007) seeking to become the biggest Islamic banking centre in East Asia and created the world's largest Islamic bond market. It could therefore, potentially play a major role in helping create a market for GDP-linked instruments. Though this could be of special interest – above all initially – to Islamic issuers and investors, once



a market developed, it could become valuable for non-Muslim developing issuer countries and investors.

GDP-linked bonds could take a couple of forms. Simplest is a perpetual bond that pays a share, say a trillionth, of GDP, at regular intervals to the bond holders. Creating such a form would be analogous to listing a country on a market as if it were a stock and would yield the most transparent price discovery. This may be the most appropriate modality for Islamic financiers as servicing would not imply any interest payment. Another form that may be easier to introduce for non-Muslim investors is a conventional bond that pays a coupon tied by a formula to growth rates of GDP, but guarantees a minimum level of debt servicing, even if the economy stops growing.

Whichever way they are created, GDP-indexed bonds would have important advantages for different actors. The moment is particularly favourable. Investor appetite for emerging countries' risk continues to be strong. Investors' experience with Argentine GDP-warrants, issued as part of their debt restructuring, has been very positive for them: their price has been rising significantly. The time seems ideal for one or more creditworthy countries to start issuing GDP-linked bonds and for investors to buy them. Any country whose growth slows significantly would be thankful afterwards that they bought the insurance such bonds represent. Occasional recent instability is showing yet again the value of insurance against economic fluctuations.

### 2.3 New policy challenges

At another level, completely new sources of potential financial vulnerability have emerged, particularly related to the explosive growth of derivatives worldwide. Fairly recently, derivatives have become increasingly important in developing economies, including in East Asia.

According to the World Bank report on East Asian Finance (Ghosh 2006), derivatives markets in East Asia have accounted for a sizeable proportion of the global growth in derivatives. Five main derivative products are traded in East Asia: (a) foreign exchange products, traded mostly in Hong Kong, Singapore and Hong Kong (China), mainly over-the-counter (OTC); there are also offshore markets, such as non-deliverable forward instruments in the Chinese RMB. The combined East Asian markets for these instruments account for about 15 per cent of world

trading; (b) interest rate derivatives; (c) equity derivatives, which have seen the most rapid growth, mostly trading on the formalised exchanges; (d) commodity derivatives and; (e) credit derivatives, also growing very fast.

Therefore, derivatives markets are already important in East Asia, though as can be seen in Table 2, they are at present limited to a few jurisdictions, mainly Korea, Malaysia, Indonesia and China.

Foreign exchange derivatives, on which we will focus our analysis below, as they seem to pose greatest potential vulnerabilities, are currently traded in Korea and Indonesia, though off-shore for currencies like the Chinese RMB.

As pointed out, foreign exchange derivatives can provide valuable risk-shifting at the microeconomic level, from companies with net uncovered foreign exchange positions usually to financial actors more able to bear those risks. For example, companies with foreign exchange debt, but local currency revenues, can hedge their net foreign exchange exposure via derivatives instruments, such as foreign exchange forwards. This hedging is positive also at a macroeconomic level because unhedged foreign currency borrowing by firms can also reduce the scope for monetary policy to manage the exchange rate, e.g. when capital flows out of the country. Allowing the exchange rate to decline hits the balance sheets of the unhedged borrowers of foreign currency; raising interest rates to support the exchange rate damages borrowers in domestic currency (Lowe and Stevens 2006). Reducing or eliminating such mismatches – either by companies borrowing less in foreign currency, using instruments like GDP-linked bonds that reduce debt service in bad times or by hedging their foreign debt service – opens space for monetary policy to be more expansionary in the face of contractionary shocks.

However, as discussed above, procyclical effects from derivatives can result from 'passive speculation' when large corporations (usually foreign investors) have net foreign exchange exposure as they are not hedged; this is because their income is in local currency (e.g. telecoms or energy companies) but a large part of their debt and other liabilities are in foreign currency. When pressure on the currency to depreciate emerges, these companies rapidly hedge their net foreign exchange exposure and in a self-fulfilling way contribute to the

depreciation of the currency. Derivatives here both undermine the traditional hierarchy of volatility (which assumes that foreign direct investment is more stable than other flows) and seem to have a procyclical impact on the exchange rate. Dodd and Griffith-Jones (2006) provide econometric evidence that this occurred in the case of Chile in 1998/9. There is also evidence that similar effects have occurred in Brazil when pressure on the currency emerged during 1999 and 2002. Regulatory measures could be taken to avoid such passive speculation, for example, by ensuring that large corporations with significant net foreign exchange exposure are fully hedged when the mismatches occur. This could have positive effects both at the firm level – avoiding large losses – and macroeconomically. But currently, such regulatory measures seem not to be sufficiently adopted. A more indirect approach is to increase capital or provisioning requirements for banks lending to companies that have unhedged net foreign exchange exposure, thus increasing the cost of credit to those companies. Several Latin American countries use this approach.

More open ‘active’ speculation occurs when international hedge funds (HF) and investment banks (IB) – normally based off-shore – speculate on developing country currencies via the carry trade. This seems to be increasingly widespread. A recent example (see Dodd and Griffith-Jones 2006) is the carry trade between the Chilean peso and the Brazilian real; the basic idea of the strategy was to capture the substantial differential between Chilean and Brazilian interest rates as the latter are very high, via use of derivatives assuming that these two currencies are highly correlated, which they were for a period. However, in 2005 when the peso started to strengthen *vis-à-vis* the real (e.g. because the price of copper shot up) HFs and IBs rapidly unwound their positions and thus exacerbated further the strengthening of the peso well beyond that warranted by changes in fundamentals. The Central Bank of Chile has produced econometric evidence of this impact. Of course, the reverse phenomenon

would occur if there was downward pressure on a currency. Such carry trade increasingly involves the yen due to its low interest rate and is likely to be significant in a number of East Asian economies.

Derivatives transactions take place off-shore. This makes it difficult to control such transactions through adopting national regulations only. Perhaps the only effective national regulations for this purpose used until now were the Malaysian controls during the East Asian crisis, but this seems too radical in more normal times. It would seem that internationally coordinated regulation of this purely speculative activity is clearly desirable (as well as of actors like hedge funds), though this may be hard to achieve in the short run. In the meantime, it may be prudent for countries to avoid any capital account liberalisation measures that may facilitate such off-shore speculative activity.

Furthermore, it is important that countries have regulations in place, to avoid that derivatives have lower prudential standards than most traditional banking and securities markets, which could cause problems for financial systemic stability. This includes fairly technical aspects – such as the availability of sufficient collateral and capital requirements – which can however be essential in times of stress.

### **3 Conclusions**

The financial sector has been strengthened significantly in East Asia; vulnerability to crises is reduced by high reserves in most countries. However, important old vulnerabilities remain, especially in some countries.

New challenges are emerging, with the introduction of Basel II and with the development of derivatives. These pose potential new sources of procyclicality. On the other hand, new opportunities arise, with the possibility of issuing local currency and GDP-linked bonds that would reduce countries’ vulnerability to crises further as well as leave space for more sustained growth.

## Notes

- \* We are grateful for the financial support of DFID for this article and conference. We very much thank Masahiro Kawai and Barbara Stallings, and other participants of the Bangkok Conference, for valuable comments.
- 1 But it appears that the distance from the minimum regulatory required also matters. Ediz and Perraudin (1998) using information on UK

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