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Emerging East Asian Banking Systems Ten Years after the 1997/98 Crisis

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Abstract

This paper looks at the development of the banking sector in emerging East Asia in the 10 years since the financial crisis of 1997/98. It suggests that the health of banking sectors in the region has improved substantially, with key changes including increased foreign ownership, movement into new business lines, greater transparency, and shifts toward household and real estate lending. In addition, supervisory and regulatory systems have been upgraded and have become more forward looking and risk based. However, it notes that major credit rating agencies continue to maintain relatively low ratings for many banks in the region, bank share prices have generally underperformed the market, and significant differences persist in the health of the region's banking systems. In addition, bank lending to private business has been weak across much of the region. Restructuring and reform are ongoing processes and will need to continue not only where further rehabilitation from the effects of the 1997/98 crisis is still required, but in other economies as well.

I.   Introduction

This paper analyzes key features of emerging East Asian banking systems ten years after the 1997/98 financial crisis.[1] When the crisis struck, weaknesses in bank balance sheets, together with currency and maturity mismatches, severely exacerbated the downturn and led to widespread bank insolvencies. The period since the crisis has seen substantial rehabilitation of regional banking systems, together with far-reaching reforms to improve the soundness of banking sectors and diversify financial systems away from a heavy dependence on banking. As in other parts of the world, these reforms have also been intended to help meet the ongoing challenges associated with financial innovation and globalization.

There have been many changes in regional banking systems since the 1997/98 crisis. The key changes include: increased foreign ownership, movement into new business lines, greater transparency, and shifts toward household and real estate lending. In addition, following much crisis-induced insolvency, the reported financial health of banking systems in the region has improved and sizable prudential cushions have been built up as new capital has been injected into the sector. Less positively, however, bank lending to private business in much of the region has remained subdued and credit ratings of many regional banks remain relatively weak. Against this background, it was felt that a stock taking was warranted[2] and an effort made to reconcile the various indicators. In addition, the paper considers how the risks faced by regional banking systems may have changed since the crisis and the resilience of the systems to any adverse changes in the macroeconomic or financial environment.

The consideration of these questions is clearly ambitious. The paper seeks to shed light on the issues with background information and analysis, rather than to arrive at definitive answers. Moreover, the analysis is necessarily broad brush, taking a bird's eye view of regional banking systems rather than offering a close examination of the situation.[3]

The approach is subject to five important caveats.

- The analysis is carried out at the level of national banking systems rather than individual banks. In some economies in the region—for example, Indonesia, the Philippines, and Thailand—a number of very weak small banks operate alongside stronger and larger institutions, and this is obscured to some extent by the paper's use of indicators of banking sector performance weighted by (bank) asset size.[4] A focus on size-weighted indicators is warranted to the extent to which large banks are usually most relevant for systemic risk.[5] Arguably, however, the overall efficiency of a

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[1] In the paper, emerging East Asia includes Indonesia; Republic of Korea (Korea); Malaysia; the Philippines; Thailand; the People's Republic of China (PRC); Hong Kong, China; and Singapore.

[2] Numerous studies of regional financial systems have been undertaken, or are in process, to mark the ten-year anniversary of the Asian financial crisis. This study draws on a recent Bank for International Settlements study of emerging market-banking systems and, in particular, Turner (1997), Mohanty (2006), and various editions of the Financial Stability Report of the International Monetary Fund. In addition, extensive use is made of the Financial Stability Reports of national authorities in the region and Ghosh (2006).

[3] An appropriate analogy might be between an "on-site" and "off-site" bank inspection.

[4] Many of the indicators are asset-weighted means or medians of banking sector performance.

[5] Systemic risk refers to the risks faced by the banking or financial system as a whole and differs from the risk faced by individual financial institutions. See Schinasi (2006) for further discussion and elaboration.

banking system depends also on its smaller and medium-sized banks and, in some circumstances, these too may pose systemic risk.[6]

- Reliance is placed mainly on officially reported indicators of bank profitability, asset quality, and capital positions. Even when accurately measured, at best these are imperfect indicators of bank soundness, which depends fundamentally on the quality of banks' risk management systems and the strength of supervisory and regulatory regimes. This shortcoming is alleviated to some extent through the use of forward-looking market indicators, such as bank share prices and credit ratings, which presumably take these latter factors into account.

- The analysis is conducted at the level of individual national banking systems and presupposes a relatively low degree of bank integration across the region. Even though foreign commercial bank presence and intra-regional capital flows have increased in the last ten years,[7] most national banking systems in the region, with the notable exceptions of Singapore and Hong Kong, China, remain predominantly local.

- The analysis is carried out in terms of institutions classified as commercial (or deposit taking) banks. In much of the region, these institutions increasingly have been branching out into new business activities associated in some cases with investment banking. This blurring of lines between different financial institutions raises issues when the performance of "banks" over time is compared. Differences in bank performance can reflect differences in the importance of various activities across institutions and over time.

Of the economies considered in the paper—Indonesia; Republic of Korea (Korea); Malaysia; the Philippines; Thailand; the People's Republic of China (PRC); Hong Kong, China; and Singapore—only the first five experienced macroeconomic crises in 1997/98, and one, the Philippines, did not experience a banking crisis at that time. The inclusion of non-crisis affected banking systems, however, provides a useful benchmark for the crisis-affected economies. Even though included in the study, the coverage of the PRC is somewhat problematic in so far as the data on its banking system is much less comprehensive than for other economies. Largely on account of even more limited data, the banking systems of the smaller low-income Association of Southeast Asian Nations (ASEAN) are not covered in the study.

The paper is organized as follows: the next section reviews key features of longer-term financial deepening and broadening in the region and provides a reference point for post-crisis banking sector developments. Section III considers key changes in the structure, ownership, and activities of regional banking systems, and supervisory and regulatory regimes, that have taken place in the last ten years. Section IV studies the operational efficiency, profitability and soundness of regional banking systems, based largely on officially reported indicators. Section V considers market indicators of the soundness of regional banking systems and whether recent subdued bank lending in the region is implicitly signaling continued weaknesses in regional banking systems. Section VI examines how the risks faced by banking systems may have

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[6] For example, if the large banks maintain exposures to the smaller and medium-sized banks in the interbank market. Such exposures, of course, are netted out when considering the exposures of the banking system as a whole vis-à-vis the rest of the economy.

[7] Reliable information on the size and distribution of these intra-regional bank flows is not available. The consensus appears to be that the flows likely remain small, however. See Lee (2008) and IMF (2006b).

changed since the crisis and the robustness of recently reported improvements in banking sector performance. The last section offers tentative answers to the issues raised above about the state of banking systems in the region ten years after the crisis.

II.   Longer-Term Financial Sector Developments and Trends

Financial deepening and broadening refer to the tendency for the size of (formal)[8] financial systems to increase over time in relation to the size of the economy and diversify or broaden structure.[9] Financial deepening is typically measured by the size of total financial assets in relation to gross domestic product (GDP). Financial broadening is usually assessed through changes in the relative size of bank and capital/securities market assets; as financial systems evolve from predominantly bank-based financial intermediation (indirect finance) to capital market finance (direct finance), capital market assets tend to increase in relative importance. Based on historical experience, the normal process of economic development tends to be characterized first by bank-based financial deepening, as funds are increasingly intermediated through the banks, and then by financial sector broadening as equity and debt markets (and nonbank institutions) become increasingly important. For the most part, financial sector deepening and broadening tend over longer periods to be complementary.[10]

Over the longer run, emerging East Asian financial sector developments have broadly followed the normal development pattern,[11] albeit with differences across economies related to differences in stages of economic development and the "special" roles of Singapore and Hong Kong, China as regional financial centers (Figure 1A–1J).[12] Across the region, financial systems have experienced significant deepening as reflected in total financial assets trending up over time as share of GDP, in most cases by significant amounts.[13] In addition, financial broadening has occurred in all economies as reflected in increases in the ratio of security market assets to banking sector assets (Figure 2A–2I). For the most part, financial sector deepening and broadening have moved together but, as noted below, they have shown a slight negative relationship in some economies since the 1997/98 crisis.

Financial deepening and broadening have been subject to occasional fluctuations relative to trend, related to the business cycle and financial booms and busts. Typically, these fluctuations have been relatively small in amplitude and short lived. The 1997/98 crisis stands out on account of the severity and length of the downturn and its near simultaneous occurrence across

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[8]   The early stages of financial development frequently involve shifts from curbside markets to formal financial sectors following interest-rate deregulation.

[9]   See Gurley and Shaw (1960), McKinnon (1973), and Ghosh (2006).

[10]   Ghosh (2006). This does not preclude the possibility that capital markets may act as a "spare tire" during periods of financial stress.

[11]   The measurement of the extent of financial deepening and broadening is subject to a number of difficulties. In particular, the standard indicators of deepening and broadening—the ratio of financial assets to GDP and the degree of diversity in financial assets—do not measure directly the scale of financial activity and the relative importance of financing through banks and securities markets; the latter, in principle, would need to be measured directly through flow of funds accounts. In addition, double counting can arise when total bank assets (including securities holding) are added to equities and bonds to arrive at a measure of total financial assets. At the same time, of course, none of the abovementioned measures take into account the efficiency of financial intermediation and, in the case of securities markets, their liquidity.

[12]   See the Asia Bond Monitor (2006) for further discussion.

[13]   The deepening can reflect either increases in the prices of assets or their volume. While the former may dominate short-term movements, longer-term trends tend to be characterized by the latter. See Ghosh (2006).

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nearly all economies in the region.[14] In addition, in the ten years since the crisis, the pace of bank-led financial deepening has tended to slow across much of the region while financial broadening has picked up, in contrast to its somewhat muted pre-crisis behavior.

Consistent with international experience, much of the financial deepening in the region has been led by marked increases in the ratio of bank loans to GDP, and there has been a positive relationship between banking sector loans and per capita GDP (Figure 3A–3L). Since the early 1980s, at least, banking sectors across the region were growing rapidly and increased sharply in size in the period immediately before the 1997/98 crisis. During the crisis, lending growth in the sector generally slowed, in some cases sharply. And, even ten years after the crisis, banking sector loans in relation to GDP are still below trend in most economies, notwithstanding a modest recent pickup.[15] The softness in bank-led financial deepening has occurred not only in economies that experienced macroeconomic or banking sector crises in 1997/98 (Indonesia, Malaysia, Philippines, and Thailand) but also in those economies that did not (the PRC; Hong Kong, China; and Singapore). The only exception is Korea, where shifts in financial intermediation back to the banking sector after the 1997/98 crisis have led to significant recent increases in bank loans in relation to GDP.

The long-term trend broadening of the region's financial markets has reflected the growing size of both equity and bond markets, as in Figure 2A–2I. Equity (but not bond) assets were generally growing at, or above, trend in the lead up to the 1997/98 crisis and have subsequently recovered from the sharp declines during the crisis. Although they began to develop in the early 1990s, bond markets have only expanded relatively rapidly since the crisis. The recent growth in bond markets has reflected, among other things, the issue of official bonds to finance crisis-induced bank recapitalizations,[16] notably in Indonesia and Thailand, crisis-related fiscal pressures and official efforts to develop local currency bond markets under the Asian Bond Markets Initiatives (ABMI) and the two Asia Bond Funds (ABF I and ABF II).[17]

Based on the above, it is clear that ten years after the crisis the progressive financial deepening and broadening that has characterized the region has been deviating somewhat from past trends. This is most evident in bank-led financial deepening as banking system loans have generally been soft in relation to GDP. In addition, the relationship between financial broadening and deepening may be changing as debt securities markets have increased in importance.

III.   Structural Changes in Regional Banking Systems

In the ten years since the 1997/98 crisis banking systems in emerging East Asia have restructured significantly, foreign and domestic sources have injected capital, and banking institutions have moved into investment banking-type activities and greater household and real estate lending. In addition, authorities have strengthened the supervisory and regulatory

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[14] While the macroeconomic rebounds from recent emerging market crises have tended to be relatively sharp as reflected in V-shaped patterns for gross domestic product growth, financial system adjustments to financial crises tend to be spread over many years.

[15] For simplicity, this is captured through simple linear time trends. More sophisticated approaches reach broadly similar conclusions about recent developments in relation to trend. Sufficient time has not elapsed since the crisis to allow formal statistical tests for any breaks in trends or changes in the relationship between trend deepening and broadening.

[16] Crisis-related increases in official bond supplies may have distorted the underlying relationship between financial sector deepening and broadening since the crisis.

[17] See Asia Bond Monitor (2006 and 2007)

regimes under which banks operate and have been adapting them to changing conditions in financial markets and financial globalization.[18]

The restructuring of regional banking systems during the last ten years has centered around four main elements:[19]

- Closures, especially of smaller institutions, as well as mergers and acquisitions.

- Cleanups/write downs of distressed bank assets.

- New capital injections from official and private sources, including "temporary" nationalizations.

- Forward-looking financial sector master action plans.

The relative importance of the four elements has varied across economies and over time. In the case of economies at the center of the 1997/98 crisis, the first three elements were critical in the period following the crisis. In Indonesia, Korea, Malaysia, and Thailand substantial restructuring took place immediately after the crisis as a number of troubled financial institutions—banks and non-banks[20]—were closed or merged with healthier institutions; official and private asset management companies were established/strengthened to assist in the resolution of impaired assets; and official and private capital was injected into the banking sector.[21] Even though it did not experience a banking crisis, the PRC has also undertaken substantial restructuring during the last ten years, mainly under the second and third elements,[22] as has the Philippines. Within the region, most economies, including Hong Kong, China, the Philippines, and Singapore have adopted Master Action Plans (MAPs) directed at financial sector strengthening and reform. A key feature of much of the recent financial sector restructuring in the region has been the key role played by the official sector.

Based on the 1997/98 crisis experience, a number of lessons have been drawn about how best to manage banking system crises and reduce the risk of their recurrence.[23] These lessons have importantly shaped financial reform programs across the region, especially in the crisis-affected economies. At this stage, the validity of the lessons has not been fully tested and only time will tell to what extent the "right" lessons have been taken on board. Several points can be noted, nevertheless.

As regards the management of systemic financial crises, the 1997/98 experience pointed to the need for (i) sound and transparent mechanisms to: (ii) intervene in troubled financial institutions; write down impaired assets and maximize recovery value; separate "good" from "bad" banks in order to facilitate new lending; and (iii) redistribute losses among various claimants. In addition, bankruptcy procedures in a number of economies were seen as needing strengthening. In view of the sheer scale of the pressures, the 1997/98 crisis also underscored the potentially important role of extraordinary measures to deal with systemic crises, including centralized

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[18] See Ghosh (2006).

[19] For further information, see Adams, Litian, and Pomelearno (2001).

[20] In the case of Korea, a number of merchant banks were also closed, while in Thailand a large number of finance companies were closed during the crisis.

[21] For a discussion and evaluation of the different approaches see Adams, Litian, and Pomelearno (2001) op. cit.

[22] This has been a response to long-standing weaknesses in its banking system and commitments to financial services liberalization associated with World Trade Organization entry.

[23] For a fuller discussion, see Boorman et al. (2000).

official asset management companies; appropriately implemented blanket deposit guarantees; and injections of official capital when private sources were not available. Most significantly, however, given the significant costs of the crisis, the experience underscored the importance of strengthening regional financial systems and reducing their vulnerability to future crises.[24]

Against this background, financial sector restructuring and reform in the region during the last ten years—especially in the crisis-affected economies—has paid special attention to improving financial system robustness and putting in place prudential cushions (such as capital ratios) commensurate with the risks assumed by financial institutions.

While approaches taken have varied across economies, there have been several common elements.

- Reflecting their key role in the region, emphasis has been placed on improving risk management in banks with a view to strengthening asset quality and reducing bank vulnerability, including to the kinds of (foreign currency) liquidity and maturity mismatches that arose in 1997/98. In addition, financial and other reporting requirements for banks have been expanded to increase the role of (timely) market discipline, independent audits of bank statements are now required in many countries, and much stricter conditions have been placed on the setting up of banks.[25] In addition, most banks in the region are required to hold prudential capital cushions equal to at least 8% of their risk-weighted assets in line with Basel I.

- With a view to helping reduce the dependence of regional financial systems on bank-based financing, significant efforts have been made to develop the bond markets and encourage further financial broadening. Local currency debt securities markets have been nurtured with a view to reducing the dependence on short-term foreign currency bank borrowing.

- Finally, substantive efforts have been made to strengthen financial sector supervision and regulation. Most importantly, there have been the shifts in many economies towards more forward-looking and risk-based bank supervision with increased use of on-site inspections and evaluation of banks' risk management systems in line with the Basle Core Principles for Banking Sector Supervision.[26] As discussed below, efforts have also been made to adapt supervisory and regulatory regimes to the new lines of business into which banks have been moving, including through the adoption by some economies of the integrated regulator model.[27]

Reflecting the above, there have been many changes in regional banking systems since the crisis. Key developments in the concentration, ownership, market structure, business activities, as well as supervision and regulation of regional banking systems, are as follows:

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[24] See Ghosh (2006).

[25] This has occurred against the background of general efforts to strengthen corporate governance and transparency.

[26] See Turner (2006).

[27] Under this model, the supervision and regulation of all financial institutions is placed under one roof either inside the Central Bank/Monetary Authority (Singapore) or outside the Central Bank (Korea).

A. Concentration

One important issue is whether concentration in regional banking systems has increased as a result of recent restructurings. While the closing down and/or merger of troubled banks with stronger institutions would be expected to increase concentration,[28] the size of the effect will depend importantly on whether closures and mergers are mainly among small or medium- to large-sized banks, and on the structure of the new banking groups that emerge. Economic theory and practice do not provide a clear guide as to the implications of any increase in banking-system concentration. On the one hand, concentration might lower unit costs and improve efficiency to the extent to which there are economies of scale and scope.[29] On the other, international experience suggests that highly concentrated banking systems tend to be riskier than less concentrated ones.[30]

Table 1 displays a number of measures of regional banking system concentration: the number of banks, average bank size, the share of assets accounted for by the top three or five banks (the N-Bank Asset Ratios) in each economy, and median asset size. As shown, with the notable exception of the PRC, where bank concentration has traditionally been very high, there has been some increase in concentration in many regional banking systems in the last ten years: not all the indicators, however, point unambiguously in the same direction.[31] Increases in concentration have occurred not only in some of the crisis-affected economies, but also in the relatively mature banking systems of Singapore and Hong Kong, China. In the latter cases, the increases appear to reflect consolidation among medium-to-larger size banks, induced by competitive pressures. Conversely, in the crisis-affected economies, consolidations have largely reflected a truncation of the lower tail of the distribution of banks as a number of relatively small banks have been shut down, or merged with other institutions. Notwithstanding the recent increases, current levels of banking sector concentration in the region do not appear, however, to be high when measured by international norms.[32] Indeed, to the extent to which banking systems in the region had too many small (and poorly regulated) banks before the crisis, the subsequent consolidations may have improved efficiency and lowered risk (see next sections).

B. Ownership

Another important issue concerns the ownership structure of banking systems. Based on international experience, state banks (especially State Development Banks) tend to be less efficient than private banks, but possibly subject to less risk, in so far as they may be explicitly or implicitly underwritten by the official sector. In addition, banking systems with sizable shares of state banks are frequently found to be less efficient overall, possibly because private banks in such systems do not operate on a level playing field.[33] At the same time, however, the operation of state banks in a number of economies, such as the PRC, has been strengthened by the commercialization of operations and partial privatizations.

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[28] In addition, many economies have increased the minimum amount of capital required to establish a bank. These minimum capital restrictions are additional to the standard required prudential capital ratios that have also been applied in many economies in the region (see below) and tend to reduce the number of smaller banks.

[29] Long-standing differences of view exist about the significance of economies of scale and scope in banking.

[30] For discussion, see Ghosh (2006) and IMF Financial Stability Reports (2004 and 2005).

[31] This is not entirely unexpected and reflects the fact that the various concentration measures focus on different dimensions of concentration and different ranges in the distribution curve of banks.

[32] Ghosh (2006) and Turner (2006).

[33] In short, banking systems with high levels of state ownership appear to be less efficient overall, with both the state and private banks in such systems tending to be relatively inefficient. See Ghosh (2006).

C.   Market Structure

Competitive banking systems tend to be more efficient than monopolistic or oligopolistic systems, but can also be prone to higher risk. An important issue concerns the implications of higher levels of bank concentration and changing ownership patterns for the market structure of national banking systems. While rising concentration and higher levels of state ownership might be expected to lower competition, higher foreign bank ownership might have the opposite affect, provided full national treatment is afforded to these institutions.[34] On balance, the effects of recent changes in the structure of regional banking systems on market structure are unclear. Table 1 includes estimates of the H statistic for emerging East Asia banking systems and for the high-income Organisation for Economic Co-Operation and Development (OECD) countries for comparison purposes.[35] The H statistic measures the degree to which banks act as perfect competitors or operate under monopolistic competition; the statistic assumes a value of unity in the case of perfect competition, is between zero and unity in the case of monopolistic competition, and can be negative under certain kinds of strategic behavior.[36] Based on the estimated H statistics, emerging East Asian banking systems appear only a little less competitive than their high-income OECD counterparts. There are, however, significant differences across the region. While Hong Kong, China; Singapore; and Korea appear to be relatively competitive, Thailand, Indonesia, and the Philippines are at the other end of the spectrum. Given limited data and the possible contaminating effects of the cleanup from the 1997/98 crisis, systematic exploration of the behavior of H statistics over time is not possible for most economies.

D.   Household Lending

One development in the last ten years has been a significant expansion of many banks in the region into household lending and real estate.[37] While the mature banking systems of Singapore and Hong Kong, China were already heavily engaged in household lending before the 1997/98 crisis, the last ten years has seen not only their further expansion into household lending but also significant expansions in some other economies, most notably, Korea, Malaysia, and Thailand and, to a lesser extent, the PRC (Table 2). For the most part, the bulk of household lending has been mortgage-related, although unsecured lending (including credit card finance) has picked up in several economies. Household lending has been particularly significant in Malaysia and Korea, where it is now broadly in line with the longer-term household lending shares of Singapore and Hong Kong, China. Several factors account for the increased role of household lending, including financial sector deregulation, government efforts to encourage domestic demand, as well weak business credit demand. As discussed in Section V, it is not clear to what extent the expansion into household lending has been reducing the risks faced by regional banking systems compared to the situation in mature economies where the risk-reduction benefits of such lending have generally been assumed.[38]

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[34] The range of activities under taken by foreign banks will influence the impact of foreign commercial presence, as will whether they are allowed to compete with domestic banks on a level playing field. See Ghosh (2006).

[35] There has been a huge amount of recent empirical work in the region on H statistic. The approach is based on Panzar and Rosse (1987).

[36] Its value is derived from estimates of the extent to which (long-run) revenues move in line with factor costs at the individual bank level. See Panzar and Rosse (1987).

[37] In several economies, including Korea, non-bank financial institutions initially were the major players in the household (notably credit card) market. See Ghosh (2006).

[38] See IMF Financial Stability Report (2004).

E.   Investment-Banking Type Activities[39]

Traditionally, banks in the region have concentrated on the core business of providing relatively illiquid loans to businesses and households, financed by liquid deposit liabilities. Even though this role remains dominant in regional banking systems, the ten years since the crisis have seen an increasing number of banks moving into investment-banking and related activities, especially in Hong Kong, China; Korea; and Singapore. The new activities include securities underwriting and trading, securitization, derivatives and, in some instances, insurance. The shifts have been leading to a blurring of lines across different financial institutions and have been facilitated by relatively liberal laws as regards banking and securities business, or by changes in regulations. Investment banking type activities have also, of course, been assuming a more important role in many banking systems around the world.

Data limitations preclude a clean breakdown of the activities and income of different banking systems by lines of business. However, broad inferences about the importance of investment-banking type activities are possible on the basis of a number of proxy indicators (Table 3).[40] When available, balance sheet data point to relatively large holdings of securities, particularly debt securities, on bank balance sheets in the region: in particular, the Indonesian and the Philippines banking systems hold relatively high ratios of debt securities in relation to total assets.

Another perspective on the extent to which banking systems have been moving into investment-banking type business (including and beyond securities holding) can be gleaned by looking at the extent of the diversification of their income. This is captured by the Income Diversification Index (IDI) which assumes a value of zero when a banking system derives its income from a single source, such as lending activities, and a value of unity when income is equally split between lending and investment banking type activities. As shown in Table 3, while most banking systems in the region not surprisingly still rely mainly on income from traditional banking, the importance of investment banking income is relatively high in many economies, and has generally increased. Finally, the sizes of the moves into investment-banking type activities can be inferred from the sensitivity of equity returns to market conditions. To the extent to which banks become more dependent on investment banking incomes and fee-based business, the sensitivity of their share values to financial market conditions might increase. This is captured through the Market Sensitivity Index (MSI), which has been tending to increase in a number of economies in the region in recent years; for reasons that are not clear, however, the index has declined in some economies where an increase might have been expected.

Finally, national authorities in all economies in the region have been taking significant steps to upgrade their supervisory and regulatory regimes and adapt them to the changing activities of banks and the recent moves into new areas such as household lending.[41] Given that failures in supervisory and regulatory regimes to address financial sector weaknesses in a prompt fashion contributed to the severity of the 1997/98 crisis, the efforts are a critical component of the new regional financial architecture. Changes in three key areas can be noted.

Across the region, supervisors and regulators, to varying degrees, have taken steps to adopt the Basle Core Principles for Banking Supervision and implement the Basel I Capital Adequacy Framework. As a result, the supervisory and regulatory regimes have been strengthened.

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[39] Here, and in what follows, a relatively broad definition of investment banking activities is adopted.

[40] The discussion in the section draws on Ghosh (2006).

[41] See IMF (2004) and Ghosh (2006).

Overall, the changes have been intended to move away from the relatively backward looking approaches to bank supervision used by many economies before the 1997/98 crisis, toward more forward-looking risk-based approaches. Under the latter, for example, asset quality is assessed not only on the basis of repayment histories, but also on the basis of factors expected to influence repayment in the future. Not only are these changes intended to make the assessment of asset quality more closely tuned to the "true" and "prospective" situations, they are also in some economies part of an effort to adopt prompt corrective action approaches in the event that banks begin to experience difficulties. Even though the region's compliance with key elements of Basle Core Principles for Banking Supervision still falls short of rates in advanced economies, progress is evident and has been acknowledged explicitly in reports of the Asian Development Bank, International Monetary Fund (IMF) and World Bank as discussed by Ghosh (2006).[42] Substantive differences nevertheless persist within the region regarding the Core Principles, with high compliance in the mature economies of Singapore and Hong Kong, China, and somewhat lower compliance in a number of others.

Responding to the blurring of lines between different financial institutions, Korea and Singapore have adopted the "new" integrated model of financial sector supervision in which all (or nearly all) financial sector supervision and regulation is carried out by a single body rather than under different roofs.[43] In addition, Indonesia and Thailand have reportedly been considering adopting the integrated regulator model, which is intended to help supervisors assess the overall risk profile of institutions engaged in both commercial and investment banking within a common and integrated framework. In so doing, the difficulties of coordination that can arise when there are separate supervisors for different financial institutions or activities can be reduced. Finally, in response to recent increases in household lending and, in particular, the difficulties Korea experienced with excessive credit card lending early in the decade, a number of economies, including Korea, Malaysia, and Thailand, have begun to implement new systems to monitor household indebtedness, including various forms of credit registries. Exposure of banking systems to the housing market has also been monitored closely in a number of economies, such as Hong Kong, China and Korea, where there have been recent concerns about property prices. The latter has involved, among other things, the enforcement of conservative loan to valuation ratios to cushion banks from declines in house prices, and the stress testing of banking systems to sharp declines in house prices.

Based on the above, national banking systems have undergone a number of changes in the ten years since the crisis. Abstracting from the crisis-induced nationalizations, the trend across the region has been toward a smaller role for state ownership and a larger role for foreign banks, and somewhat higher concentration in many banking systems. Significant efforts have also been made to upgrade and adapt supervisory and regulatory regimes, including through the integrated regulator model. These latter efforts are part of an ongoing process of responding to the risks posed by financial innovation and globalization. Over the next few years, the efforts are likely to be centered on the move by many supervisory and regulatory authorities in the region from the Basel I to Basel II capital adequacy framework.[44]

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[42] See references cited above.

[43] See Barth, Caprio, and Levine (2006).

[44] The 2006 Asia Economic Monitor discusses the provisional programs in the region to adopt Basel II.

IV.   Banking Sector Operational Efficiency, Profitability, and Soundness

The profitability of regional banking systems is influenced by operational efficiency (as measured by operating costs),[45] spreads between deposit and lending rates, and the return on assets (loans and securities).

The operational costs of any banking system depend on factors outside its control (the general level of wages and salaries), and by factors under its control (number of bank branches, staff efficiency). Given the substantial restructuring since the crisis, operational costs in relation to asset size might be expected to have fallen in many regional banking systems, possibly by large amounts. Assessing the size of any cost reductions is difficult, however, given the absence of detailed bank data that would allow for the estimation of the (unit) cost function at different levels of production. Absent this data, cost inferences must be made on the basis of comparisons of (unit) operational cost at possibly different levels of production.[46] Subject to these caveats, Table 4 shows that unit costs have not, for the most part, declined very much in most regional banking systems since the crisis. At the same time, consistent with other information, the data show significant remaining cost differences across regional banking systems, with Indonesia and the Philippines, in particular, exhibiting relatively high costs. More positively, however, unit costs in regional banking systems generally compare favorably with emerging-market banking systems in other regions as discussed further in Ghosh (2006).

Given the continued dominant role of traditional financial intermediation in the region's banking systems, spreads between loan and deposit remain the primary source of most banking systems' income. As also indicated in Table 4, the spreads remain at relatively elevated levels in many of the region's banking systems, and especially in Indonesia, the Philippines, and Thailand. In these economies, relatively high spreads have provided an important source of income to finance bank recapitalizations, and continue to do so, but to a somewhat lesser degree in recent years. The ability of banks to cover part of their recapitalization costs through lending spreads is, of course, not fully consistent with a competitive banking system unless there are significant weaknesses across many banks. In a very competitive system, relatively strong banks would be expected to bid away business from weak banks to the extent that the latter sought to pay low deposit rates, or charge high loan rates, in order to generate income.

The return on assets across the region's banking systems has recovered from the low points during the crisis, with average returns generally in the 1–1.5% range in recent years, broadly in line with international norms (Table 4). Especially in the case of the crisis-affected economies, the rebounds appear to reflect lower (specific) provisioning (which is deducted from earnings) as non-performing assets have been resolved and taken off bank balance sheets. In Indonesia, the returns on assets have remained relatively high, apparently related, in large measure, to the wide spreads between deposit and lending rates and relatively high returns on government securities holdings. Finally, the rate of return on bank equity is shown in the table, and is linked to the rate of return on assets by the degree of banking system leverage.[47] Even under relatively strict risk-weighted capital adequacy requirements, most regional banking systems remain highly leveraged as reflected in the large spreads between the returns on assets and equity.

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[45] Operational costs do not include provisioning and are based primarily on efficiency and factor costs.

[46] In addition, one would ideally want to take into account the extent to which institutions are engaged in commercial or investment banking given that the costs in the two areas may be different.

[47] The difference between the rates of return on assets and equity is used below to infer the equity capital to assets ratio.

The financial health of banking systems increasingly is being assessed through Financial Soundness Indicators (FSI). These indicators cover a range of variables including the amount of regulatory capital held in relation to risk-adjusted assets (currently under the Basel I framework), the quality of assets, domestic liquidity cushions, exposures to certain types of market risk (such as exchange rate or interest rate risk), and any concentrations in loans to particular sectors. The indicators can be used as warning lights for current or potential future problems in banking systems.[48] Notwithstanding their potential usefulness, however, there are several reasons for care in interpreting the indicators.

- First, as noted earlier, the soundness of any banking system will be determined fundamentally by the quality of its risk management systems, which is not captured directly by financial soundness indicators. Consistent with this observation, current best practice in bank supervision is to pay primary attention to the quality of risk management systems in "scoring" the safety and soundness of banks.

- Second, the quality and integrity of the indicators depends on the strength of supervisory and regulatory regimes and their ability to ensure that reported data accurately reflect factors such as asset quality and appropriate provisioning.

- Third, notwithstanding efforts to ensure uniformity, there continue to be differences across economies with regard to the criteria used for classifying loans as non-performing (in particular, whether the three- or six-month overdue rule is used) and with regard to whether reported non-performing loans (NPLs) are net of specific provisioning and include "accrued/suspended" interest.

- Fourth, many of the indicators are closely interrelated and serve as foundations for other indicators. For example, asset quality, as measured by NPLs, influences importantly the measures of risk-based capital adequacy in so far as it influences earnings net of provisioning, and asset quality.[49]

- Finally, there is little systematic empirical work on the ability of financial soundness indicators to signal impending banking sector problems. The limited evidence pre-Asian crisis is not very comforting in so far as none of the (then reported) financial soundness indicators clearly suggested banking sector problems of the scale experienced in 1997/98.[50] Improvements in the integrity of the data related to the increased use of external audits and stronger supervision and regulation since the crisis should, however, prove helpful.

Subject to these caveats, three broad sets of FSIs are reported in Table 5. The indicators are under three groups: Asset Quality (as measured through NPL ratios); Domestic Liquidity Cushions (as measured by two alternative liquidity ratios); and Capital Cushions (as measured by the Basel I ratios of regulatory capital to risk-weighted assets and the ratio of market capital to risk-unadjusted assets).[51]

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[48] The International Monetary Fund has recently embarked on a project to assemble consistent financial soundness indicators for a number of mature and emerging market banking systems.

[49] In these circumstances, the existence of many indicators pointing in the same direction is not necessarily a source of (extra) comfort.

[50] See Goldstein and Turner (1996).

[51] This is derived from the spread between the reported rates of return on equity and assets.

The FSIs suggest major improvements in the soundness of regional banking systems since the crisis. Most significantly, they suggest substantial strengthening in asset quality across much of the region, as reflected in sharp reductions in NPL ratios from crisis peaks, and increases in regulatory capital ratios to generally very high levels.[52] In the case of the crisis-affected economies, the improvements, for the most part, reflect the near completion of the process of provisioning for impaired assets. With provisioning largely complete, the returns on assets and equity have bounced up in recent years (as less income each period is dedicated to specific provisioning),[53] and higher net income has been used to build up regulatory capital ratios to high levels. It is apparent from the table, however, that NPL ratios still remain relatively high in several economies, most notably the PRC, Indonesia, the Philippines and Thailand, suggesting continued weak asset quality.[54] While the improvements are encouraging, it should be noted that major credit rating agencies have suggested that asset quality in some economies' banking systems may be weaker than implied by official NPL estimates. Based on the standard five-way classification of bank loans—standard, watch list, substandard, doubtful, and loss—a number of agencies have argued that loans in the last three or four of these classifications might be higher than implied by official reporting.[55] The continued (and possibly understated) high levels of NPLs (or non-performing assets) are a concern in so far as they are continuing several years into the current economic expansion in circumstances of unusually benign economic and financial market conditions.[56] To the extent that current conditions represent the top of the cycle, any downturn would lead to the ratios rising from already elevated levels in a number of economies.

Capital adequacy ratios have generally risen to relatively high levels in much of the region and the regulatory risk-weighted capital asset ratio has been close to the 15–20% range in many economies (Table 5).[57] Such a range is well above the international minimum of 8% and serves to underscore the improving soundness of regional banking systems.[58] However, the assessment of the current high levels of reported regulatory capital ratios is not straightforward.[59]

A fundamental difficulty in using regulatory capital ratios to assess banking sector soundness is related to the fact that the 8% prudential minimum is based on the assumption that risk is appropriately managed and priced, and that provisioning is adequate. If risk is undervalued by

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[52] Note that nonperforming loans represent only one measure of asset quality. Broader approaches are based on the five-way classification on loans into categories that include: standard, watch list, substandard, doubtful, and loss. Different specific levels of provisioning are typically required for each category.

[53] Whereas general provisioning adds to capital, the putting aside of funds for specific provisioning subtracts from capital.

[54] See various reports of Moody's Investors Service, Fitch Ratings, and Standard and Poor's Ratings Services.

[55] Fitch (2005) and Moody's (2006).

[56] In some economies, such as the Philippines, the quality of bank assets is underestimated by nonperforming loan (NPL) measures in so far that any previously restructured loans that do not perform are reflected in the non-performing assets rather than non-performing loan nonperforming loan ratio.

[57] To the extent to which the riskiness of national banking systems differs, a case could be made for the riskier systems to hold higher regulatory capital ratios; the recent trend appears to be toward convergence. For example, if the regulatory capital ratios in the mature and less risky banking systems of Singapore and Hong Kong, China, are currently at appropriate levels in the 15-20% range, one issue is whether the less mature and riskier banking systems should be holding even higher regulatory capital ratios. No simple answer can be provided even though the issue relates importantly to how the soundness of different national banking systems is to be assessed.

[58] Many economies in the region require their banks to maintain ratios above the international norm of 8%.

[59] Part of the difficulty relates to the way in which these ratios are calculated. Under the Basel I capital adequacy framework, regulatory capital is not measured directly by the market value of a bank but by its historic value adjusted to take into account retained earnings and general provisioning. In these circumstances, the amount of regulatory capital may only be related loosely to its stock market value. In addition, different financial instruments, including subordinated debt and debt-equity hybrids can be included as capital under the current framework.

banks,[60] the first line of defense against unforeseen losses (loan pricing, specific provisioning and profitability) will be inadequate, and the second line of defense (capital and other cushions) might need to be commensurately higher. Unfortunately, there is little systematic evidence on the pricing of loans in different national banking systems; what anecdotal evidence there is—notably the reports of credit rating agencies—is not generally positive, especially as regards the banking systems of the PRC, Indonesia, the Philippines and Thailand.[61] Whether current regulatory capital ratios are adequate is not therefore clear, and the recent high ratios across the region do not provide grounds for complacency.

Considerable care also needs to be exercised in comparing risk-weighted regulatory capital ratios across economies and drawing inferences about soundness. One interesting perspective on the appropriate size of capital cushions can be obtained by noting that there is, in principle, a tradeoff between the size of capital cushions and bank risk management systems. Banks with weak risk management systems (or where there is uncertainty about the robustness of new systems) might be required by supervisors to hold very large capital buffers as added insurance against unexpected loss. Conversely, banks that systematically demonstrate superior risk management skills might be permitted to hold smaller capital cushions.[62] Against this background, the relatively high capital cushions in several banking systems in the region might be seen as providing additional buffers in circumstances where the robustness of new risk management systems has not yet been tested.

Table 5 also displays unadjusted capital or equity asset ratios derived from the rates of return on assets and equity in different banking systems. These are based on the market value of equity and make no adjustment for the riskiness of different assets, as in the case of the regulatory risk-weighted capital ratios. As can be seen, unadjusted capital ratios are generally below the regulatory ratios. The divergence appears to be explained, in part, by the fact that the credit risk weight on (own) sovereign claims is treated as zero in most banking systems under the Basel I approach. As a result, banking systems that hold sizable claims on their own official sector (such as Indonesia) do not hold capital against the credit risk of these claims, leading to regulatory capital being below market capital.

Finally, Table 5 also includes estimates of (domestic) liquidity cushions. The liquidity cushions are at the level of banking systems as a whole and do not therefore allow for the role of the inter-bank market in distributing liquidity among banks. Reflecting subdued lending, banks across the region appear to have built up comfortable ratios of liquid assets to total assets; in addition, a relatively high proportion of short-term liquid liabilities is matched by liquid assets. No clear benchmarks exist for the appropriate size of liquidity cushions. Commercial banking, by its nature, involves banks going "short" liquidity in so far as they finance relatively illiquid loans through relatively liquid deposits. In these circumstances, central banks may provide various liquidity facilities and act as lenders of last resort, backstopping the system in the process.

Overall, the indicators suggest a substantial turnaround in banking sector performance and a strengthening of banking sector soundness. Large differences exist across banking systems in the region, however, and it is difficult to identify appropriate benchmarks against which soundness should be assessed. The strengthening of supervisory and regulatory regimes in the

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[60] For example, by charging high and low risk borrowers the same interest rate.

[61] The issue here is more one of a lack of information about pricing rather than a clear indication that loans are necessarily under priced.

[62] Certain minimum capital cushions are required to ensure that bank owners have incentives to avoid excessive risk taking.

last ten years should reduce the size of any overstatement in asset quality and add additional credence to the official FSIs.

V.   Bank Credit Ratings, Market Values and Bank Behavior

Market-based indicators such as credit ratings and bank share prices, and the lending behavior of banks can provide additional information on conditions in regional banking systems.[63] Credit ratings and bank share prices did not prove to be very reliable in the lead up to the 1997/98 crisis but subsequent improvements in bank transparency, as well as strengthened bank monitoring by ratings agencies, should help improve their information content. And, in so far as the traditional business of banking is making loans, bank lending behavior can provide a guide to whether and to what extent banks are "back in business", and whether they face any impediments expanding their loan books.[64]

Table 6 displays major credit rating agency assessments of the stand-alone strength of banks in the region on a scale from A (excellent) to E (the very weakest). The numbers in each column refer to the number of banks in each ratings range. While there have clearly been improvements in ratings relative to crisis lows in the case of the crisis-affected economies, most of the banks in these economies still receive relatively low ratings in the D to E range. In addition, not only are banks in the crisis-affected economies generally rated below banks in Hong Kong, China and Singapore, their ratings in several cases are not very different than before the 1997/98 crisis. The failure of ratings to exceed pre-crisis levels is surprising given substantial restructuring in the last ten years. This may reflect the judgment of rating agencies that emerging market banks are inherently risky because they operate in more risky environments, with Hong Kong, China and Singapore treated as special cases. However, other interpretations are possible.[65]

One possibility is that the overall stability of the ratings for these economies conceals implicit upgrades as suggested by Turner (2006). If, as seems likely, pre-crisis ratings overstated bank strength in the crisis economies, a re-rating to a more appropriately determined but similar pre-crisis rating would be an indication of an implicit upgrade. To some extent this appears to be the case, and is implicit to some degree when the ratings agencies explain their assessments. On the other hand, another interpretation—consistent, to some degree, with findings from other regions—is that bank credit ratings tend to lag (rather than lead) improvements in bank performance. If this is the case, continued low ratings might be a transitional phenomenon; eventually there will be upgrades, that is, provided that the improvements in bank performance indicators discussed in earlier sections are sustained.

Turning to bank share prices, as seen in Table 7, the picture is not uniformly favorable. On a positive note, weakness in bank share prices relative to overall indices has been partially reversed in Korea and Malaysia and bank share prices have recently been slightly outperforming the market in the latter case. Elsewhere, however, banks have been

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[63] See Persson and Blavarg (2003) and the 2006 Asia Economic Monitor. Turner (2006) also studies market indicators.

[64] The use of market indicators is subject to a number of caveats. First, the ratings and pricing of banks are invariably influenced by the possibility of official support in the event that a bank runs into difficulty. Major international credit rating agencies seek to allow for this by issuing stand-alone credit ratings, intended to measure the underlying strength of banks in the absence of support, and these are used below. Arguably, however, the possibility of official support influences many aspects of bank operations, including the cost of funding through either deposits or the interbank market, and it is very difficult to fully adjust for its effects. Second, given that the largest and soundest banks in any country are the ones that are typically listed and rated, the indicators may not be a good guide to overall banking system quality, and be subject to an upward bias.

[65] The discussion here is based on Turner (2006) and various issues of the IMF Global Financial Stability Report.

underperforming the market, in some cases by growing amounts. In view of the sharp increases in many regional equity markets in recent years, comparing bank performance relative to the overall market might be an excessively demanding benchmark. On the other hand, given the extensive restructuring of the banking sector in many economies and high levels of official support provided in the crisis-affected economies, a relatively stronger bank performance might be expected.

The key difficulty in seeking to draw inferences about bank soundness from bank lending behavior is that lending volumes are influenced by both demand and supply conditions. In these circumstances, softness in lending, and a failure of banks to be "back in business", will not necessarily signal difficulties on the credit supply side (related, for example, to weak bank balance sheets, inadequate capital, or low deposits); instead, the softness might be the result of weak loan demand. The softness suggests, however, that banks have not fully returned to their traditional lending role, and explains, in large measure, the recent slowing of financial deepening in the region discussed in Section II.[66]

One possible explanation is that the softness in lending reflects a shift in business financing away from banks towards domestic (or foreign) equity and debt securities markets. A second possibility is that it reflects low business loan demand related to the recent weakness in investment in much of the region. Another possibility on the supply side is that banks in the region are continuing to strengthen their balance sheets and reduce risk, leading them to ration credit supply to the private sector. All three factors may be important and may differ in their significance over time and across regional banking systems.[67]

It is not possible to be definitive about the factors accounting for the recent softness of bank credit in the region. Banking-sector weakness, however, appears unlikely to be a key factor, given that lending is soft both in economies with strong banking systems and those with weak systems, and lending has not picked up very much, even though banks have been strengthening balance sheets in recent years. At best, it may help explain a small part of the lending softness in some of the crisis-affected economies as a result of their efforts to improve asset quality and lower risk. Shifts to alternative financing sources, such as debt and equity securities markets, also do not appear to explain much of the softness in bank lending.[68] These markets have not generally expanded sufficiently rapidly in most economies to become a major source of new funding. Further analysis, however, is needed to understand the incentives firms face to switch funding sources from banks to securities markets and the scope to better quantify the role of shifting between available financing sources.

Neither credit ratings nor share prices provide entirely encouraging signals about regional banking systems. Contrary to officially reported indicators, they do not point unambiguously to a significant strengthening in many regional banking systems relative to the pre-crisis situation; consistent with official indicators, however, they suggest the possibility of wide differences across regional banking systems. On the other hand, the recent softness in bank lending, and the failure of banks to be "back in business", does not appear to be signaling that banking systems are continuing to limit the supply of bank credit. For the most part, the softness appears

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[66] The softness in bank lending across the region is accounted for by a reduction in credit multipliers rather than declines in the monetary base. The size of the credit multipliers depends on the share of wealth individuals hold in bank deposits, the liquid and other reserves banks hold, as well as their securities' holdings

[67] Another possibility that can be easily dismissed is that households and firms have shifted funds from banks in response to concerns about the health of the banks. There is no evidence that such shifts have been important or that banks have faced difficulties issuing deposit liabilities.

[68] Shifts towards international financing account for some of the effect but are not large enough to be a major consideration.

to be due to weak business investment across the region, even though lingering weaknesses and efforts to improve asset quality, at the margin, may have played a role in some regional banking systems.

VI.   Credit, Market, and Liquidity Risk

The risk posed by banking systems can be assessed through measures of banking system soundness. Banks (and other financial intermediaries) face three main types of risk: (i) credit risk, which refers to the risk associated with the inability or unwillingness of a debtor to service a loan; (ii) market risk, which is associated with changes in asset prices such as exchange rates, equity prices, or interest rates; and (iii) liquidity risk, which is related to differences in the liquidity of assets and liabilities.[69] Sound risk management requires that an institution be aware of the size and nature of the risks associated with different activities (and the relationship between them) and that it has in place robust systems to ensure that these risks are contained within prudential norms set by shareholders and by the supervisory and regulatory authorities.[70]

Traditionally, credit and liquidity risk have been the major risks banks have faced. This reflects their key role as financial intermediaries and their use of liquid deposits to fund loans that are, typically, relatively illiquid. In response to many banks' recent expansion into new activities, however, risks associated with changes in the market value of securities held in bank portfolios and various derivatives have also become more important. And, arguably, operational risk—the risk of loss associated with internal procedures or the settlement of transactions—may also have increased in importance with investment banking and proprietary trading, but this has not been systematically studied.

An important question concerns the extent to which the robustness of regional banking systems has improved since the crisis or, equivalently, the extent to which vulnerability has been reduced. Fundamentally, two broad sets of interrelated issues are involved in addressing this question. The first concerns the amount and types of risk on banking system balance sheets, and whether these are significantly lower than before the 1997/98 crisis. The second, whether banking systems have adequate capital, and other cushions in place, in relation to the risks they have assumed. Neither of these issues can be fully addressed without detailed information on the structure of bank balance sheets and their risk management/mitigation systems. Absent this data, the assessment needs to be carried out on the basis of the size and broad sectoral composition of bank portfolios (Business, Government and Household Lending) along with a scoring (more or less risky) of the macroeconomic and structural environment in which banks operate.

The assessment of the robustness of banking systems is complicated, of course, by the extent to which banking systems have taken on new and different risks. In such circumstances, comparisons of risk at different points in time involve differences in both the amount and types of risk to which banking systems are exposed. As noted below, some risks, notably foreign currency liquidity risk (related to pre-crisis foreign currency borrowing) appear to have been reduced substantially since the crisis, while new risks, related in particular to consumer lending, interest rates and house prices, appear to have increased.

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[69] In addition, operational risk (see below) is important.

[70] Note that efforts to enhance banking system soundness are not intended to avoid bank failures. Normal market mechanisms call for institutions that make the "wrong" decisions to fail and for their owners to suffer losses. Rather, a key objective is to reduce the risk that bank failures will spill over to other financial institutions and create collateral damage or systemic risk.

A.   Credit Risk

Weaknesses in credit risk management, loan concentrations and inadequate (real) capital cushions—together with adverse macroeconomic and financial shocks—were key contributors to the severity of the 1997/98 crisis.[71] Appropriately, therefore, over the last ten years banks in the region have sought to strengthen management of credit risk and build up capital cushions. To varying degrees across national banking systems, lending in relation to bank assets has been scaled back and diversified towards the household sector, business lending to troubled firms has been pared back, and holdings of "credit-risk free" government securities have increased. As a result, the overall size of loan exposures has been reduced and the composition of loan books has shifted from business sectors towards household and government credit risk.[72] Whether these changes in the size and composition of loan books on balance has increased or lowered bank risk depends on several considerations.

Based on the experience in mature economies, diversification into mortgage and non-mortgage related household lending and increased holdings of (own government) official claims might be expected to reduce credit risk.[73] Whether these risk reductions will necessarily apply in the region is not straightforward, however. Reflecting the short experience of many economies in the region with household lending (other than Hong Kong, China and Singapore), long time series do not exist on the default rates on household lending and their correlation with business loans. And, as illustrated by the credit-card bubble experience in Korea in 2002–03, there can be teething problems when financial institutions move into new areas such as household lending.[74] Moreover, even mortgage lending can carry significant risks when loan-to-valuation ratios are not sufficiently conservative.

The credit risk associated with bank lending to the business and household sectors is obviously influenced by the environment in which banks operate. As illustrated in Table 8, the last few years have been characterized by very favorable macroeconomic and financial conditions in the region, as reflected in relatively strong (but generally lower than pre-crisis) growth rates, low inflation, and generally low nominal interest rates. In addition, the volatility of these variables has generally fallen from earlier periods—and especially relative to the 1997/98 crisis—creating an unusually benign environment.

The financial health of the key sectors banks to which banks lend has also improved relative to earlier periods. Prior to the 1997/98 crisis, relatively high levels of corporate leverage together with low interest coverage ratios and returns on assets contributed in a number of economies to severe corporate fragility.[75] As measured by a number of indicators, the financial health of corporate sectors has improved sharply in the region as reflected in the mean or median values of various indicators of corporate health, as seen in Table 9. However, significant differences persist across economies, and the financial health of the corporate sectors in Hong Kong, China and Singapore generally appears much stronger than elsewhere and, especially, than in Indonesia and the Philippines.

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[71] Prior to the 1997/98 crisis, capital cushions were overstated in a number of economies as a result of imperfect accounting for asset quality. Goldstein and Turner (1996).

[72] In addition, some banking systems have lain off part of their credit risk through credit derivatives. Little information is available on these off balance sheet operations. See IMF global Financial Stability Report (2005).

[73] These latter claims receive a lower risk weighting under the Basel I capital adequacy framework than claims on the business sector.

[74] See Bank of Korea Financial Stability Reports.

[75] See Asia Economic Monitors for 2003, 2004, and 2005.

With the recent increased role of household lending—mortgage and non-mortgage—the financial health of the household sector and conditions in property markets are becoming more significant influences on the credit and other risks faced by the banks. As illustrated in Table 10, indicators for the household sector, for the most part, are not generally suggestive of a significant accumulation of household indebtedness. Important information is lacking, however, on the distribution of credit across households and the extent to which it may have been concentrated in particular income groups.[76]

On balance, the credit risk on regional banking system balance sheets might arguably be somewhat lower than before the 1997/98 crisis. Such an assessment is predicated importantly, however, on the assumption that the reduction in the overall level of credit risk associated with cutbacks in lending and increasing risk associated with higher household lending and other bank activities does not offset the risk reduction benefits of the improved macroeconomic and financial environment.

B. Market Risk

The key market risks banking systems in the region face are related to their holdings of securities (with risks of capital loss in the event of sharp increases in interest rates), and their lending to the property sector (related to the collateral value of housing).[77] For the most part, banking systems in the region have shifted the interest rate risk associated with mortgage lending to the household sector by issuing adjustable rate mortgages. In the event of financing difficulties due to a sharp rise in interest rates, the effects would be felt in the first instance by households. Faced with a severe shock, however, this risk might be shifted back to the banks if households experience difficulties servicing mortgages.

C. Liquidity Risk

Foreign currency liquidity risks associated with currency mismatches played a key role in the 1997/98 crisis. For the most part, these risks appear to have been substantially reduced in the region as national authorities across the region have accumulated large stocks of international reserves to more than cover total short-term external debt.[78] In some economies, however, notably the PRC, there have been increases in on-shore foreign currency borrowing and lending by domestic banks that have been a source of concern. Notwithstanding a lack of clarity about the maturity structure of these foreign currency liabilities and assets, they are not seen as large enough to pose systemic risks.[79]

Against this background, the key liquidity risks relate to domestic liquidity and to any mismatches between the maturity of banks' domestic currency liabilities and assets. As noted in the previous section, most regional banking systems currently have relatively comfortable liquidity cushions related either to prudential requirements and/or heightened risk aversion. On balance, domestic liquidity risk does not appear to be very large for most regional banking systems and national authorities have the tools at their disposal to meet any liquidity shocks that might pose systemic risks.

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[76] Risks associated with elevated property prices are discussed in the most recent Asia Economic Monitor.

[77] In addition, banks face foreign exchange rate and equity price risks. These appear, however, to be small and manageable. See IMF Staff Report for China (2006).

[78] See the latest issue of the Asian Economic Monitor.

[79] See recent IMF Article IV staff Reports for the People's Republic of China.

Based on the analysis in this section, the vulnerability of regional banking systems to certain kinds of risk appears to have fallen but may have risen in response to new risks associated with capital market activities, household lending, and real estate. On balance, the net effect on risk is unclear, but the sizable build up of reported prudential cushions provide grounds for guarded optimism.

VII.   Assessment and Conclusions

Much has changed in regional banking systems in the last ten years. Reflecting extensive restructuring and reform, banking systems have experienced consolidation, previously closed systems have been opened to foreign entry and, abstracting from temporary crisis-induced nationalizations, state ownership has continued to decline. Across the region, banks have also been moving into new areas related to investment banking, household lending and real estate, and the range of financial services and products has expanded. In addition, supervisory and regulatory systems have been upgraded and become more forward looking and risk based, and have been adapting to the new activities.

Reflecting these developments, most official indicators suggest the health of banking sectors in the region has improved substantially from crisis low points. At the same time, however, major credit rating agencies continue to maintain relatively low ratings for many banks in the region, bank share prices have generally been underperforming the market, and significant differences persist in the health of different banking systems in the region. In addition, bank lending to the private business sector has been weak across much of the region, and banks are not yet fully back in business ten years after the 1997/98 crisis.

What should one make of these different messages? Based on the analysis in the paper, the following tentative conclusions might be drawn. Across much of the region, significant progress has been made cleaning up impaired assets, strengthening risk management systems, and returning banks to good health. Progress, however, has been uneven and the state of banking systems still differs sharply across economies: Indonesia, the Philippines and Thailand have yet to complete the rehabilitation and restructuring processes; Korea and Malaysia seem relatively far advanced; the PRC is making significant progress addressing deep-seated weaknesses in its banking system; while Singapore and Hong Kong, China, which did not experience banking crises in 1997/98, remain in front.

Why bank lending across the region has generally remained subdued since the 1997/98 crisis is not well understood. The pervasiveness of the weakness across the region points toward common influences. Especially in the crisis-affected economies, the weakness may still to some degree reflect limitations on credit supply as banks continue to improve asset quality and reduce risk, but the effect by now is probably relatively small. The recent growth in bond markets in the region may have contributed to the softness in bank lending, but does not seem to be quantitatively very important in most economies. For the most part, the softness appears to reflect the pervasive weakness in business investment in much of the region.

A key question concerns the robustness of regional banking systems today compared with before the 1997/98 crisis. The robustness of the systems depends, of course, not only on the amount of risk on bank balance sheets, but also, importantly, on the sizes of the capital and other prudential cushions and the types of shocks to which systems are exposed. Arguably, banking systems across the region are much less exposed to certain risks (such as a withdrawal of foreign currency liquidity) than before the 1997/98 crisis. However, in moving into

new business activities and household and real estate lending, they have also assumed new risks, and it is difficult to compare these with those that were important before the crisis. Moreover, the new systems have yet to be tested by a major financial or economic shock. However, the relatively large prudential and other cushions that appear to have been built up across regional banking systems provide significant comfort.

Ten years after the 1997/98 crisis, regional banking systems have clearly made significant progress in improving risk management, building up sizable prudential cushions and improving efficiency. Restructuring and reform, however, are ongoing processes and will need to continue not only where further rehabilitation from the effects of the 1997/98 crisis is still required, but in other economies as well. Forward-looking, risk-based supervisory and regulatory regimes are a key component of regional banking systems. In periods of rapid financial innovation and globalization, new and different types of risk will continue to appear, underscoring the fact that supervision and regulation must continue to adapt to new challenges to financial stability.

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Table 1: Structure, Ownership, and Competition Banking

	Number of banks			Average size of assets (US$ billions)			Median size of assets (US$ billions)		Concentration ratio of assets of top three banks (%)	
	1997	2002	2004	1997	2002	2004	1998	2004	1997	2004
PRC	86	129	135	10.2	13.6	18.0	n.a.	n.a.	73.2	61
Indonesia	222	142	134	0.5	0.6	0.7	0.2	0.8	n.a.	42.2
Malaysia	36	26	25	2.7	3.8	4.8	1.9	7.4	22.8	33.1
Korea	16	11	8	17.8	43.6	79.5	16.7	61.9	50.7	50.6
Philippines	51	24	24	1.0	1.6	1.7	0.4	1.3	29.6	29.4
Thailand	16	13	12	10.6	8.3	11.1	4.4	13.4	47.4	47.8
Hong Kong, China	361	224	208	0.8	1.2	1.3	3.3	5	29.7	53.4
Singapore	152	120	113	0.7	1.0	1.2	2.2	0.8	75.6	91.8
Japan	148	137	129	36.2	40.8	50.1	n.a.	n.a.	26.9	35.3
United States	9060	7798	7532	0.4	0.6	0.7	1.4	2.2	17.3	30.3

	Concentration of assets of top five banks (%)		Average state ownership in top ten banks (%)		Average foreign ownership in top ten banks (%)		Average state ownership in top ten banks (%)		H Statistics
	1998	2004	1997-99	2004	1997-99	2004	1997-99	2004	2004
PRC	n.a.	n.a.	96.4	89.7	0.02	3.2	96.4	89.7	n.a.
Indonesia	29	59.1	73.8	51.3	0	16.7	73.8	51.3	0.71
Malaysia	53.3	70.7	10.9	3.5	15.9	26.2	10.9	3.5	0.87
Korea	70.1	60.1	37.2	5.8	12.2	21.3	37.2	5.8	0.95
Philippines	41.6	51.5	7.8	5.8	11.3	9	7.8	5.8	0.78
Thailand	51.5	69	1.3	29.3	8.1	11.7	1.3	29.3	0.22
Hong Kong, China	n.a.	n.a.	0	0.3	63.1	66.5	0.0	0.3	0.94
Singapore	n.a.	n.a.	0	4	8.3	15.6	0.0	4.0	0.93
Japan	n.a.	n.a.	0	1.3	0.2	3.6	0.0	1.3	n.a.
United States	n.a.	n.a.	0	0	0	3.2	0.0	0.0	n.a.

Source: International Financial Statistics (IMF) and The World Bank.

Table 2: Bank Household Lending (as a percent of total loans of commercial banks)

	Housing		Other consumer		Business	
	1998	**2004**	**1998**	**2004**	**1998**	**2004**
Hong Kong, China	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Indonesia	5	6	7	18	34	31
Korea	9	33	18	17	69	47
Malaysia	18	28	8	16	64	45
Philippines	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
PRC	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Singapore	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Thailand	7	10	3	6	71	68

Source: Turner, P. 2006. "Banking Systems in East Asia: Ten Years Later." A paper prepared for the Asian Economic Policy Review conference on "Ten years after the Asian crisis: what have we learned or not learned?".

Table 3: Banking Sector Securities Holdings and Activities

	Securities Holdings (as a % of Total Assets)		Income Diversification Index (IDI)		Market Sensitivity Index (MSI)	
	2001	**2004**	**1998**	**2004**	**2000**	**2004**
Hong Kong, China	15.5	19.2	0.43	0.61	5.6	7.4
Indonesia	n.a.	n.a.	0.46	0.45	1.1	3.4
Korea	26.2	20.8	0.65	0.61	0.1	3.6
Malaysia	13.0	10.6	0.53	0.64	7.2	5.3
Philippines	24.6	31.6	0.57	0.65	4.2	4.5
PRC	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Singapore	19.0	17.1	0.40	0.41	5.7	6.4
Thailand	14.1	16.0	0.41	0.61	6.5	4.7

Source: CEIC, national sources, International Financial Statistics (IMF), and The World Bank.

Table 4: Banking Sector Operational Costs and Profitability

	Operating Costs to Total Assets			Loan-deposit Spread			Return on Asset (ROA)		Return on Equity (ROE)	
	1998	2001	2004	1998	2001	2004	2001	2004	2001	2004
Hong Kong, China	1.2	1.2	0.9	2.2	2.7	5.0	1.2	1.5	n.a.	18.7
Indonesia	4.0	2.3	3.2	-5.0	2.7	7.2	1.5	3.5	13.4	42.2
Korea	2.9	1.4	1.5	1.8	1.8	2.0	0.7	0.9	12.8	15.2
Malaysia	1.5	1.7	1.7	3.3	3.6	3.0	1.0	1.4	13.4	16.3
Philippines	3.8	3.3	3.1	4.2	3.4	3.7	0.5	1.0	3.4	7.6
PRC	1.5	1.1	1.1	2.5	3.5	3.3	n.a.	n.a.	n.a.	n.a.
Singapore	0.8	0.9	1.1	2.7	4.1	4.9	1.0	1.3	n.a.	11.8
Thailand	2.8	1.9	1.8	3.4	4.6	4.5	1.3	1.3	n.a.	15.7

Source: International Financial Statistics (IMF), The World Bank, CEIC, and national sources.

Table 5: Financial Sector Soundness

	Non-performing Loans (NPL)		Capital Adequacy Ratio (CAR)		Equity/Asset (%)	
	2001	2004	2001	2004	2003	2004
Hong Kong, China	5.16	1.63	16.5	15.4	8.28	8.02
Indonesia	12.1	5.75	20.5	19.4	108.33	81.4
Korea	2.9	1.7	11.67	12.06	5.88	5.92
Malaysia	10.50	6.8	12.84	14.3	8.5	8.59
Philippines	17.35	12.72	15.3	18.7	12.9	13.16
PRC	n.a.	13.21	n.a.	n.a.	n.a.	n.a.
Singapore	n.a.	4	18.2	16.2	10.68	11.02
Thailand	10.5	10.92	13.92	13.05	4.46	8.28

	Domestic Liquidity					
	Liquid Assets to Total Assets			Liquid Assets to Deposits and Short-term Funding		
	1998	2001	2004	1998	2001	2004
Hong Kong, China	37.7	37.1	30.1	43.7	44.1	37.8
Indonesia	34.3	68.2	51.2	18.6	27.5	29.4
Korea	17.5	11.1	9.7	21.6	12.1	10.9
Malaysia	22.2	24.3	28.8	21.8	20.7	26.9
Philippines	20.9	19.8	25.5	33.8	35.0	45.4
PRC	23.8	16.5	13.2	25.5	16.2	12.3
Singapore	37.9	42.9	33.0	39.9	34.8	28.0
Thailand	18.2	33.4	23.8	21.9	21.3	19.7

Source: CEIC and national sources.

Table 6: Bank Credit Ratings

	Moody's Bank Financial Strength Ratings[1]			Fitch Individual Ratings[3]	
	Mar -97	**Dec-98**	**Jun-07**	**Dec-98**	**Jun-07**
Hong Kong, China	5; C to B	5; D+ to B	8; C to B+	4; B/C to B	7; C to A/B
Indonesia	12; D- to D[2]	11; E	5; D- to D	3; E	7; D to C/D
Korea	18; D	19; E+ to D-	11; D to B	8; E to D/E	11; C to B
Malaysia	2; C to C+	5; D-	8; D- to C	6; D/E to D	7; C/D to B/C
Philippines	5; D to C/D	11; D to D+	10; E to C-	5; D to C/D	10; E to C
PRC	5; E+ to D+	5; E to D	5; D- to D+	n.a.	6; D/E to D
Singapore	4; C+ to B+	4; C to B	3; B	2; A/B	3; B
Thailand	10; D+	10; E to E+	8; D- to D+	12; E to D/E	8; D to C
Memorandum: United States	295; C+ to B-	117; C+ to B	154; B to B+[4]	B to A/B (106)	252; B/C to B[4]

Notes:

[1] The Bank Financial Strength Rating is Moody's assessment of whether a bank is likely to require financial support from shareholders, the government or other institutions. The ratings range from A (highest) to E (lowest).

[2] January 1996.

[3] Individual Ratings represent Fitch's view on the likelihood that a bank would run into significant difficulties such that it would require support. The ratings have nine different gradations ranging from A (highest) to E (lowest).

[4] December 2005.

Sources: Moody's Investor's Services, Fitch Bankscope, Bloomberg, and Turner, P. 2006. Banking Systems in East Asia: Ten Years Later. A paper prepared for the Asian Economic Policy Review conference on "Ten Years After the Asian Crisis: What Have We Learned or Not Learned?".

Table 7: Bank Share Prices

	Bank share price index (a) in real terms[1,2]			Bank share price relative to general share price index[1]			Volatility of bank share price[3,4]		Regression coefficient of (a) on general index[4]	
	1995	**2000**	**2005**	**1995**	**2000**	**2005**	**1995-00**	**2001-06**	**1995-00**	**2001-06**
Indonesia	383.3	67.3	31.4	209.7	80.3	26.5	15.4	9.8	0.6	0.9
Korea	271.7	47.5	81	180.4	50.1	65.2	12.6	7.7	0.7	0.5
Malaysia	103.6	114.3	125.8	74.2	113.2	125.6	12.5	4.8	0.9	0.7
Philippines	215.4	91.7	67.7	113.8	114.9	84.7	8.9	6.2	0.5	0.7
Thailand	318.9	44.8	50.4	123.6	82.9	50.1	15.1	6.6	0.8	0.6
Memorandum:										
United States	53	94	114.5	89.7	68.3	111.4	5.5	3.4	1.3	0.7
Japan	176.4	93.2	80.2	161.2	77.2	79.1	6.6	7.2	1.1	1.2
Germany	67.2	144.1	103.1	102.8	90.2	109.5	5.1	7.3	0.8	1.2

Notes:

[1] 1995-2005 = 100; in local currency terms; annual averages.

[2] Deflated by consumer prices.

[3] Standard deviation over the whole period.

[4] Calculated based on monthly changes in the log of the index, the second column refers to data up to July 2006.

Source: Turner, P.2006. Banking Systems in East Asia: Ten Years Later. A paper prepared for the Asian Economic Policy Review conference on "Ten Years After the Asian Crisis: What Have We Learned or Not Learned?".

Table 8: Regional Macroeconomic and Financial Environment

		1990-1996	1997-2001	2001-2006
Hong Kong, China				
GDP Growth	Mean	5.17	2.84	5.58
	Std. Dev.	1.11	5.75	2.93
Inflation Rate	Mean	9.14	-0.11	-0.63
	Std. Dev.	1.55	4.33	2.19
Interest Rate (Short term)	Mean	5.79	5.11	1.98
	Std. Dev.	2.64	1.65	2.02
Share Price Index Change	Mean	31.15	1.34	13.72
	Std. Dev.	44.38	38.4	22.21
Indonesia				
GDP Growth	Mean	8.00	0.22	5.05
	Std. Dev.	0.74	7.64	0.51
Inflation Rate	Mean	8.74	21.35	8.96
	Std. Dev.	0.88	21.4	3.31
Interest Rate (Short term)	Mean	12.41	27.91	8.53
	Std. Dev.	2.38	20.68	3.13
Share Price Index Change	Mean	14.64	-2.43	37.46
	Std. Dev.	49.19	44.06	24.02
Korea				
GDP Growth	Mean	7.90	3.92	4.75
	Std. Dev.	1.53	6.49	1.44
Inflation Rate	Mean	6.38	3.82	2.96
	Std. Dev.	1.91	2.54	0.62
Interest Rate (Short term)	Mean	13.56	8.62	3.88
	Std. Dev.	1.75	5.06	0.38
Share Price Index Change	Mean	-2.67	15.32	17.62
	Std. Dev.	21.49	58.96	24.64
Malaysia				
GDP Growth	Mean	9.48	3.06	5.61
	Std. Dev.	0.45	6.66	1.02
Inflation Rate	Mean	3.75	2.74	2.2
	Std. Dev.	0.61	1.51	1.08
Interest Rate (Short term)	Mean	6.4	4.98	2.85
	Std. Dev.	1.25	2.82	0.29
Share Price Index Change	Mean	16.68	-5.74	10.2
	Std. Dev.	39.33	32.79	13.55
Philippines				
GDP Growth	Mean	2.83	2.83	5.1
	Std. Dev.	2.36	2.3	0.65
Inflation Rate	Mean	9.46	6.31	5.26
	Std. Dev.	4.22	1.95	1.97
Interest Rate (Short term)	Mean	14.23	12.16	7.26
	Std. Dev.	1.62	2.76	0.35

Table 8 *continued*

		1990-1996	1997-2001	2001-2006
Share Price Index Change	Mean	28.83	-15.79	22.5
	Std. Dev.	66.54	22	22.78
PRC				
GDP Growth	Mean	10.74	8.28	10.06
	Std. Dev.	3.63	0.66	0.6
Inflation Rate	Mean	11.01	0.34	1.52
	Std. Dev.	7.86	1.62	1.68
Interest Rate (Short term)	Mean	n.a.	4	1.9
	Std. Dev.	n.a.	2.24	0.24
Share Price Index Change	Mean	55.23	15.31	19.89
	Std. Dev.	78.97	28.4	62.76
Singapore				
GDP Growth	Mean	8.76	4.37	5.99
	Std. Dev.	2.2	5.77	2.46
Inflation Rate	Mean	2.52	0.8	0.66
	Std. Dev.	0.81	0.95	0.78
Interest Rate (Short term)	Mean	3.68	3.19	1.7
	Std. Dev.	1.52	1.39	1.16
Share Price Index Change	Mean	10.85	1.62	14.42
	Std. Dev.	29.25	43.21	19.22
Thailand				
GDP Growth	Mean	8.6	-0.1	5.6
	Std. Dev.	1.57	6.31	1.02
Inflation Rate	Mean	5.12	3.43	2.87
	Std. Dev.	1	3.29	1.71
Interest Rate (Short term)	Mean	9.28	6.67	2.31
	Std. Dev.	2.46	6.54	1.42
Share Price Index Change	Mean	5.96	-11.11	24.51
	Std. Dev.	43.56	38.14	52.78
Emerging East Asia*				
GDP Growth	Mean	7.69	3.18	5.97
	Std. Dev.	3	5.7	2.15
Inflation Rate	Mean	6.98	4.84	2.97
	Std. Dev.	4.25	9.78	3.28
Interest Rate (Short term)	Mean	9.34**	9.08	3.8
	Std. Dev.	4.33	10.62	2.84
Share Price Index Change	Mean	19.45	-0.19	20.04
	Std. Dev.	48.56	37.47	32.19

Note: Indicators are in y-o-y, %.
*Includes Hong Kong, China; Indonesia; Korea; Malaysia; Philippines; PRC; Singapore; and Thailand. **Excludes PRC.

Sources: Key Indicators and Asian Development Outlook (ADB); CEIC; International Financial Statistics (IMF); and Bloomberg.

Table 9: Non-Financial Sector Corporate Health

	Debt to equity ratio (median, %)				
	1994-96	**1997-2000**	**2001-04**	**2003**	**2004**
PRC	46	48	56	59	62
Indonesia	71	140	65	64	68
Korea	181	123	60	53	49
Malaysia	49	54	39	40	40
Philippines	39	61	51	45	55
Thailand	94	113	58	59	47
Hong Kong, China	44	36	32	33	34
Singapore	38	46	37	38	54
United States	56	64	65	63	54

	Interest coverage (median, %)				
	1994-96	**1997-2000**	**2001-04**	**2003**	**2004**
PRC	4	4	4	4	4
Indonesia	3	1	2	2	2
Korea	1	2	3	3	4
Malaysia	6	3	4	5	5
Philippines	5	1	1	1	2
Thailand	3	2	6	7	9
Hong Kong, China	4	3	5	6	7
Singapore	6	5	7	8	10
United States	7	7	6	5	6

	Return on assets (median, %)				
	1994-96	**1997-2000**	**2001-04**	**2003**	**2004**
PRC	7	4	5	5	4
Indonesia	9	4	5	4	4
Korea	6	5	5	5	5
Malaysia	8	3	4	4	4
Philippines	8	2	2	2	4
Thailand	7	3	8	8	9
Hong Kong, China	7	4	4	4	5
Singapore	5	4	4	5	6
United States	8	9	7	7	8

Source: Ghosh, S.R. 2006. East Asian Finance: The Road to Robust Markets. The World Bank.

Table 10: Household Sector Financial Health

	Household Indebtedness (% of GDP)		Non-mortgage (% of GDP)		Mortgage (% of GDP)	
	2001	**2004**	**2001**	**2004**	**2001**	**2004**
Hong Kong, China	60.3	58.2	10.5	10.8	49.8	47.3
Indonesia	4.3	8.2	3.1	6.4	1.2	1.8
Korea	25.8	35.3	11.9	13.6	13.9	21.8
Malaysia*	46.2	52.6	20.4	23.1	25.8	29.5
Philippines	5.8	5.2	5.0	4.5	0.8	0.7
Singapore**	n.a.	51.0	n.a.	18.0	28.5	33.0
Thailand	n.a.	24.5	n.a.	8.4	13.2	16.1

Note: *Refers to sum of loans for personal uses, credit cards, purchase of consumer durable goods & purchase of passenger cars for Commercial Banks, Merchant Banks & Finance Companies; for 2006, only data from Commercial banks and Merchant Banks are available.

Source: BNM Monthly Statistical Bulletin.

**Refers to Commercial banks and finance companies consumer loans ; Source: MAS monthly statistical bulletin

Source: CEIC.

Figure 1A: Financial Deepening[1] (Hong Kong, China)
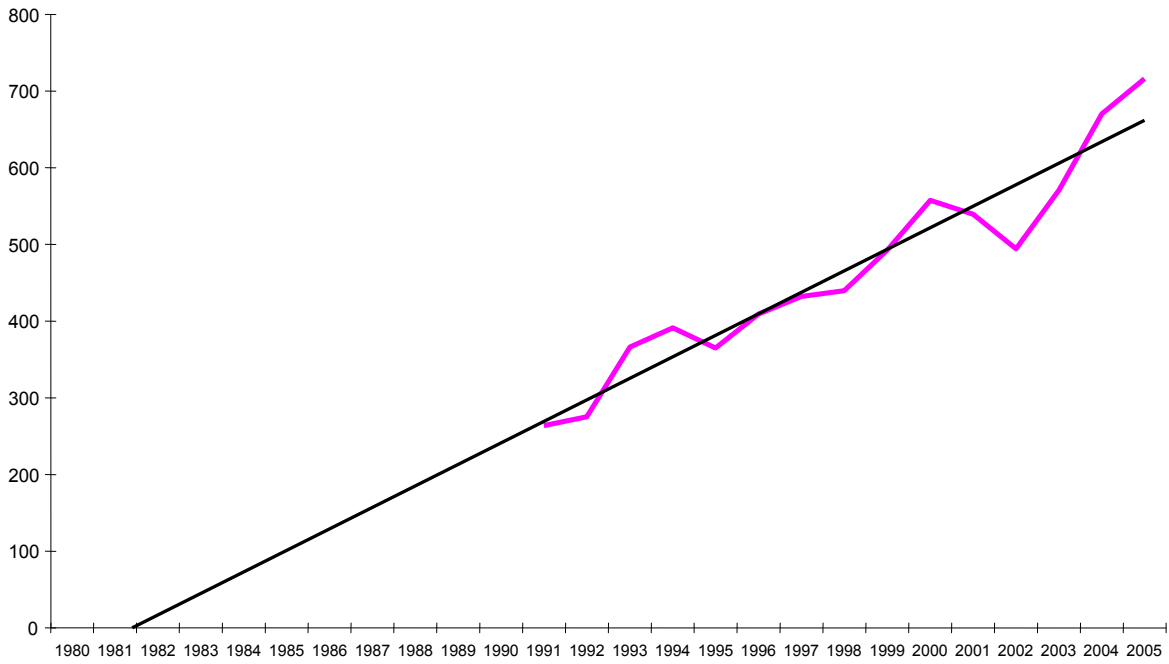
Figure 1B: Financial Deepening[1] (Indonesia)
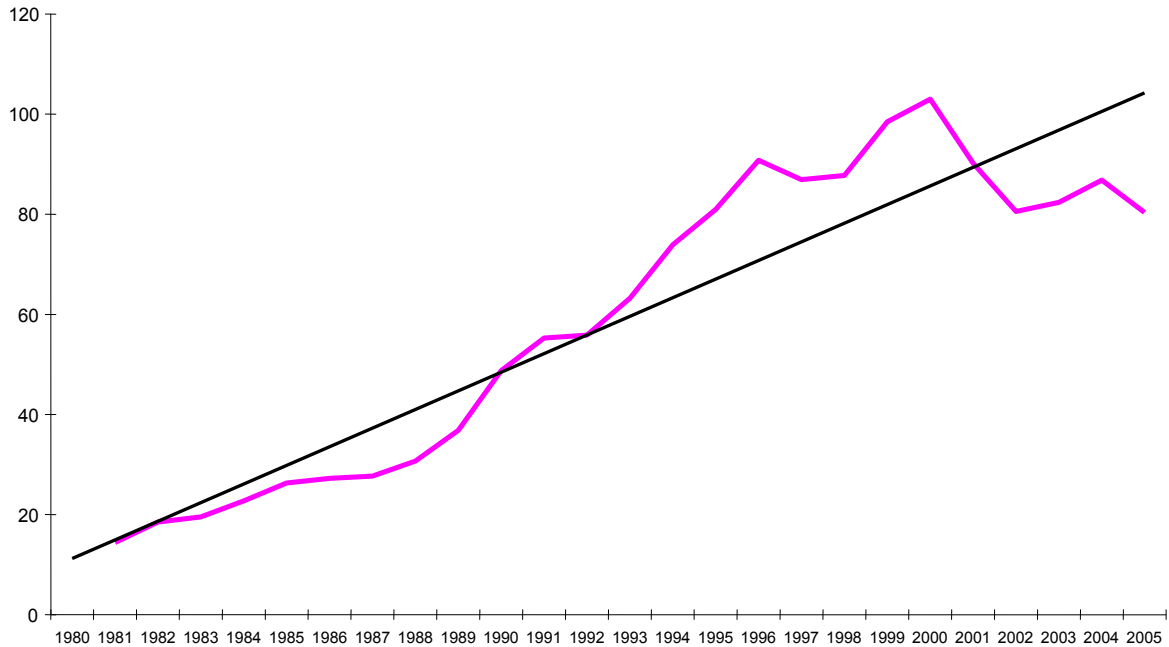
Figure 1C: Financial Deepening[1] (Korea, Rep. of)
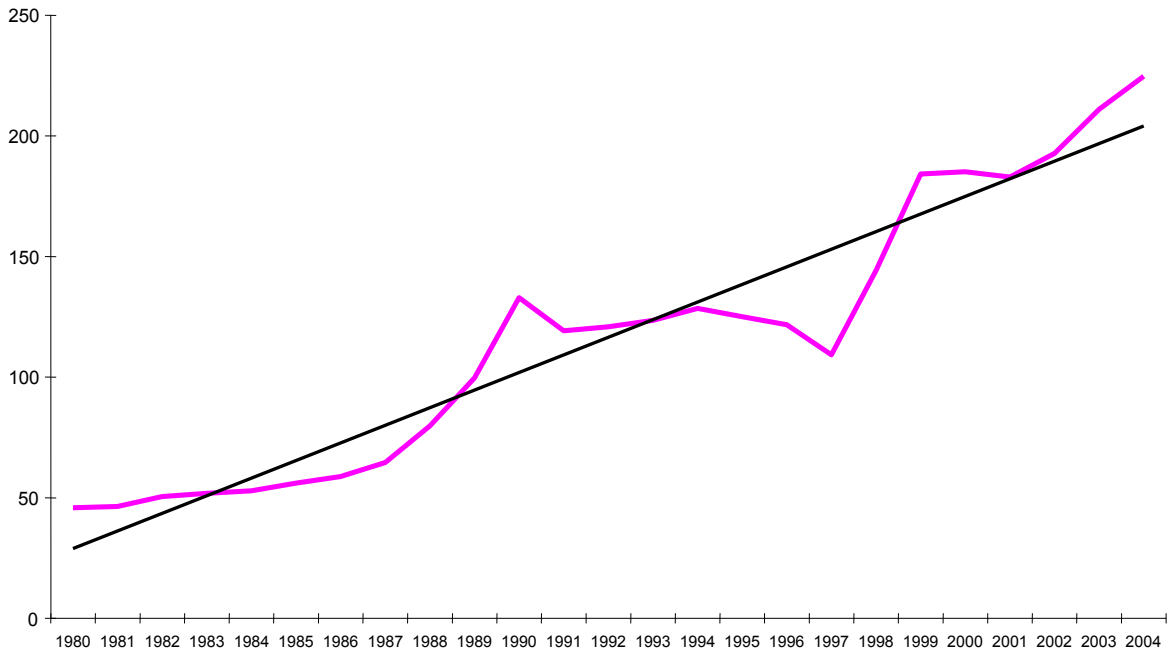
Figure 1D: Financial Deepening[1] (Malaysia)
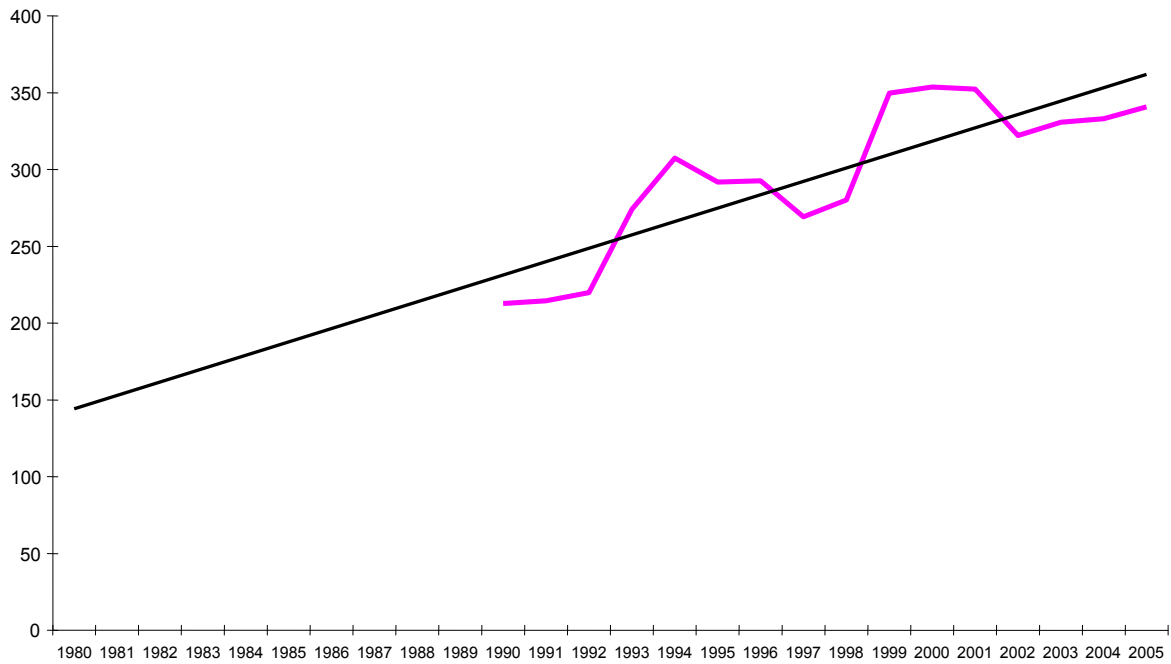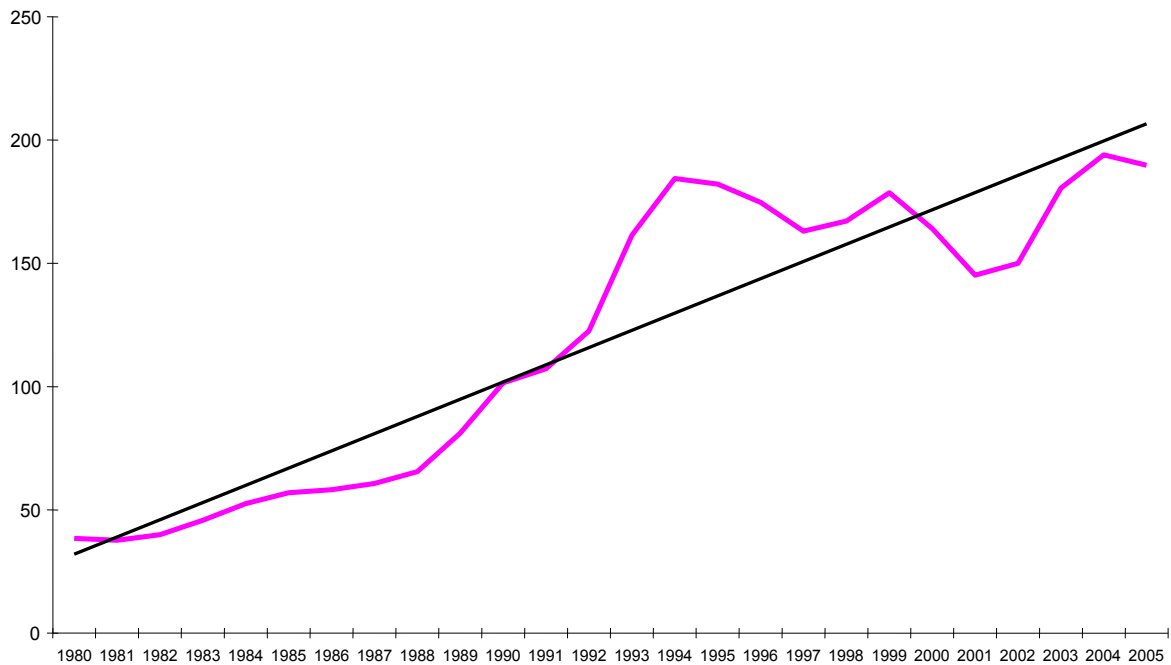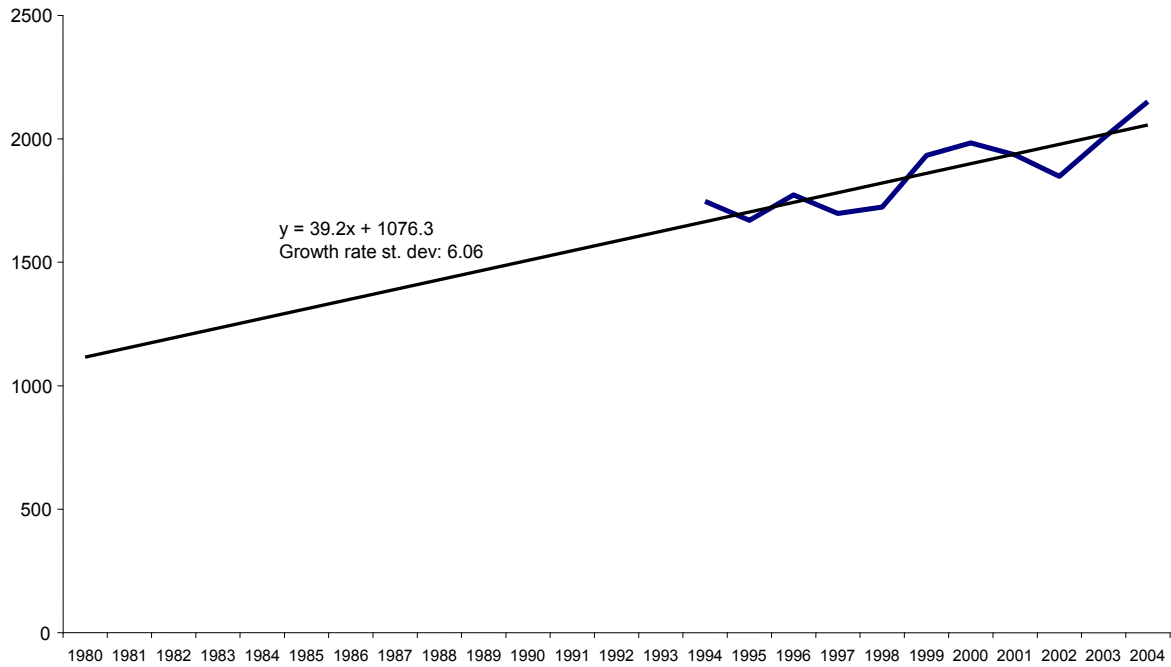
Figure 1E: Financial Deepening[1] (Philippines)
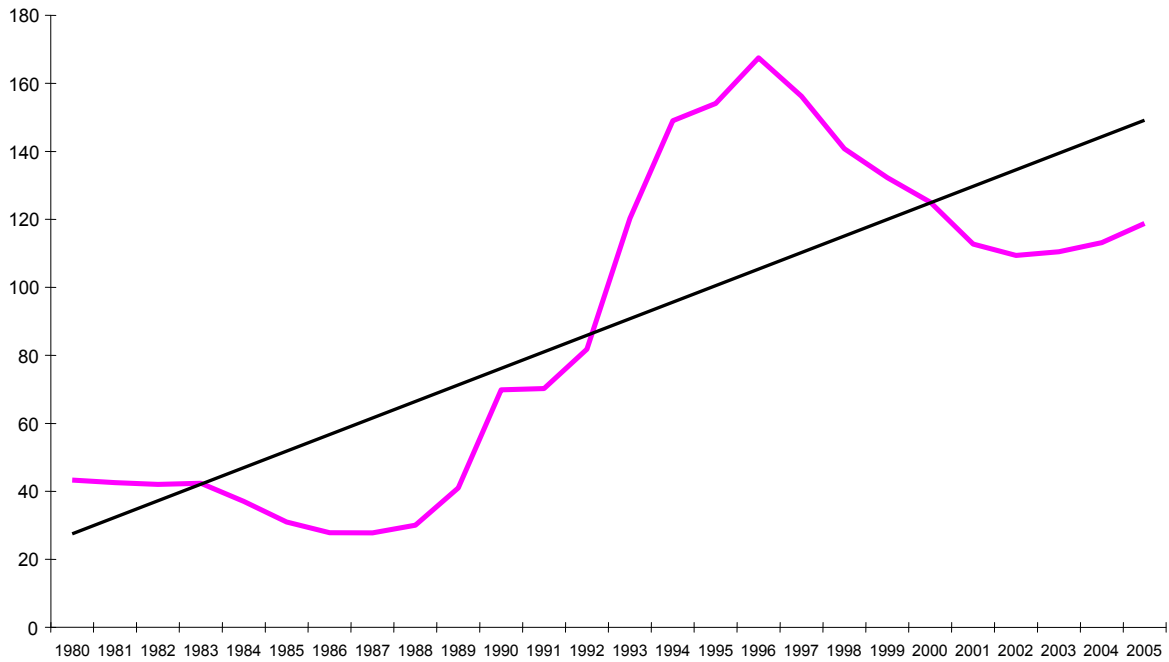
[1]Financial deepening= (Deposit Money Bank Assets + Stock Market Capitalization + Bond Market Capitalization) / GDP X 100.
Source: International Financial Statistics (IMF) and The World Bank.

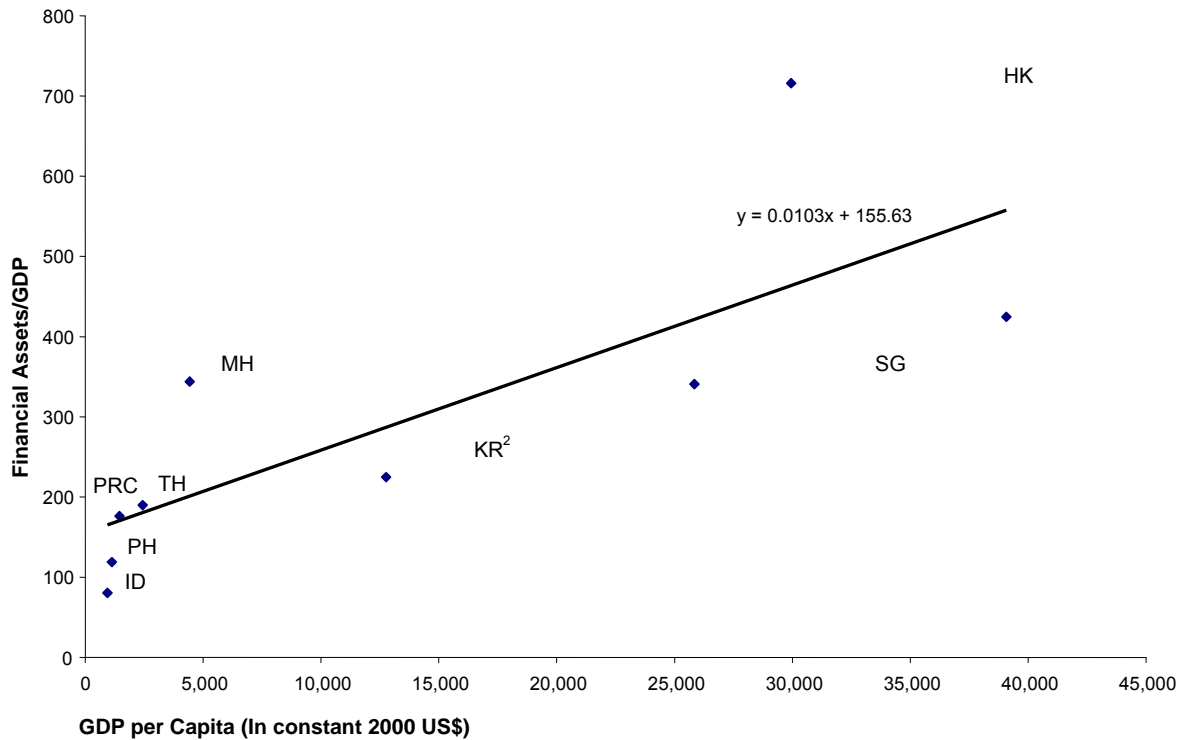**Figure 1F: Financial Deepening[1] (China, People's Rep. of)**
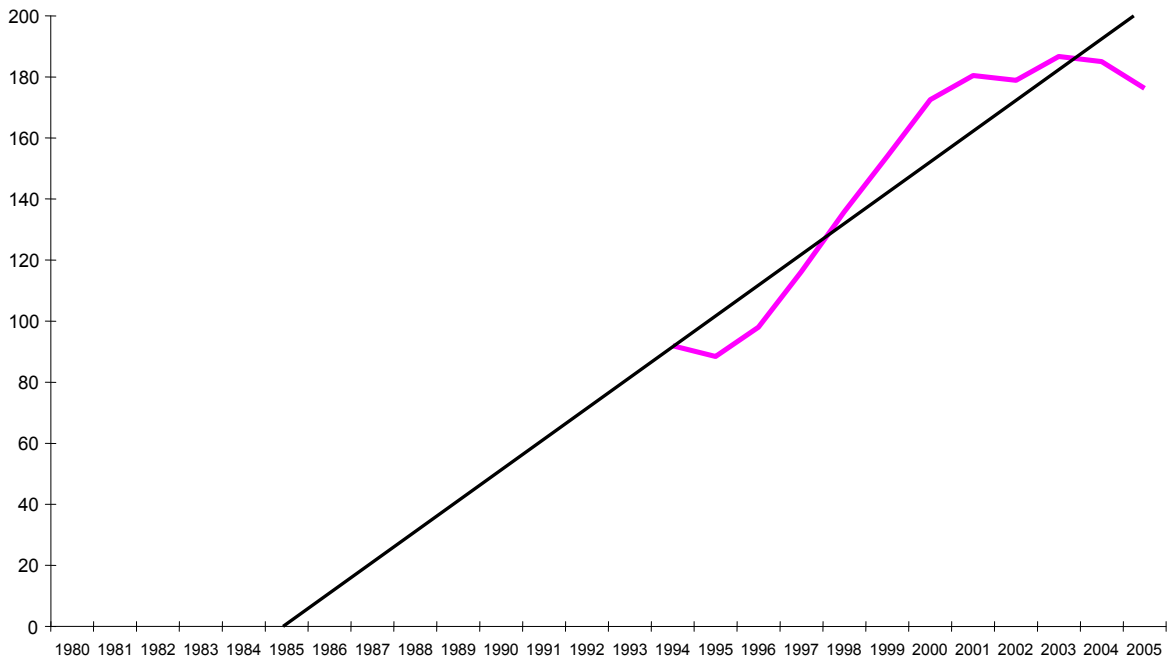
[1]Financial deepening= (Deposit Money Bank Assets + Stock Market Capitalization + Bond Market Capitalization) / GDP X 100.
Source: International Financial Statistics (IMF) and The World Bank.

Figure1G: Financial Deepening[1] (Singapore)

Figure 1H: Financial Deepening[1] (Thailand)

Figure 1I: Financial Deepening (Emerging East Asia[1])

y = 39.2x + 1076.3
Growth rate st. dev: 6.06

[1]Includes Hong Kong, China; Indonesia; Korea; Malaysia; Philippines; PRC; Singapore; and Thailand.
Source: International Financial Statistics (IMF) and The World Bank.

Figure 1J: Financial Assets[1] vs. GDP per Capita (2005)

y = 0.0103x + 155.63

GDP per Capita (In constant 2000 US$)

[1]Financial assets refer to the sum of Deposit Money Bank Assets, Stock Market Capitalization and Bond Market Capitalization, in % of GDP.
[2]Refers to 2004 data.
Source: International Financial Statistics (IMF) and The World Bank.

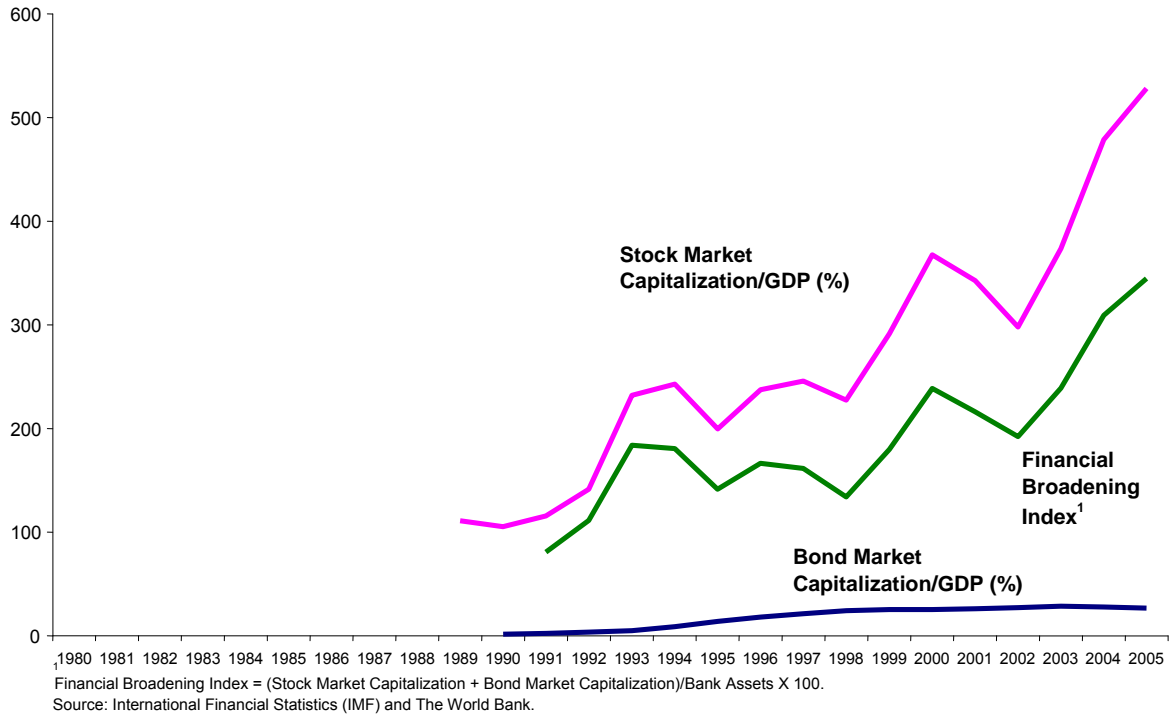**Figure 2A: Financial Sector Broadening (Hong Kong, China)**

Stock Market Capitalization/GDP (%)

Financial Broadening Index[1]

Bond Market Capitalization/GDP (%)

[1] Financial Broadening Index = (Stock Market Capitalization + Bond Market Capitalization)/Bank Assets X 100.
Source: International Financial Statistics (IMF) and The World Bank.

Figure 2B: Financial Sector Broadening (Indonesia)

Financial Broadening Index[1]

Bond Market Capitalization/GDP (%)

Stock Market Capitalization/GDP (%)

[1] Financial Broadening Index = (Stock Market Capitalization + Bond Market Capitalization)/Bank Assets X 100.
Source: International Financial Statistics (IMF) and The World Bank.

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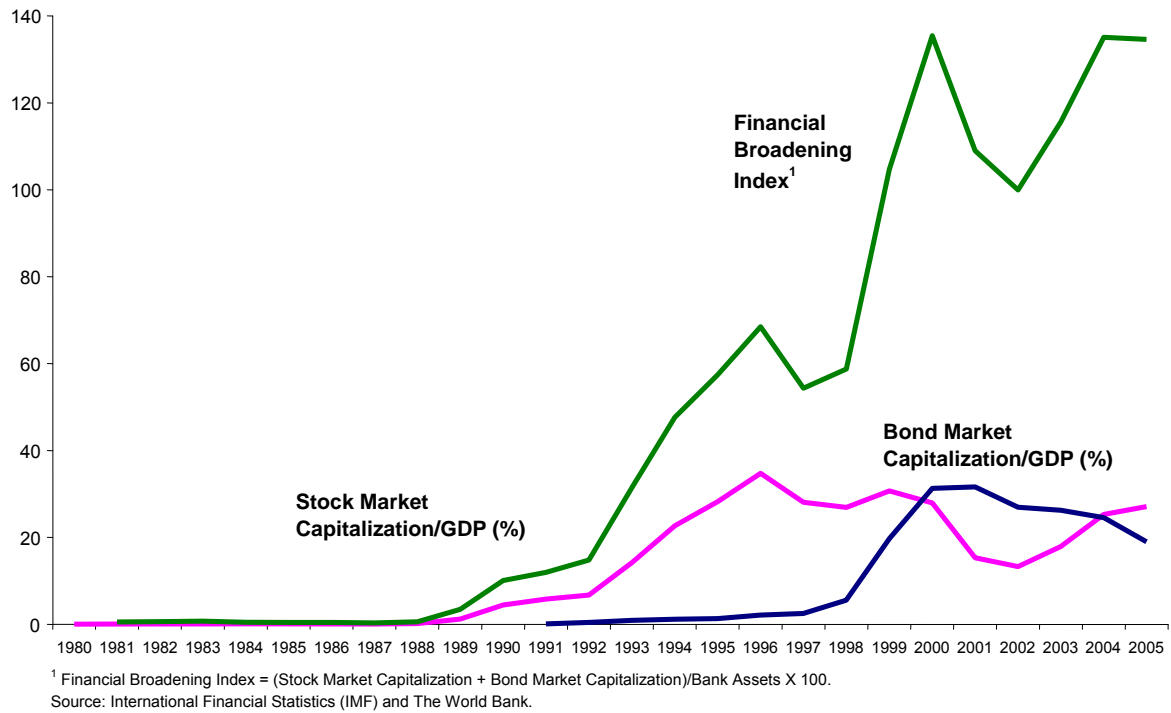
Figure 2C: Financial Sector Broadening (Korea, Rep. of)

Financial Broadening Index[1]

Bond Market Capitalization/GDP (%)

Stock Market Capitalization/GDP (%)

[1] Financial Broadening Index = (Stock Market Capitalization + Bond Market Capitalization)/Bank Assets X 100.
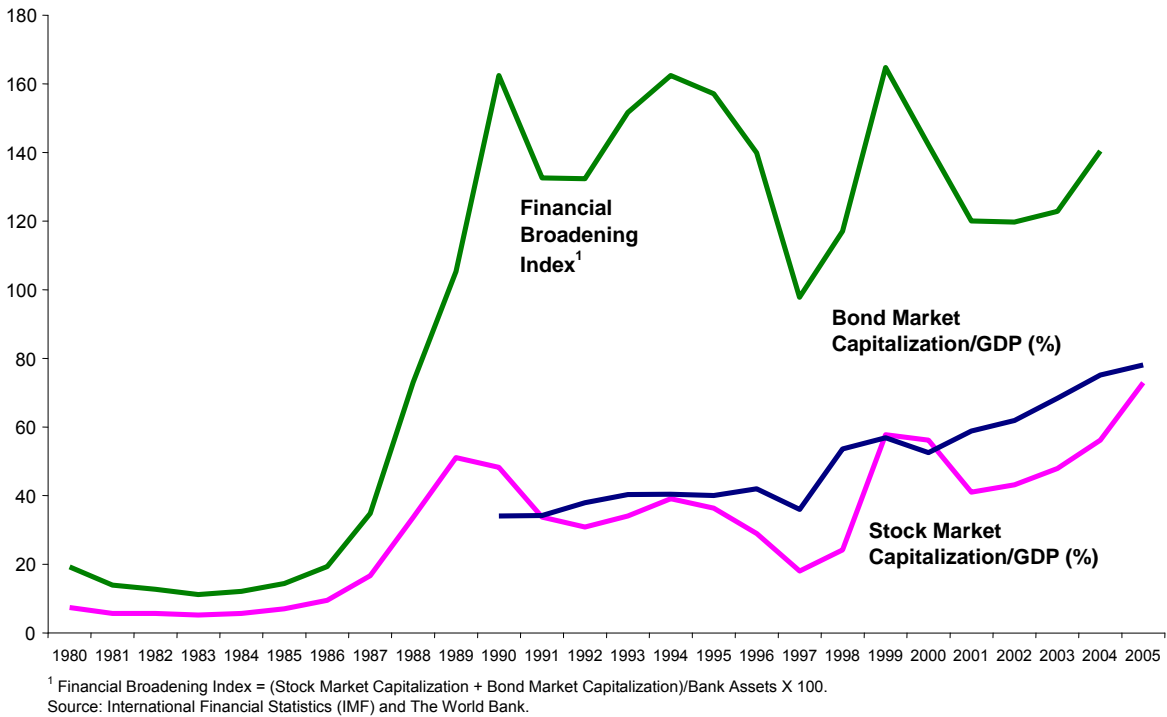Source: International Financial Statistics (IMF) and The World Bank.

Figure 2D: Financial Sector Broadening (Malaysia)

Financial Broadening Index[1]

Stock Market Capitalization/GDP (%)

Bond Market Capitalization/GDP (%)

[1] Financial Broadening Index = (Stock Market Capitalization + Bond Market Capitalization)/Bank Assets X 100.
Source: International Financial Statistics (IMF) and The World Bank.
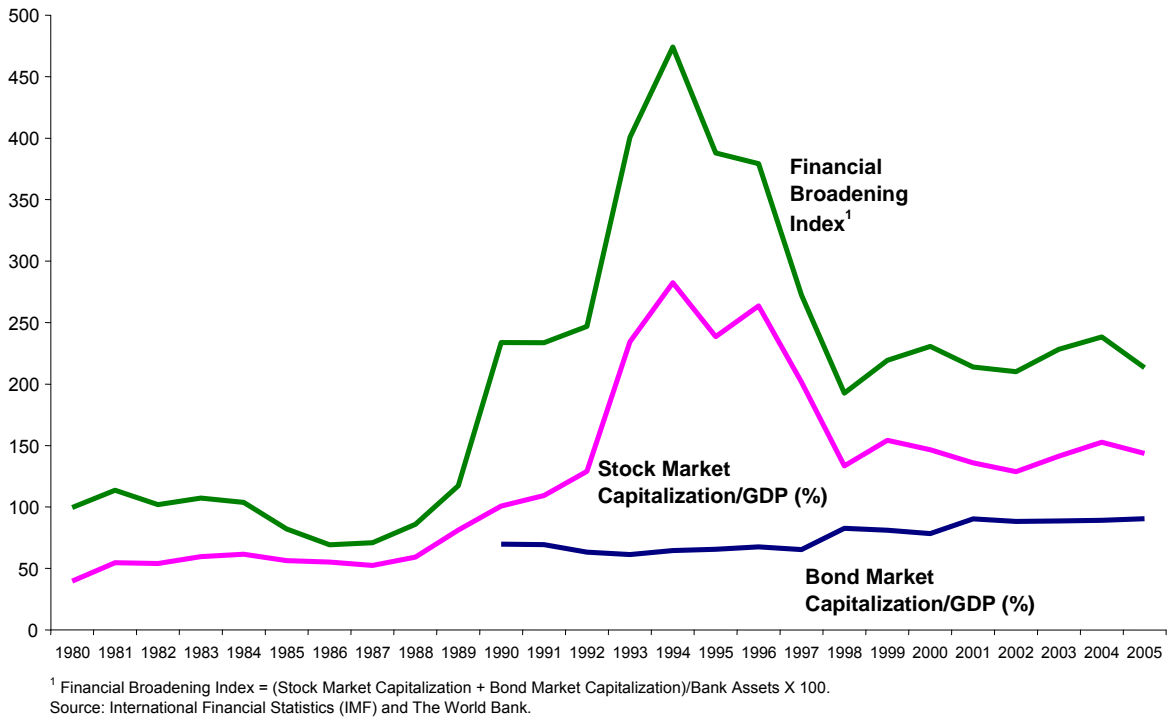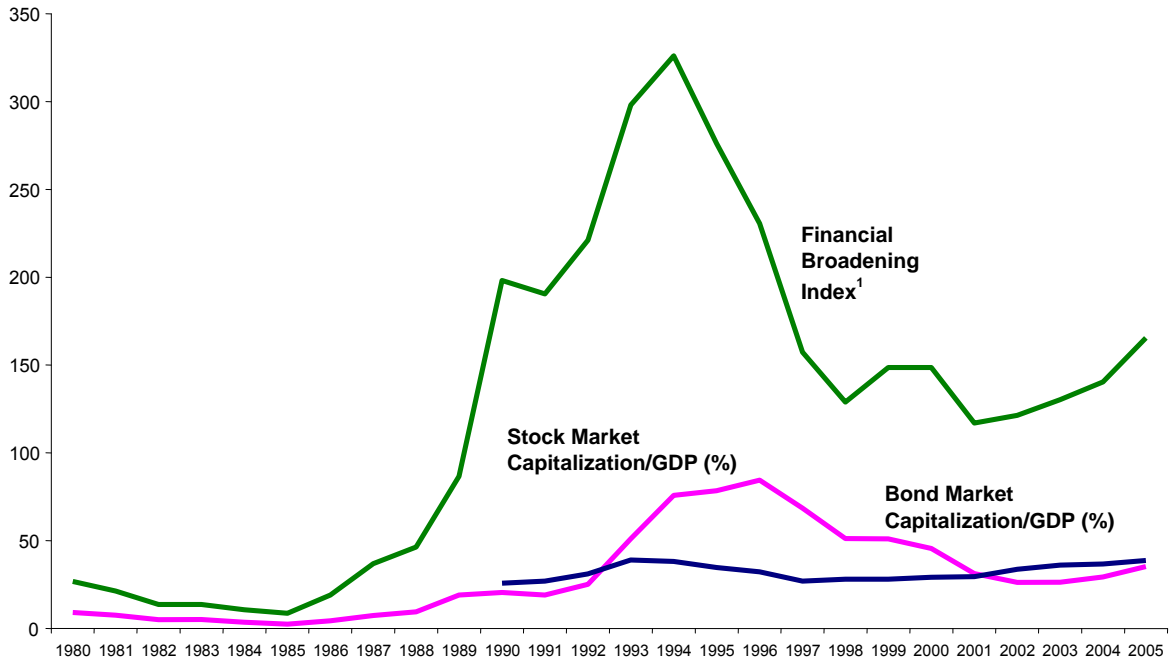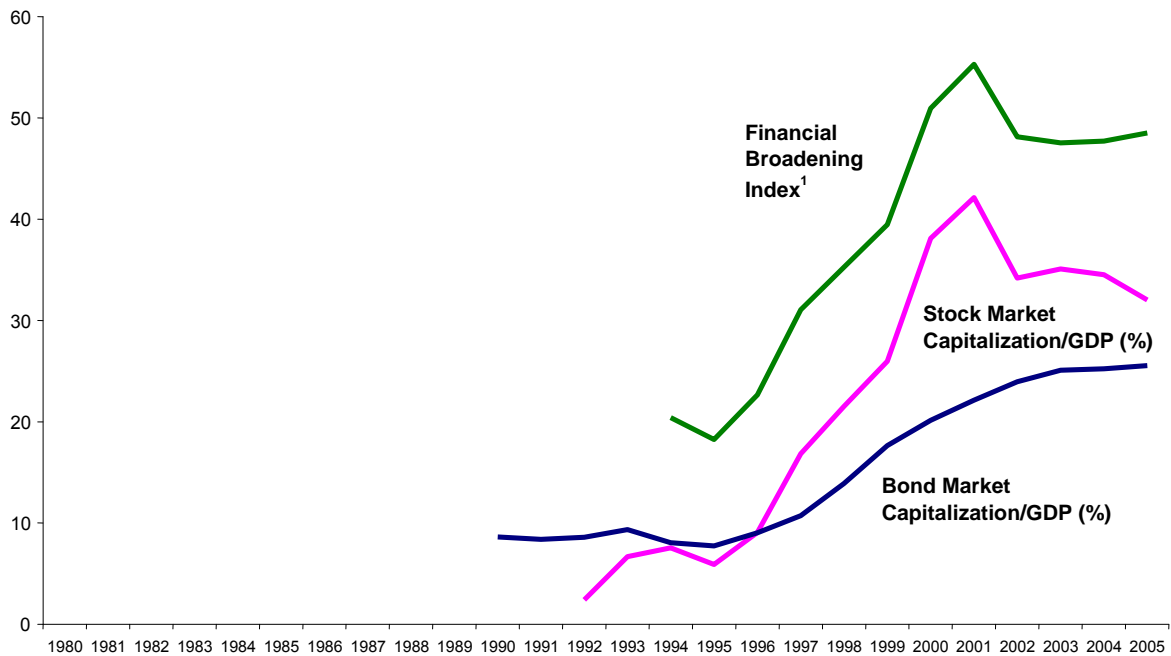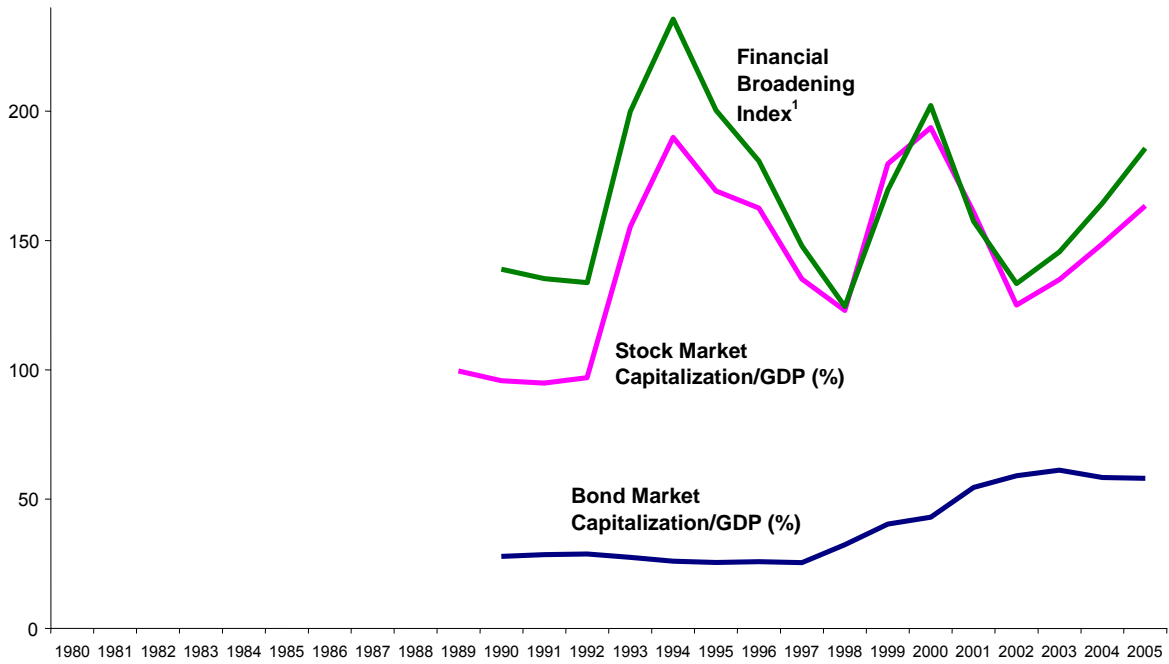
Figure 2E: Financial Sector Broadening (Philippines)

Financial Broadening Index[1]

Stock Market Capitalization/GDP (%)
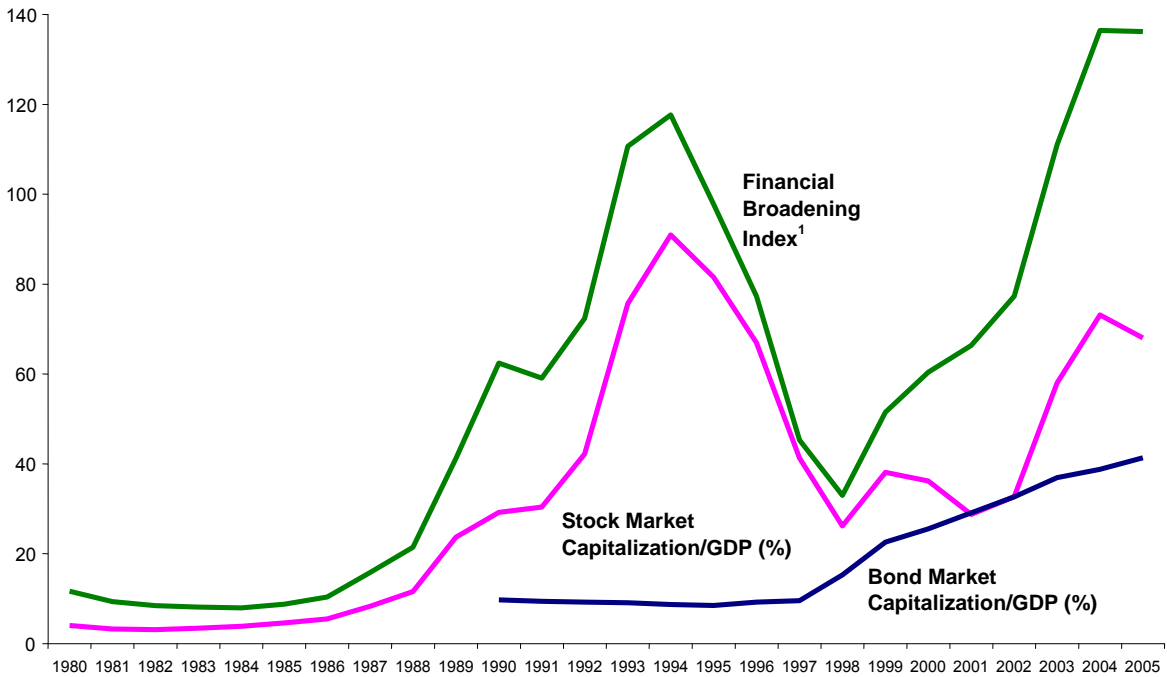
Bond Market Capitalization/GDP (%)

[1] Financial Broadening Index = (Stock Market Capitalization + Bond Market Capitalization)/Bank Assets X 100.
Source: International Financial Statistics (IMF) and The World Bank.

Figure 2F: Financial Sector Broadening (China, People's Rep. of)

Financial Broadening Index[1]

Stock Market Capitalization/GDP (%)
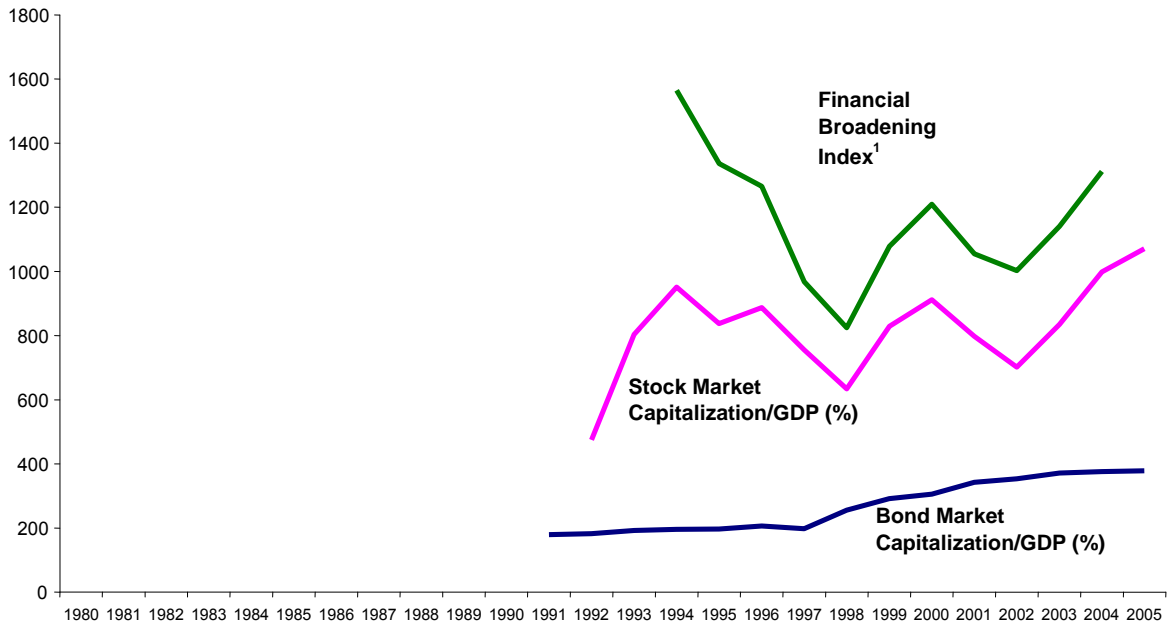
Bond Market Capitalization/GDP (%)

[1] Financial Broadening Index = (Stock Market Capitalization + Bond Market Capitalization)/Bank Assets X 100.
Source: International Financial Statistics (IMF) and The World Bank.

Figure 2G: Financial Sector Broadening (Singapore)

Financial
Broadening
Index[1]

Stock Market
Capitalization/GDP (%)

Bond Market
Capitalization/GDP (%)

1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005

[1] Financial Broadening Index = (Stock Market Capitalization + Bond Market Capitalization)/Bank Assets X 100.
Source: International Financial Statistics (IMF) and The World Bank.

Figure 2H: Financial Sector Broadening (Thailand)

Financial
Broadening
Index[1]

Stock Market
Capitalization/GDP (%)

Bond Market
Capitalization/GDP (%)

1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005

[1] Financial Broadening Index = (Stock Market Capitalization + Bond Market Capitalization)/Bank Assets X 100.
Source: International Financial Statistics (IMF) and The World Bank.

Figure 2I: Financial Sector Broadening[1] (Emerging East Asia[2])

Financial Broadening Index[1]

Stock Market Capitalization/GDP (%)

Bond Market Capitalization/GDP (%)

[1] (Stock Market Capitalization + Bond Market Capitalization)/Bank Assets X 100
[2] Includes Hong Kong, China; Indonesia; Korea; Malaysia; Philippines; PRC; Singapore; and Thailand.
Source: International Financial Statistics (IMF) and The World Bank.

Figure 3A: Deposit Money Bank Assets (% of GDP) (Hong Kong, China)

$y = 2.5525x + 109.85$
Growth rate st. dev.(%): 6.74

Source: International Financial Statistics (IMF) and The World Bank.

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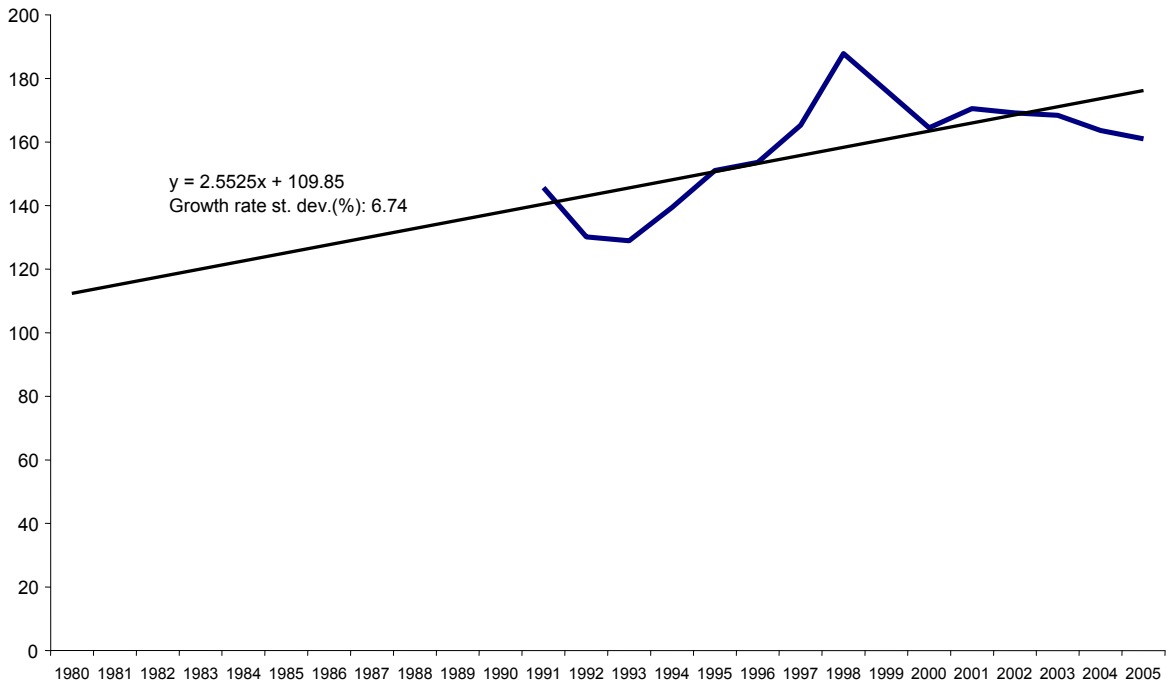
Figure 3B: Deposit Money Bank Assets (% of GDP) (Indonesia)

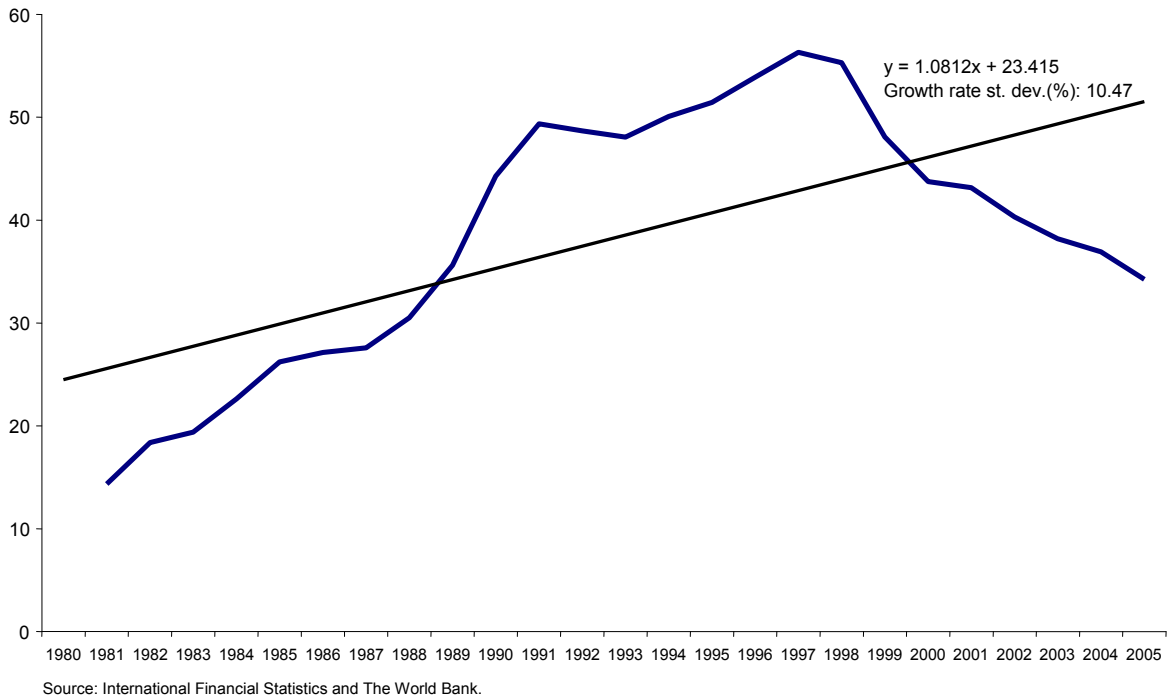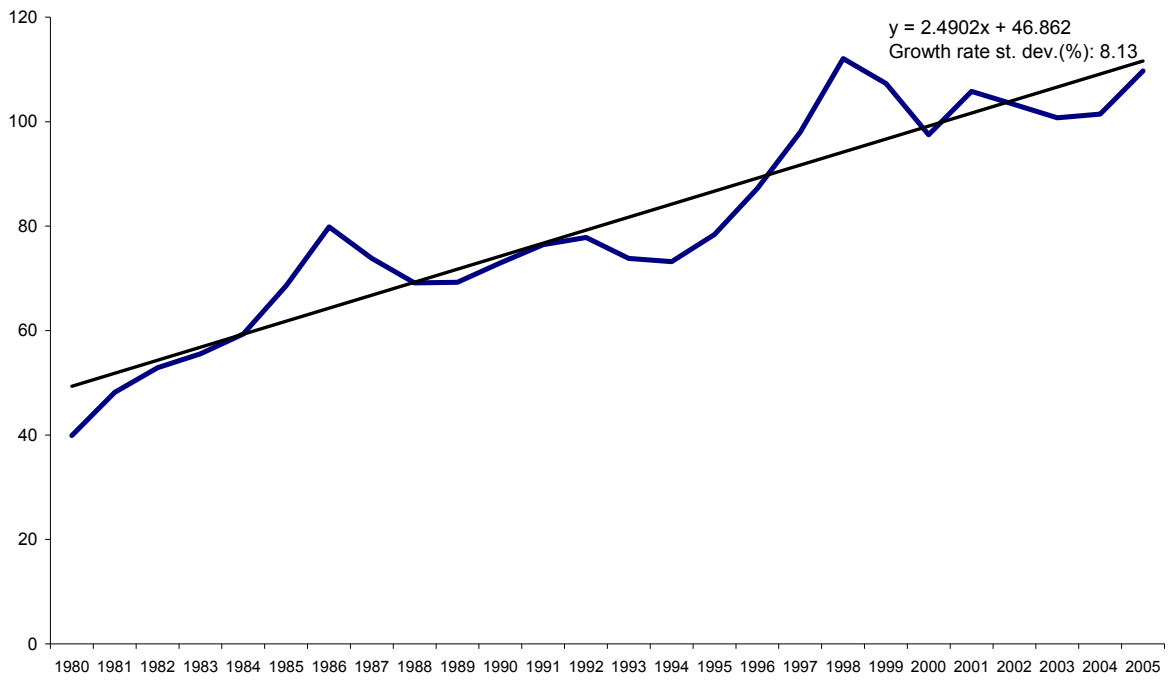y = 1.0812x + 23.415
Growth rate st. dev.(%): 10.47

Source: International Financial Statistics and The World Bank.

Figure 3C: Deposit Money Bank Assets (% of GDP) (Korea, Rep. of)

y = 1.9564x + 32.043
Growth rate st. dev.(%): 5.54

Source: International Financial Statistics and The World Bank.

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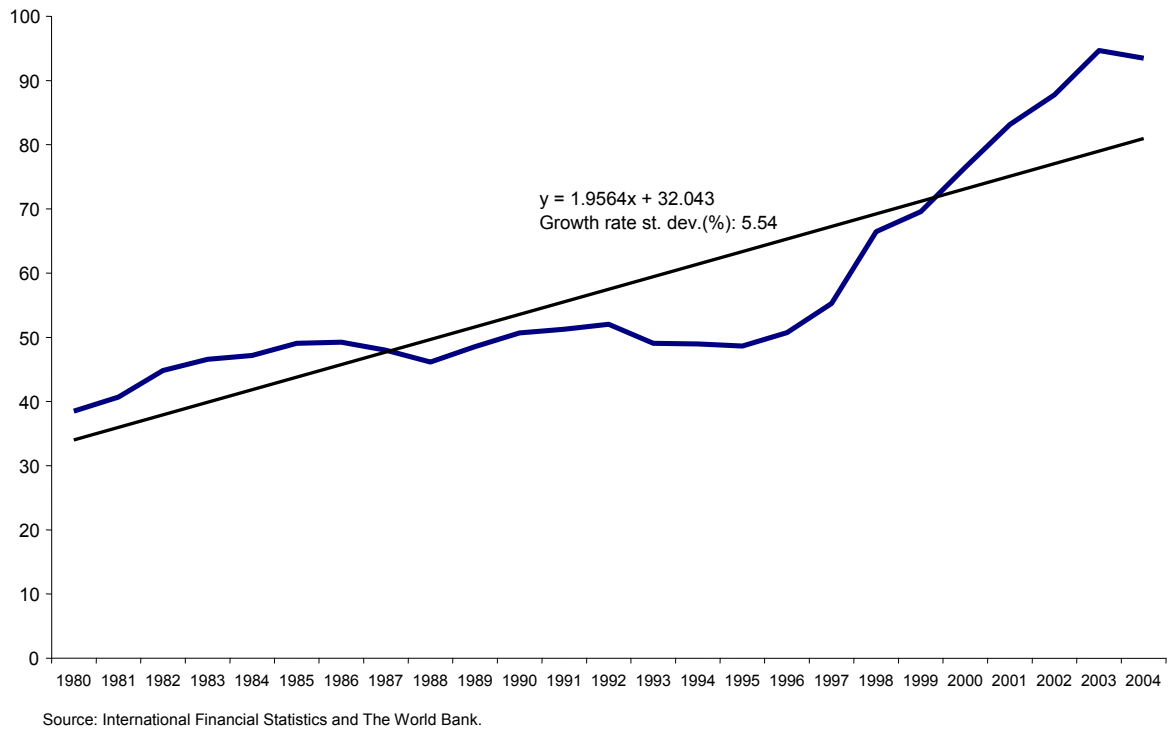
Figure 3D: Deposit Money Bank Assets (% of GDP) (Malaysia)

y = 2.4902x + 46.862
Growth rate st. dev.(%): 8.13

Source: International Financial Statistics (IMF) and The World Bank.

Figure 3E: Deposit Money Bank Assets (% of GDP) (Philippines)

y = 1.0842x + 23.377
Growth rate st. dev.(%): 11.28

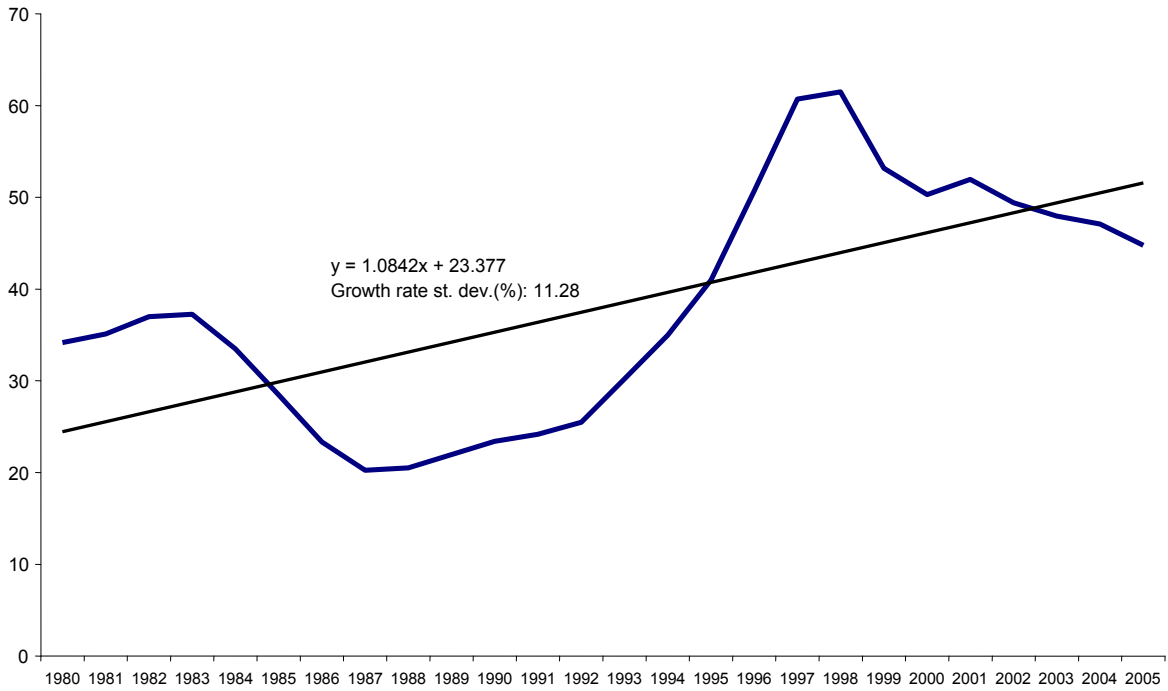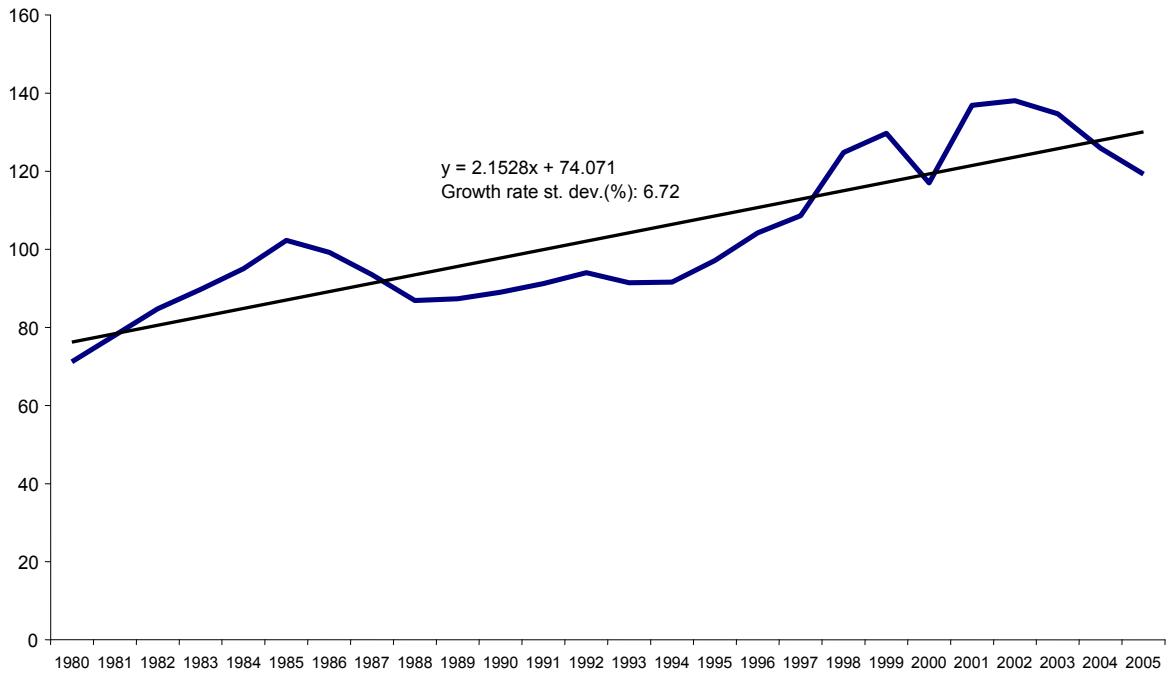Source: International Financial Statistics (IMF) and The World Bank.

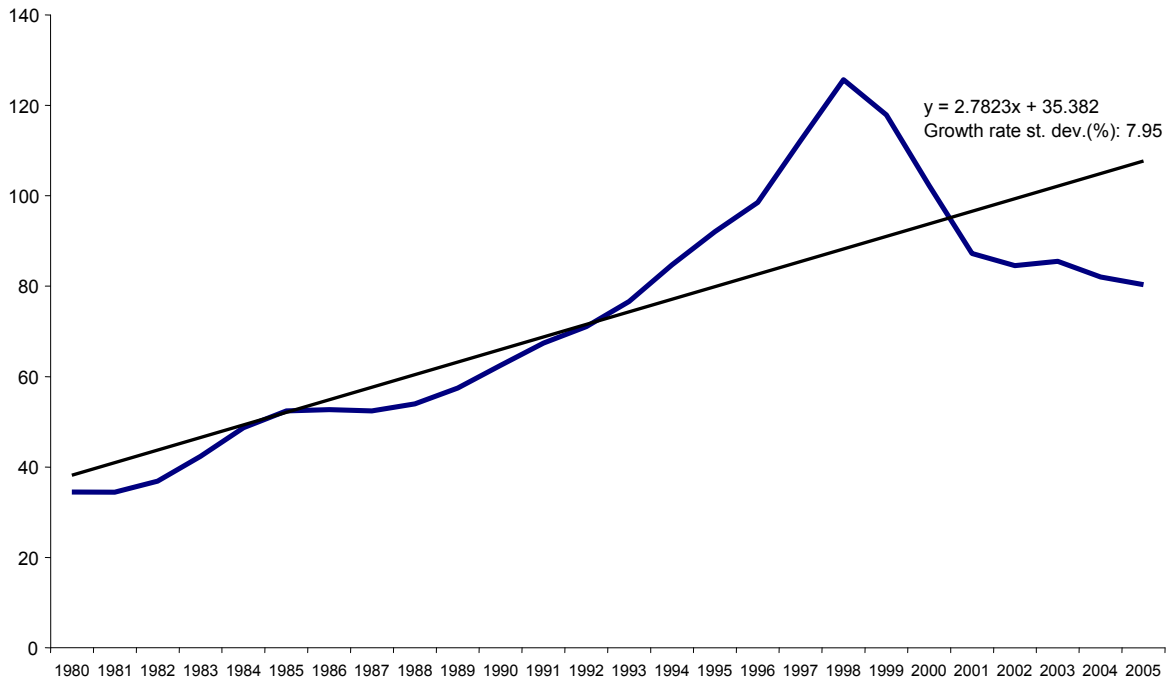**Figure 3F: Deposit Money Bank Assets (% of GDP) (China, People's Rep. of)**

y = 5.0995x - 0.1862
Growth rate st. dev.(%): 5.76
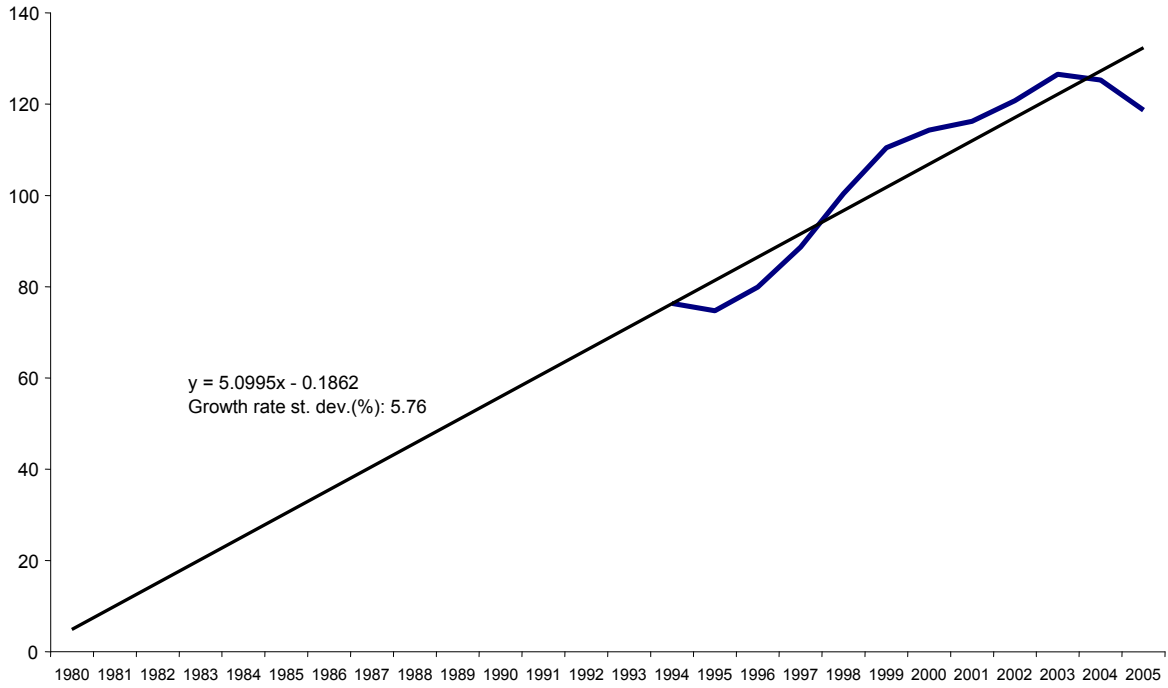
Source: International Financial Statistics and The World Bank.

**Figure 3G: Deposit Money Bank Assets (% of GDP) (Singapore)**

y = 2.1528x + 74.071
Growth rate st. dev.(%): 6.72

Source: International Financial Statistics and The World Bank.

Figure 3H: Deposit Money Bank Assets (% of GDP) (Thailand)

y = 2.7823x + 35.382
Growth rate st. dev.(%): 7.95

Source: International Financial Statistics (IMF) and The World Bank.

Figure 3I: Deposit Money Bank Assets (% of GDP) (Emerging East Asia[1])
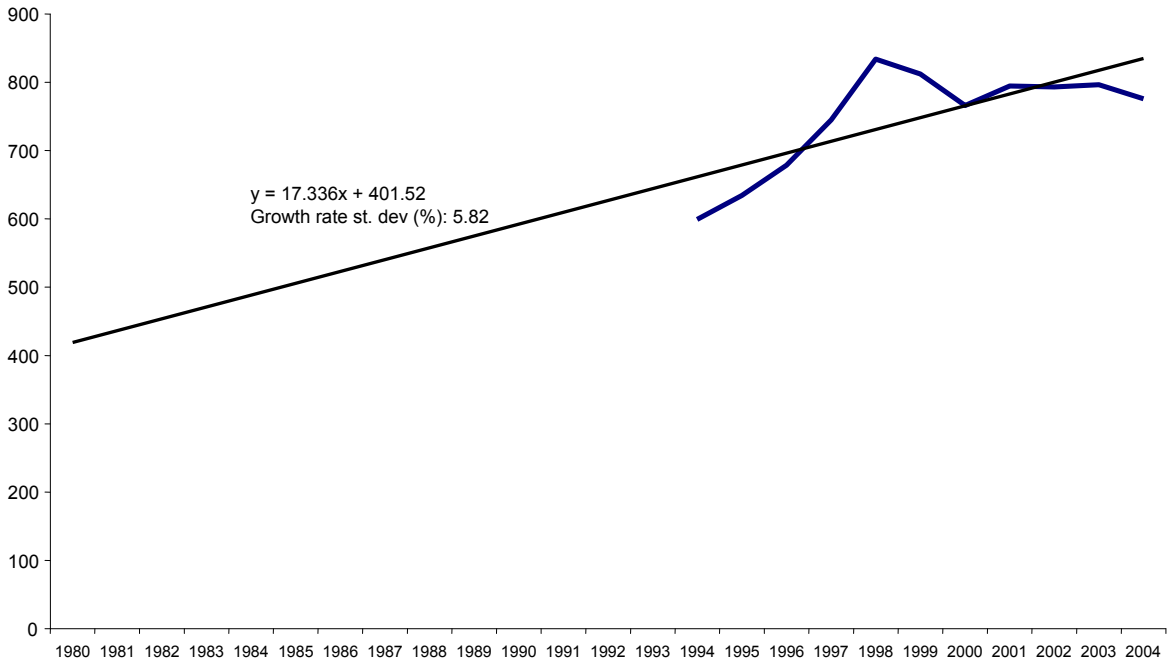
y = 17.336x + 401.52
Growth rate st. dev (%): 5.82

[1]Includes Hong Kong, China; Indonesia; Korea; Malaysia; Philippines; PRC; Singapore; and Thailand.
Source: International Financial Statistics (IMF) and The World Bank.

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ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries substantially reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to two thirds of the world's poor. Nearly 1.7 billion people in the region live on $2 or less a day. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration.

Based in Manila, ADB is owned by 67 members, including 48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance. In 2007, it approved $10.1 billion of loans, $673 million of grant projects, and technical assistance amounting to $243 million.

About the paper

In this paper Charles Adams notes that East Asian banking has improved since the financial crisis through more foreign ownership, greater transparency, new lending and better supervision and regulation, but argues further restructuring and reform are needed.

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