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Thailand: Selected Issues

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THAILAND

Selected Issues

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Approved by the Asia and Pacific Department

July 18, 2001

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ABBREVIATIONS

AFTA	Asian Free Trade Area
AMC	Asset Management Company
ASEAN	Association of South East Asian Nations
BAAC	Bank for Agriculture and Agricultural Cooperatives
BIBF	Bangkok International Banking Facility
BMB	Bangkok Metropolitan Bank
BOI	Board of Investment
BOT	Bank of Thailand
BT	Bank Thai
CAP	Covered Asset Pool
CAPS	Capital Augmented Preferred Shares
CAR	Capital Adequacy Ratio
CDRAC	Corporate Debt Restructuring Advisory Committee
EBITDA	Earnings before interest, tax, and depreciation allowance
EXCOM	Executive Committee (TAMC)
FIDF	Financial Institutions Development Fund
FRA	Financial Sector Restructuring Authority
FY	Fiscal Year (October 1–September 30)
GSB	Government Savings Bank
IBRA	Indonesian Bank Restructuring Agency
ICTA	Information and Communication Related Technology
KAMCO	Korea Asset Management Company
KTB	Krung Thai Bank
MOF	Ministry of Finance
NFPE	Nonfinancial Public Enterprise
NPL	Nonperforming loan
NPV	Net Present Value
NESDB	National Economic and Social Development Board
OAPS	Old Age Pension Scheme
PIT	Personal Income Tax
RTC	Resolution Trust Corporation
SAM	Sukhumvit Asset Management
SCIB	Siam City Bank
SET	Stock Exchange of Thailand
SFI	Specialized Financial Institution
SLIPS	Stapled Limited Preferred Security
SME	Small and Medium Enterprise
TAMC	Thai Asset Management Corporation
TFP	Total Factor Productivity
UNCITRAL	United Nations Commission on International Trade Law

I. Overview

1. **Four years since the onset of the financial crisis, Thailand's economic recovery remains fragile and is now threatened by a sharp slowdown in external demand.** In this regard, the 2001 Article IV consultation discussions provided an important opportunity to review Thailand's progress in putting in place the policies needed to sustain the recovery. As background for the consultation, this Selected Issues paper focuses on assessing progress, and providing detailed information and analysis, on key aspects of the structural reform and macroeconomic policy agenda.

2. **Bank and corporate sector restructuring policies formed a key focus of the Article IV discussions.** Significant progress has been made in bank restructuring but substantial risks remain. Thailand has emerged from the regional crisis with two–thirds of its banking system still in private hands. Private banks have reduced their distressed assets, returned to profitability, and over the last three years have raised substantial new capital. Progress at state banks, on the other hand, has lagged. Moreover, debt restructuring has been slow and has been impeded by an inadequate legal framework. Thus, the corporate sector remains highly leveraged. The slowing recovery and dependence on real estate collateral also pose risks to banks' capital and profitability. Against this background, Chapter II reviews the progress that has been made in restoring a well-functioning banking sector, and assesses the many risks and challenges that still lie ahead.

3. **An important initiative to accelerate bank and corporate restructuring is the recent establishment of the Thai Asset Management Corporation (TAMC).** The TAMC has been granted special legal powers and a flexible framework to manage and resolve distressed assets. The TAMC is thus a potentially powerful tool to accelerate corporate debt restructuring, particularly in the state sector. However, its objectives are set out only broadly in the enabling legislation and the exact details of its operation are still to be specified by its Board. The success of the TAMC will depend crucially on a number of factors, including consistent application of the principle of value maximization, and the transparency and even-handedness of its operations. Chapter III provides a detailed analysis of the TAMC's key features, assesses its impact on the banking system, and draws on international experience to identify critical success factors.

4. **An inadequate legal framework has been a major impediment to corporate debt restructuring.** The TAMC's special legal powers are indeed a recognition of this impediment. However, these powers will not extend to debt resolution outside the TAMC, where private banks will continue to be burdened with a high level of distressed assets. Legal reform would assist private banks in dealing with problem loans, and would also have the longer–term benefit of reducing the risks of lending and increasing the availability of credit. Against this background, Chapter IV discusses the main features of the existing legal framework for debt restructuring, and identifies the remaining weaknesses. This chapter also draws lessons from best international practice for the Thai insolvency law, and briefly discusses the reform of other economic laws that can increase the availability of credit to corporations by reducing the riskiness of new lending.

5. **Even with an acceleration of bank and corporate restructuring, questions will remain about medium-term growth prospects.** Rates of output growth since the crisis have been considerably lower than those witnessed in Thailand in the previous two decades. In view of this, Chapter V assesses the conditions needed for Thailand to return to a growth rate of at least 5-6 percent in the medium-term. An acceleration of debt restructuring and a de-leveraging of the corporate sector, as well as pursuit of prudent macroeconomic policies are prerequisites. However, the question remains whether such growth rates are indeed achievable given the resources base of Thailand. The chapter uses a growth accounting framework to show that the exceptionally high GDP growth rates in Thailand during the 1980s and early 1990s were largely driven by capital accumulation, as well as by some total factor productivity (TFP) growth. In the medium-term, with only limited expected capital and labor accumulation, a pick-up in TFP growth would be needed to achieve higher output growth. This chapter also reviews some of the policies needed to achieve a pick-up in TFP.

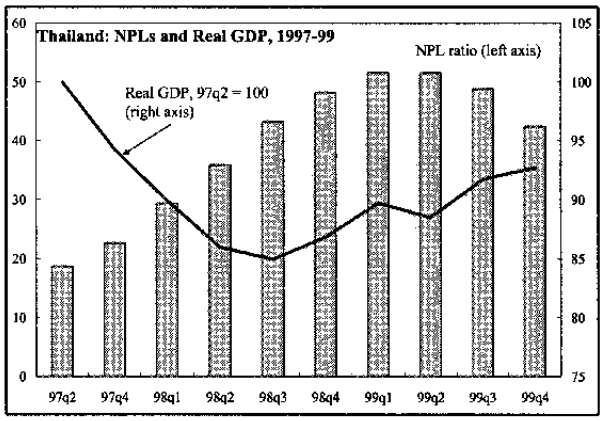
6. **Finally, the costs of dealing with the banking crisis in Thailand have been reflected in a recent sharp increase in public debt.** Thailand's financial crisis has been among the most severe of the Asian economies, and its cost to the public sector has been significant. Over two-thirds of the increase in debt is directly attributable to the financial sector restructuring costs. The remainder is mainly due to expansionary fiscal policies in support of the economic recovery. Public debt is expected to rise over the next few years as the costs of financial sector are fully realized. It is important now to implement policies to put the public debt on a declining path in the medium-term. Chapter VI documents the recent evolution of public debt. The chapter also analyzes the medium-term outlook for government debt and provides an analysis of the sensitivity of the debt projections to changes in underlying assumptions.

II. Financial Sector Developments and Prospects[1]

A. Introduction

1. **The Thai economy boomed in the decade prior to 1997, concealing growing financial fragilities.** With growth averaging almost 10 percent per year, resulting large current account deficits were financed by short-term capital inflows in the context of the fixed exchange rate regime and positive interest differential. An asset bubble ensued, with surging real estate investment and stock market prices. These factors combined to conceal growing financial fragilities as investment flowed into increasingly marginal enterprises, culminating in the exchange rate crisis in mid-1997.

2. **The crisis exposed underlying fragilities in the financial sector.**[2] Years of lax lending and provisioning standards masked underlying weaknesses in many finance companies and some banks. The slumping economy compounded these weaknesses and led to a massive increase in non-performing loans (NPLs) throughout the financial system (Text Figure). As part of the policy response, unviable institutions were closed or taken over by the state, while a comprehensive deposit guarantee was put in place to preserve confidence. To prevent financial sector problems from recurring, an enhanced prudential framework was phased in, bringing loan classification and provisioning rules gradually in line with international best practice. Capital support schemes were also put in place to assist financial institutions' efforts to raise equity. In addition, the government took steps to promote the restructuring of corporate debt, through a reform of bankruptcy and foreclosure procedures, and the encouragement of voluntary debt restructuring. These actions have facilitated Thailand's emergence from the crisis with more than two-thirds of the core banking system still in private hands.



3. **There has been significant consolidation amongst Thai banks and finance companies following the crisis.** The finance company sector has been substantially reduced, with the share of financial system assets made up by finance companies declining from some 25 percent of all assets before the crisis to under 5 percent at end-2000. Meanwhile, there has

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[1] Prepared by Vikram Haksar.

[2] Further details of developments during the crisis and the ensuing reforms can be found in, *Financial Sector Restructuring*, Chapter III of the Selected Issues paper for the 1999 Article IV Consultation discussion (SM/99/304).

been significant consolidation and ownership change in the banking system, with seven banks (accounting for 16 percent of banking system assets before the crisis) having been closed, intervened and/or merged. Moreover, the large amount of new capital raised by private banks has resulted in a significant dilution of existing ownership stakes and also an increase in the level of foreign ownership. Four small commercial banks are now foreign-owned, and the largest private banks have substantial (30-49 percent) minority foreign holdings (Text Table).

Thailand: Consolidation of the Financial Sector 1/

	Finance companies		Commercial banks	
	Number	Share of Assets	Number	Share of Assets
June 1997	**91**	**24**	**15**	**76**
Total assets of $163 billion	State share negligible		State share 10 percent of total assets Foreign-owned: 0 percent of total assets	
Closures	**56**	**14**	**1**	**2**
Interventions/Mergers	**13**	**4**	**6**	**14**
December 2000 2/	**23**	**4**	**13**	**96**
Total assets of $133 billion	State share negligible		State share 28 percent of assets Foreign-owned: 6 percent of assets 3/	

Source: Bank of Thailand

1/ Excludes foreign bank branches and specialized financial institutions. Dollar figures are at constant exchange rates of 44 baht per dollar.

2/ Figures exclude $23 billion of finance company assets taken over by FRA.

3/ Further, the three largest private banks, with over 40 percent of total assets, have high foreign ownership (30-49 percent).

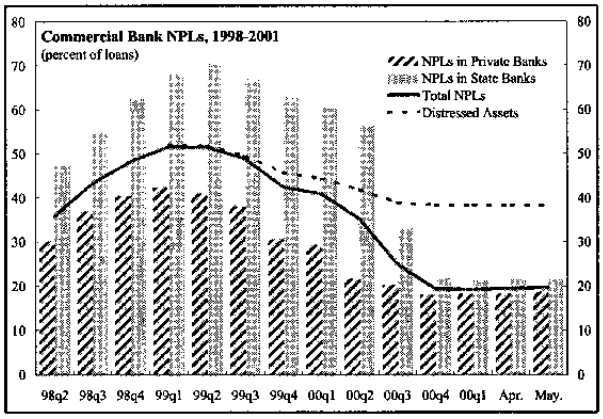
4. **Nonetheless, the corporate sector remains highly leveraged, with the large volume of distressed assets continuing to pose risks to the financial system.** Domestic corporate debt has fallen little since 1997, and debt–equity ratios remain high. Thus the corporate sector remains exposed to new shocks to the global economic outlook and the slowing recovery, and is a source of vulnerability for the financial system.

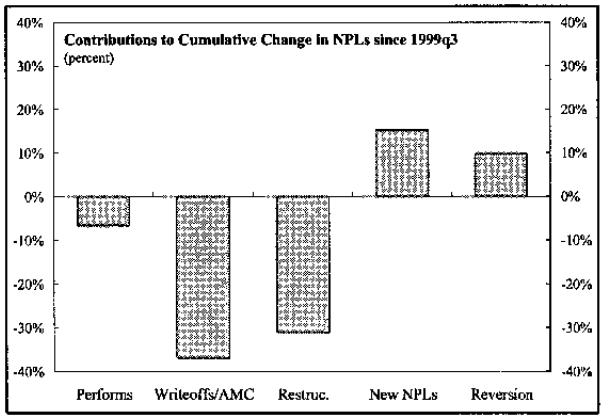
5. **This chapter takes stock of the current performance of the Thai financial sector and discusses the future outlook.** Section B provides an overview of the current status of the financial system, Section C discusses developments in the corporate sector, while Section D focuses on debt restructuring. Section E then discusses the outlook for the financial system, including an assessment of various sources and types of risk. This includes sensitivity analysis with respect to bank profitability and vulnerability to credit risk, as well as a discussion of portfolio risk. Some final conclusions are presented in Section F.

B. Banking Sector Developments and Status

NPLs and Distressed Assets

6. **Distressed assets remain high despite the sharp fall in headline NPLs.**





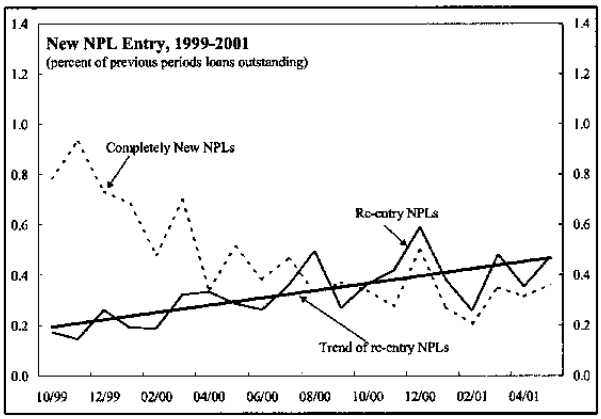
- Reported NPLs at both private and state banks have dropped substantially from a record high ratio of over 50 percent of loans during the crisis (over 70 percent for state banks), to about 20 percent for the system as a whole (Text Figure).

- However, distressed assets remain high, at over 40 percent of all loans. This is because the largest part of the reduction in headline NPLs reflects write-offs and transfers to AMCs (which are included in distressed assets but excluded from NPLs). The reduction in NPLs as a result of debt restructuring has been almost fully offset by new and re-entry NPLs (Text Figure).

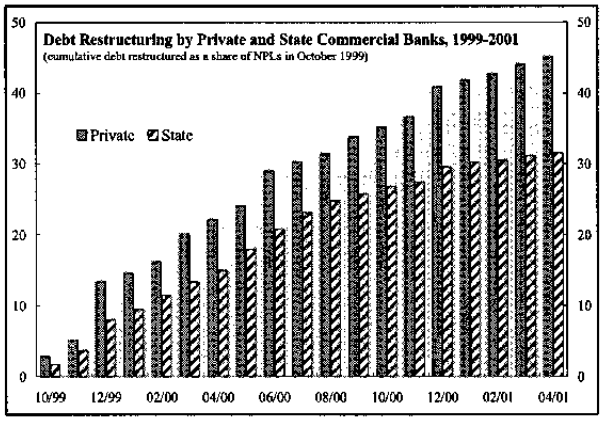
- Writing-off losses that have in effect already been taken by the bank is essentially an accounting transaction that has no substantive impact on a banks' balance sheet or performance.[3] Meanwhile, large transfers of NPLs to effectively off-balance sheet asset recovery vehicles are positive steps towards ultimate resolution of distressed assets. However, establishing a dedicated AMC does not by itself have an immediate and direct impact on a bank's underlying performance and prospects.

[3] Under BOT regulations, banks are required to write-off from their balance sheets the provisioned portion of NPLs that have been classified as loss for 12 months. The write-off represents the very low likelihood that the bank will recover the loan, and is thus a fuller recognition of the loss that had been provisioned. The bank continues to maintain its full legal claim on the debtor, and will continue to calculate accrued interest and other penalties that may be included as part of any ultimate debt restructuring deal.

7. **NPL levels have crept upwards in recent months**. The reduction in NPLs has come to a halt this year, in part reflecting a sharp slow down of debt restructuring in the run up to the establishment of the new TAMC. Banks and borrowers alike have been waiting to see the nature of the post-TAMC landscape for debt restructuring and asset pricing before proceeding further with their own private efforts. Meanwhile, first time NPLs continue to arise, albeit at a slowing pace (Text Figure). A sizeable proportion of previously restructured NPLs also continue to fail and revert to NPL status.[4] This could reflect in part the weakening economy, but also some unwinding of deals concluded from late 1999 onwards whose initial easy repayment periods have expired. Given that system-wide debt restructuring took off only towards the end of 1999, there is a risk that re-entry NPLs could pick up towards the end of 2001.



8. **Distressed assets remain particularly high in state banks**. State banks' distressed assets account for almost 50 percent of their loans and about half of system-wide distressed assets. This reflects the higher starting levels of NPLs in these banks, especially given that they include a large number of intervened and merged financial institutions. But the problem also reflects state banks' slower progress in debt restructuring as compared with private banks (Text Figure). By April 2001, private banks had restructured about 45 percent of base period NPLs, compared with about 30 percent by state banks.[5]

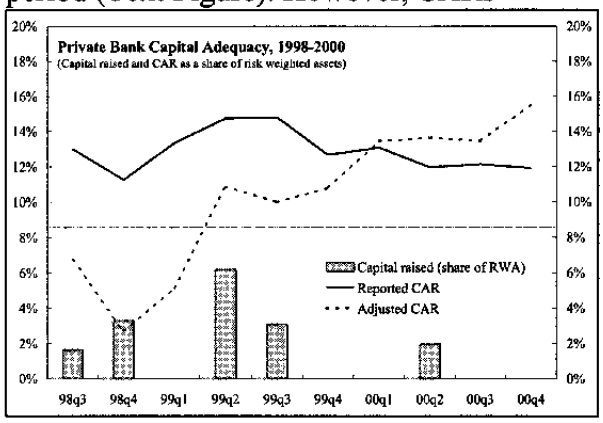


[4] The monthly flows might appear small, and there should in any event be some entry and exit of NPLs in the financial system under a normal steady state situation. However, monthly new and reversion NPLs combined have been averaging about 0.8 percent of loans outstanding in recent months. This would imply that over the course of one year, NPLs could rise by a sizeable 10 percent of loans, all else being equal.

[5] October 1999 is chosen as the base period as data giving a break-down of debt restructuring by private and state banks is available only from then onwards.

Bank Capital and Provisions

9. **Private bank regulatory capital is currently well in excess of statutory minimum requirements** (Table II.1). Headline CARs for private banks have remained in the 12-14 percent range throughout the post-crisis period (Text Figure). However, CARs adjusted to reflect the phasing-in of the new provisioning requirements under the revised prudential framework (introduced in June 1998) have been lower. Currently, underlying capital is higher than reported capital (reflecting provisions from restructured debt that have yet to be reversed into capital). This explains why the adjusted CAR had risen above the headline CAR by end-2000. Private banks have raised over $10 billion in new capital since the crisis, amounting to a cumulative total of about 16 percent of their average risk weighted assets. Of this about $2 billion is in the form of hybrid capital instruments (the so-called SLIPS and CAPS), while about another $2 billion is in the form of public capital support through the Tier-1 scheme.[6] The hybrid capital instruments are part of Tier-1 capital and may be used to reserve against losses. However, they cost on average 12 percent per year, rising to about 24 percent per year when the bank declares a dividend. Given this potential expense, banks are likely to issue new capital to refinance these hybrid instruments at the earliest possible opportunity.



10. **State banks' capital adequacy has been boosted by public capital injections, as well as by the guaranteeing of NPLs transferred to asset resolution vehicles**. CARs for KTB and Bank Thai are now almost 20 percent, reflecting public recapitalization, and the takeover of their NPLs by state-owned AMCs/covered asset pools. The remaining intervened banks continue to have a negative capital position, despite some public capital injections, reflecting the large level of losses remaining to be recognized in these banks. The authorities currently plan to split off the bad assets of these banks and then have the government pension fund directly recapitalize the remaining good bank.

11. **The large capital raising effort by private banks is reflected in the substantial coverage against potential losses accumulated by Thai banks in the post-crisis period.** Private Thai banks built loan loss reserves of almost 40 percent of peak-classified assets. Further, collateral accounts for another 43 percent of peak classified assets. But the concern remains (as discussed below) that while reserves are high, losses may continue to rise, necessitating further capital increases by banks.

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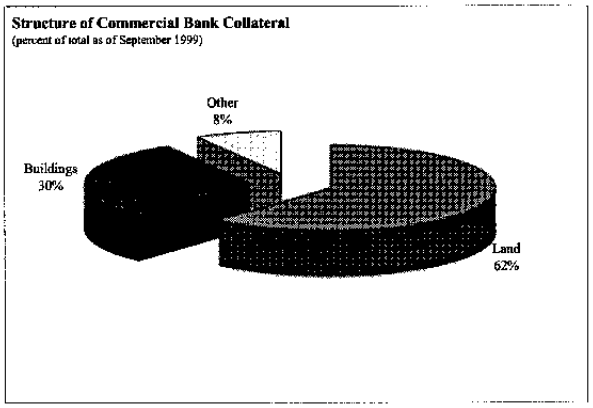
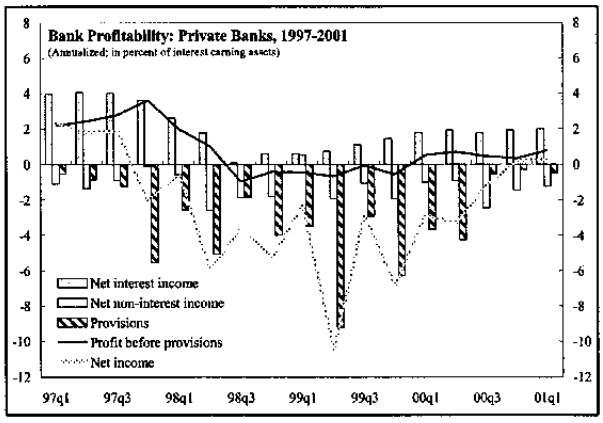
[6] See *Financial Sector Restructuring*, Chapter III, SM/99/304 for a discussion of hybrid capital instruments as well as a description of the Tier-1 capital support scheme.

12. **Banks are also dependent on real estate collateral for a large portion of their loss coverage**. Loan loss provisions in Thailand are computed net of collateral which comprises mostly real estate with the bulk held in the form of undeveloped "raw" land (Text Figure). There remains a large glut of supply in the real estate sector, and prices have fallen substantially in very thin trading.[7] This raises concerns about the valuation of collateral pledged as security to banks. While appraised values of banks' collateral have reportedly fallen, the concern remains as to whether they have adequately adjusted to current market conditions. BOT regulations have been strengthened in this regard, requiring annual independent appraisals. However, appraisal methods in Thailand are not in line with international standards.[8] For example, reviews of practice have revealed that appraisers often use the cost approach (even for unfinished projects) as opposed to a direct sales comparison.



Bank Profitability

13. **Commercial bank earnings have improved, with private banks breaking even by end-2000 for the first time in three years** (Text Figure). The improvement in operating performance reflects a recovery of net interest income in the context of stable operating expenses. While interest margins have improved, they have been driven more by a reduction in funding costs to historically low levels. Meanwhile, there has been little progress towards a sustained reduction in operating expenses, though the impact of recent staff-shedding exercises by a number of banks may help profitability in the future.



[7] The pre-crisis asset bubble was particularly severe in the real estate sector with a substantial increase in construction activity reflecting rapid credit growth to the construction and property sectors, particularly from the finance companies. While overall asset prices have fallen substantially since the crisis, real estate valuations remain difficult to ascertain given the extremely low level of actual transactions currently taking place.

[8] This issue is discussed further in *Developing the Valuation Profession in Thailand* (1999), a White Paper commissioned by the Securities Exchange Commission of Thailand and undertaken by the Royal Institution of Chartered Surveyors Thailand Group.

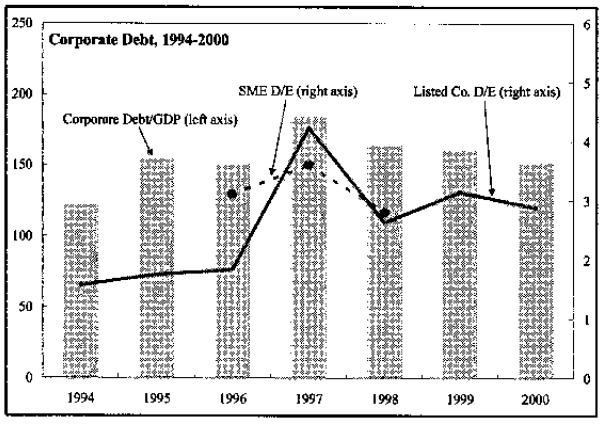
Finally, the completion of full provisioning by end-2000 on the existing NPLs has also helped to boost bottom-line net income.

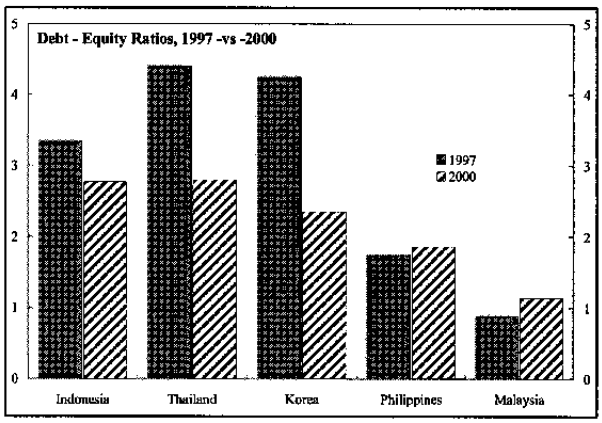
14. **The state-owned and intervened banks continued to make losses at the end-2000,** including on an operating basis, with overall operating losses of about 1½ percent of assets. This includes income accrued by the largest state bank KTB on the note from its subsidiary AMC whose payments are guaranteed by the FIDF. Excluding such accrued income, cash operating losses at the state banks were ½ percentage point higher at end-2000. Moreover, net losses after provisioning amounted to about 2 percent of assets, with the situation at the intervened banks particularly acute (as they made net losses of 3 percent of their assets at end-2000).

15. **Overall, income generation in the banking system remains weak.** Profitability could be easily eroded if margins were squeezed, including by further reversion of restructured NPLs and new entry, which could pick up given the weakening macro-economy.

C. Corporate Sector Performance

16. **Continuing high corporate sector leverage, four years after the onset of the crisis, mirrors the high level of distressed assets in the financial system.** Aggregate debt of the corporate sector, at some 150 percent of GDP, remains at pre-crisis levels, and both listed company and SME debt-equity levels are high (Box II.1). As such, all measures of indebtedness, while having fallen from peaks during the crisis, remain close to if not higher than pre-crisis levels, which in any event were arguably too high. Moreover, listed company debt-equity ratios in Thailand are among the highest in the Asia region, notwithstanding the reductions since peak levels during the crisis (Text Charts).





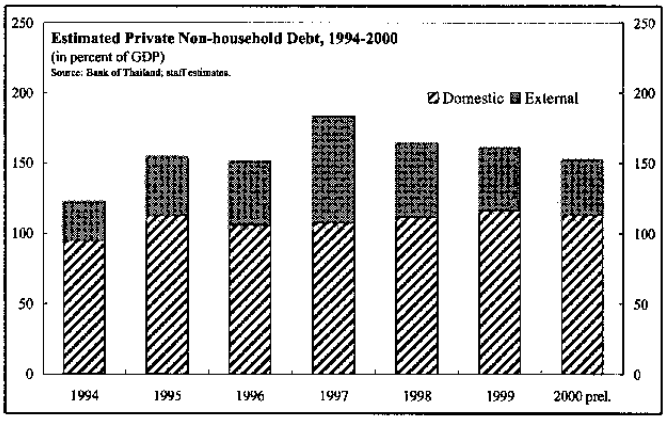
17. **The data suggest that small and medium size enterprises (SMEs) are also heavily indebted.** While recent information for this sector are not available, manufacturing sector survey data during the period through the first half of 1998, indicate that debt-equity levels were, and are likely still high. SMEs do not borrow extensively from abroad or in foreign currencies, but their indebtedness to domestic banks remains high.

Box II.1. Measuring Corporate Sector Debt

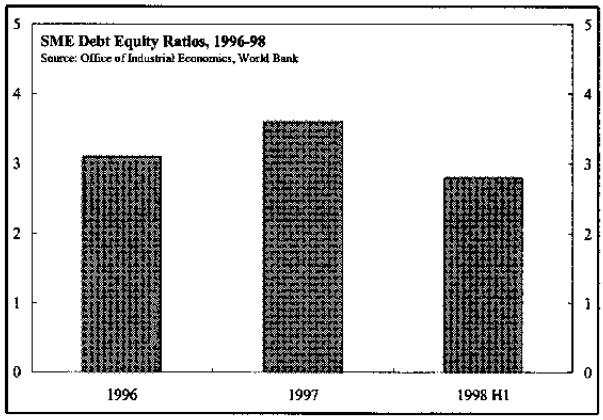
All measures of corporate capital structure point to continued high levels of debt and relatively low levels of equity in the Thai corporate sector. However, reflecting the difficulties in obtaining comprehensive, consistent and up to date corporate sector data in the Thai context, it is useful to consider information from a number of different sources.

Listed company debt levels remain high. Listed company data are most frequently used to illustrate the problems in the Thai corporate sector given the relative ease of obtaining consistent and up to date financial information for these companies. However, in contrast to other Asian countries with more concentrated industrial structures (such as Korea), listed companies provide a less complete view of the situation in the Thai corporate sector given that they reportedly account for a relatively lower share of total manufacturing output and employment. Therefore, it is important to look at other sources as well. That said, it remains useful to monitor listed company performance, especially given that the sample considered here accounts for about ¼ of borrowing from the banking system and should thus be fairly representative of at least larger Thai corporations which continue to have high debt-equity ratios.

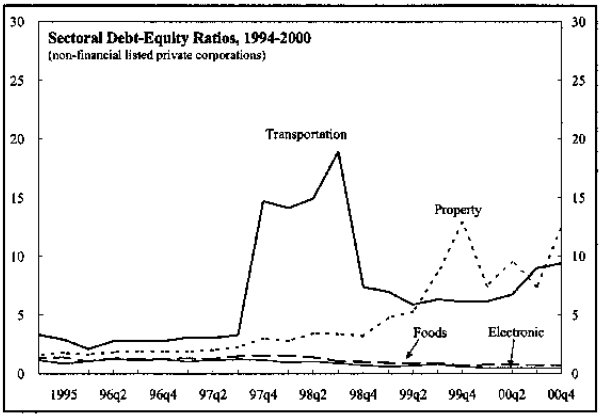
Aggregate data on corporate debt show that the overall level of debt has not fallen below pre-crisis levels. These aggregate figures were compiled from: (i) monetary survey data on credit to the corporate sector adjusted for lending by BIBF's, transfers to AMC's, and write-offs; (ii) balance of payments data on external borrowing by the corporate sector; and (iii) data on domestic bond issuances by Thai corporates. As such, these provide a comprehensive measure of corporate sector debt, and indicate that total corporate debt remains high at some 150 percent of GDP by end-2000. The overall debt level jumped in 1997 reflecting the effect of the baht depreciation on external debt. The composition of the debt has since changed with the U.S. dollar level of external debt falling (though remaining unchanged as a share of baht GDP given the more depreciated post-crisis level of the baht). The domestic component of corporate debt has remained broadly unchanged and it is this latter which contains the counterpart to the high level of distressed assets of the domestic banking system.



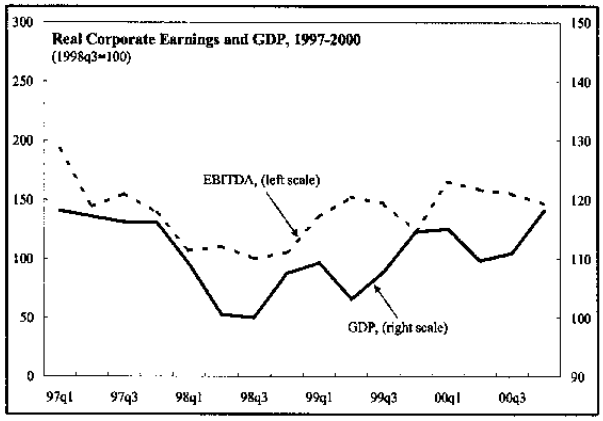
Firm level survey data, including of SME's, confirms that debt-equity levels were high, both before and after the crisis. The Ministry of Industry and the World Bank organized surveys of Thailand's manufacturing sector during 1997-99 with a sample covering about 3 percent of manufacturing sector employment. Of the surveyed firms, 2/3 were small, with less than 150 employees. The survey illustrated the continued high corporate debt equity ratios, including for SME's. These ratios had risen slightly in 1997, driven by the baht depreciation, but less so than for listed companies reflecting SMEs' lower levels of foreign currency borrowing.

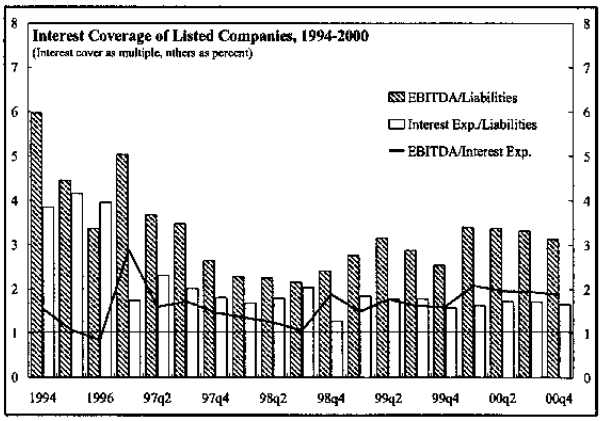


18. **Debt equity ratios, while high in aggregate, vary widely across sectors.** In particular, listed companies in the traded sector appear to have lower levels of debt as compared with those in the non-traded sector (Text Chart). Thus for example, corporates in the traditionally export oriented food processing and electronics sectors have very low debt-equity ratios. Companies with main activities in areas such as real estate development have substantially higher degrees of leverage. This may reflect the debt financing of the asset bubble that has yet to be completely unwound off corporate balance sheets.



19. **Corporate sector profitability has improved with the economic recovery, but remains fragile.** Real earnings before interest, tax, and depreciation allowance (EBITDA) fell sharply during the crisis, but have since picked up as overall output has recovered from the depths of the crisis (Text Figure). Meanwhile, corporate interest expenses have fallen with the reduction in lending rates and favorable interest rates in the initial phase of debt restructuring agreements. Reflecting the continued low levels of interest expenses and the pickup in earnings, listed company coverage ratios (EBITDA/interest expense, a basic cash flow ratio) have recovered to pre-crisis levels (Text Figure). However, analysis by Merrill Lynch illustrates that a large fraction of listed companies are currently servicing their debts at rates below the prime rate. Thus any increase in interest rates would jeopardize corporate profitability. Addressing this risk adequately will require supportive macroeconomic policies, coupled with steps to deleverage Thai corporates.





D. Corporate Debt Restructuring

20. **The CDRAC process to facilitate debt restructuring has largely been completed.** The Corporate Debt Restructuring Advisory Committee was established under the aegis of

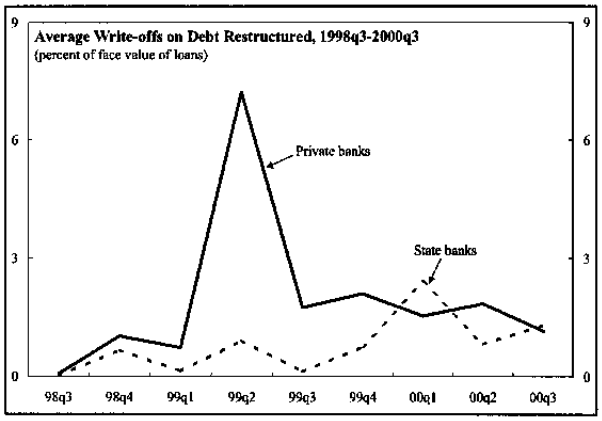
the Bank of Thailand to facilitate debt restructuring, especially in large multi-creditor cases. At its peak, CDRAC was overseeing debt restructuring cases with a value approaching 50 percent of GDP. Of this, over half of the cases have been successfully restructured, though as noted earlier, the sustainability of these restructurings is yet to be borne out. Further, just under half of the cases, worth some 25 percent of GDP, remain to be resolved, and risk devolving on to the already burdened civil court system. Moreover, some of the successfully restructured debt was held by non-resident creditors and thus would have no impact on the measures of NPLs and distressed assets that pertain to the domestic banking system.

21. **Debt restructuring by commercial banks appears to have largely involved rescheduling with little deleveraging of borrowers.** Comprehensive data on the nature and quality of debt restructuring conducted by banks are not available. This in part reflects the inherent complexity and variety of methods used in debt restructuring deals. Nonetheless, information put together by the BOT on the nature of debt restructuring conducted in a sample of cases indicates that rescheduling, grace periods on debt service, and some interest rate reduction are the most commonly found components of debt restructuring deals (Text Table). The first two methods have in practice typically been crafted in such a fashion as to not imply much net present value (NPV) reduction in the value of the debtor's obligations.

Breakdown of Loan Restructuring Methods for Thai Banks
(percent of cases using at least one of the below methods)

	1999	2000
Debt rescheduling	41	41
Grace period on debt repayment	20	21
Interest rate reduction	22	20
Principal or accrued interest reduction	6	6
Debt-to-assets swap	6	5
Debt-to-equity swap	3	4
Others	2	3

Source: Bank of Thailand



While interest rate reductions could in principle imply some reduction in the effective debt burden, anecdotal evidence suggests that here also, many deals involve a reduced interest rate for the first 2-3 years of the revised agreement, with above prime rates for the remaining loan period such that there is no NPV loss to the bank. This is corroborated by the fact that banks have in general reported very low NPV losses on restructured debt (Text Figure). In particular, reported NPV losses on debt restructured by commercial banks during 1998q3-2000q3, averaged only 1.8 percent of the face value of debt restructured by private banks and 0.9 percent on restructuring by state-owned banks.

22. **BOT guidelines require banks to fully reserve against losses from debt restructuring, but implementation may be uneven.** Under troubled debt restructuring (TDR) guidelines, the loss on TDR should preferably be based on the NPV reduction in projected cash flows. In most cases banks do appear to use cash flow models to determine the actual NPV loss from TDR (which given the factors discussed in the previous paragraph, is typically low). However, in line with international practice (FAS 114), the regulations allow

banks to also take into account the collateral value supporting the restructured loan (subject to BOT appraisal requirements). Given concerns with collateral valuation (discussed above), this could result in understated losses on TDR.

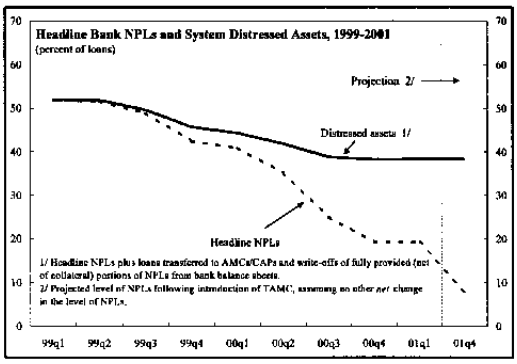
23. **BOT guidelines also allow restructured loans meeting certain criteria to be immediately reclassified as pass.** This is generous by international standards—typically at least 3–6 months of conformity with the revised debt service agreement is required before reclassification. Even though the specified criteria allowing immediate reclassification aim to ensure that the underlying restructuring is of good quality, this clause opens the possibility for banks to prematurely reverse provisions on these loans (some weaker banks have already reversed such provisions into income). In an environment where re-entry of previously restructured NPLs is rising, this could be of particular concern.

24. **Slow progress in debt restructuring reflects the large scale of the problem and weaknesses in the legal framework.** Importantly, creditors' power to enforce their claims is undermined by the weak legal framework for bankruptcy and foreclosure (these issues are discussed further in Chapter IV). This creates disincentives for banks to make concessions to deleverage borrowers. For example, it is difficult for creditors to force recalcitrant borrowers to cede some control of their companies in the context of debt for equity swaps. Often, standoffs arise with neither side making the concessions necessary for equitable and sustainable debt restructuring to arise. Also, banks concerned about their capital position and faced with a difficult legal environment, attempt to minimize their upfront losses and the concomitant impact on capital. This can result in a protracted period of negotiation, and may not lead to sufficient deleveraging of the corporates, which in turn could further prolong the debt restructuring process.

E. Outlook and Key Risks for the Banking System

Near term outlook

25. **Responding to the slow progress in deleveraging of the corporate sector, the authorities have decided to establish a national AMC.**[9] The Thai Asset Management Corporation (TAMC) is expected to take on about ½ of system-wide distressed assets, mostly from the state banks. As such, the headline NPL figure for the overall banking system should fall substantially (Text Figure), to around 10 percent of all loans once the TAMC has completed the process of acquiring NPLs,



[9] Chapter III provides a detailed description and assessment of the structure of the TAMC, including details on the impact of the TAMC on private banks.

provided there is no new net entry of NPLs. However, the level of distressed assets that will still have to be addressed will remain large, at nearly 40 percent of loans. The TAMC is not expected to have a substantial upfront impact on the private banking sector, though the state banks are expected to have most of their distressed assets removed.

26. **Bank profits are likely to remain weak in the near term, and are sensitive to risks of lower margins and the re-entry of previously restructured NPLs**. Even with the introduction of the TAMC, the return on assets for private banks is likely not to exceed around 1 percent in the near term, assuming flat loan growth, no erosion of margins, and stable NPL levels. Some sensitivity analysis of bank profits over a 12-month horizon is presented in Table II.2 and highlights the fragility of bank earnings.[10] The shocks considered are a reduction in lending spreads and a reversion in NPLs. Either of these shocks would reduce returns on assets by almost 1 percentage point. Indeed, if both shocks were to occur together, interest margins would be halved, banks would again make significant losses, and capital adequacy ratios would be reduced by 2-3 percent over the 12-month horizon considered. The impact on profitability is most acute for the small private Thai banks, though the effect on capital adequacy is more uniform (reflecting that larger banks have lower risk weighted assets relative to total assets than the smaller banks).

Fundamental Credit Risk

27. **Banks remain exposed to the risk that losses on their loan portfolios could be higher than currently provisioned**. While NPLs have been reduced, much debt restructuring is of uncertain quality, and other NPLs written off and transferred to AMCs remain exposed to the risk of lower collateral values. The sensitivity analysis of bank profitability discussed in the previous section provides a sense of the short-term prospects for bank capital and is also relevant from a cash-flow perspective. However, another perspective on risk can be gleaned by examining the sensitivity of bank net worth to shocks to the value of assets. These exercises can be somewhat arbitrary as *ex ante* loss rates on banks' asset

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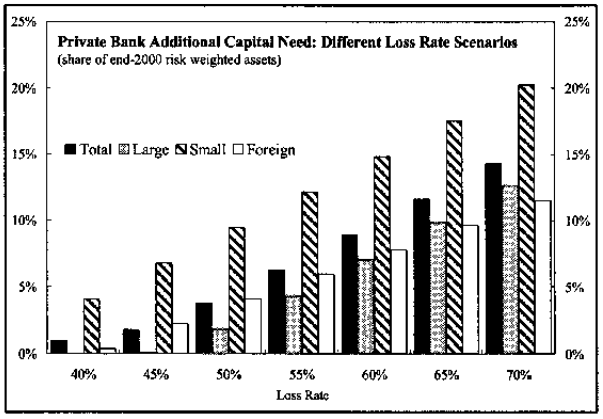
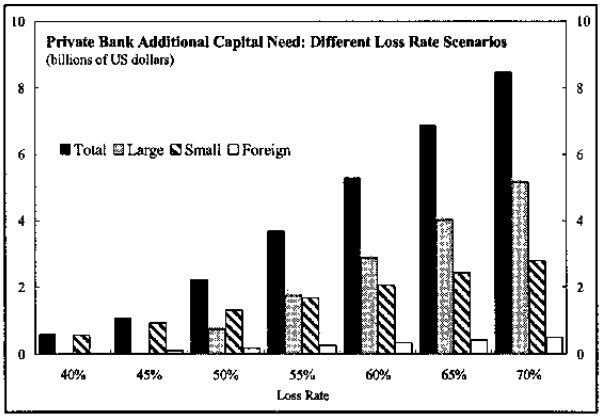
[10] Net interest income (and implied yields/spreads) in the base case is derived from financial statements as of 2000Q4. Net operating non-interest income in the base case is assumed to be the average in 2000. In Scenario (i) the spread on performing assets (excluding restructured loans which are assumed to yield 3 percent across the board) is lowered by 100 basis points. In Scenario (ii) 1/3 of restructured NPLs are assumed to revert in a 12-month period through end-2001. These NPLs are assumed to have 50 percent collateral cover, and to require 50 percent provisions net of collateral. Accordingly, provisioning charges arise. Scenario (iii) combines scenarios (i) and (ii). In all scenarios, baht figures for quarterly net interest income and net profit are provided. These baht figures are also scaled by the appropriate lending/asset measure to provide ratios in all cases. Finally, the implications of these scenarios for the Tier-1 capital ratio are derived for a 12-month period. The analysis here takes into account the TAMC's impact on the banks.

bases are not possible to estimate accurately. However, some sensitivity analysis in this regard can at least provide a sense of the banks' exposure.

28. **Sensitivity analysis with regards to credit losses is indicative of the likely range of additional recapitalization needs that private banks could face in the period ahead.** The simple analysis illustrated in the following Text Figures is based on peak levels of classified assets for individual banks. A range of loss rates is then applied to these peak distressed asset levels, with resulting losses offset against available loan loss reserves (current reserves plus write-offs) and capital in excess of the minimum requirement. If the value of losses exceeds the level of total reserves, additional capital will need to be raised. These loss rates can be interpreted as the needed reduction in the NPV of the debt required to conduct sustainable debt restructuring, or alternatively as the discount that would ultimately be achieved on sale of foreclosed collateral.





29. **The scenarios suggest that it is not implausible for banks to face additional losses in the future.** Loss rates between 40 to 70 percent of peak distressed asset levels generate additional capital needs of between 1-14 percent of risk-weighted assets. These peak losses would only be marginally tempered by the gain-loss sharing arrangements affecting assets transferred to TAMC.[11] A "medium" case of 55 percent loss, would imply that private banks as a whole would need to raise additional capital of 6 percent of risk weighted assets.[12] As expected, there is considerable variation across banks generated by differences in levels of peak impairment, as well as loss coverage. Small domestically owned Thai banks are exposed to the most significant risk. Meanwhile, the larger private banks are comparatively

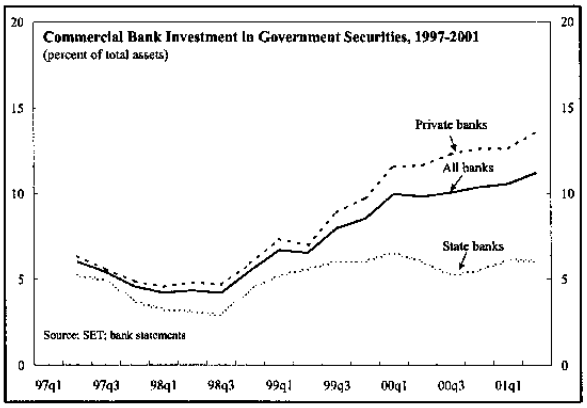
[11] For example, at an assumed loss rate of 60 percent, private bank unassisted capital need would amount to baht 240 billion, while the gain-loss sharing with TAMC would reduce this only by about baht 37 billion. Further details are presented in Chapter III.

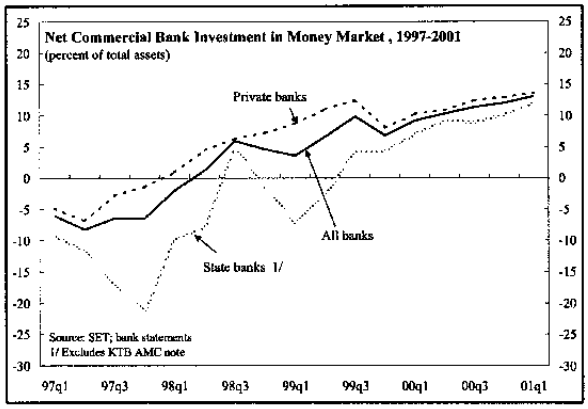
[12] The total capital raised by private banks since the crisis amounts to about 16 percent of their average risk weighted assets.

less exposed, but could still face the need for additional capital of between $1-3 billion. While these amounts are not so large compared to the capital raised by the banks already, the current depressed state of the capital markets would pose a challenge to any efforts to raise additional capital.

Portfolio and Foreign Exchange Risk

30. **Since the crisis, banks have substituted out of loans and into government and money market securities, raising questions about portfolio risk.** With a stable deposit base, the counterpart to the large decline in loan deposit ratios (from about 120 percent in early 1997 to the current level of 80 percent) has been the build-up in domestic commercial bank holdings of government securities and money market lending (Text Figures). In particular, this raises questions about banks' exposure to an increase in bond yields from the current low levels, particularly given the recent upward shift in the yield curve.

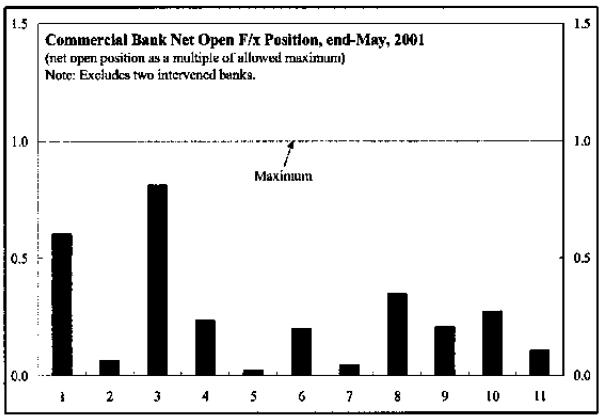




31. **However, commercial banks do not currently appear likely to realize substantial losses on their government bond portfolios.** Commercial banks hold about 12 percent of their assets in the form of government bonds. However, banks are unlikely to *realize* large losses as only about 10 percent of private banks' bond portfolios are held in their trading book (just over 1 percent of assets), and thus subject to an upfront charge. It would require substantial increases in interest rates to generate significant losses on this portfolio. Of the remaining bond portfolio, 30 percent are held-to-maturity with another 60 percent classified as available-for-sale, and thus not immediately exposed to interest rate risk. Banks would realize losses on the available-for-sale portfolio only in the event they were constrained to sell in the current market, but with weak loan demand and stable deposit bases, this is unlikely.

32. **Commercial bank exposure to foreign exchange risk is closely regulated by the BOT, leaving little scope for losses.** Banks have gradually developed a positive open foreign exchange position on their balance sheets, especially driven by the unwinding of

lending activities through their BIBFs (which largely sourced foreign currency funding for onshore baht lending). However, the BOT requires banks to match any on-balance sheet open foreign currency position with offsetting off-balance sheet positions such that the total net open foreign exchange position does not exceed 15 percent of banks' Tier 1 capital. As such, banks' net open position is well within the regulatory limit (Text Figure). Within this limit, it would take substantial exchange rate movements to generate significant losses for banks.



F. Conclusion

33. **Thai banks have made substantial strides towards reducing their vulnerability, but risks remain to their capital and profitability**. The main source of uncertainty in the near-term outlook is the scope for re-entry of restructured NPLs of questionable quality, as well as a rise in new NPLs because of the weakening recovery. Banks' margins also remain fragile and any rise in policy rates that puts upward pressure on the structure of banks' interest rates would also jeopardize profitability. The introduction of the TAMC will have a positive, but only marginal impact on the private banks' income; however, state banks' performance and capitalization will be boosted more substantially.

34. **Slow progress with corporate restructuring is the main source of risk to the Thai financial system**. The continued high level of financial system distressed assets is the mirror image of the still very high level of corporate debt. A more pronounced weakening of domestic growth could lead to a vicious circle of deteriorating corporate performance and rising NPLs. Slow growth and increases in the fiscal cost of financial sector restructuring could also add to concerns about the sustainability of public debt. These risks underline the importance of structural reforms to accelerate corporate debt restructuring, particularly in the state bank sector where progress has been slower. In this regard, the TAMC could play an important role but weaknesses in the legal framework also need to be addressed.

35. **Finally, although other sources of portfolio risk do not appear significant, private banks may need additional capital if collateral values fall or profitability drops.** Banks' exposure to foreign exchange risk is tightly regulated, and their exposure to losses on government bonds is limited. However, the sensitivity analysis presented above suggests that private banks may well need to raise further capital in the future if collateral valuations fall or underlying profitability deteriorates. This risk is heightened by the weakening recovery and any rise in NPLs. However, the need for additional capital is unlikely to be either large, relative to the amounts already raised by private banks, or immediate, as banks currently have excess provisioning and capital.

Table II.1. Financial Situation of Thai Commercial Banks 1/

	TOTAL	Private				State
		All	Large	Small	Foreign	
Asset Quality						
A. Classified assets 2/						
(billions of baht)	1,100	616	384	163	68	484
(percent of total loans)	30	25	23	28	25	38
(percent of total assets)	20	16	14	21	18	28
B. Non-performing loans						
(billions of baht)	927	588	352	121	115	339
(percent of total loans)	25	24	21	21	42	27
C. Peak classified assets 2/						
(billions of baht)	2,689	1,369	978	227	209	1,320
(percent of total loans)	56	45	48	33	61	75
Loss Coverage						
D. Tier-1 Capital						
(billions of baht)	266	202	129	49	27	64
E. Provisions needed per end-2000 rules						
(billions of baht)	252	33	26	6	1	218
F. Existing Provisions						
(billions of baht)	388	160	124	23	13	228
(percent of current classified assets)	35	26	32	14	20	47
G. Losses written-off (billions of baht)	431	391	291	65	35	40
H. Provisions and writeoffs (percent of peak classified assets)	30	40	42	39	23	20
I. Provisions and writeoffs (percent of current classified assets)	60	56	65	47	32	71
J. Collateral 3/						
(billions of baht)	1,218	559	342	148	69	660
(percent of current classified assets)	111	91	89	90	100	136
(percent of peak classified assets)	45	41	35	65	33	50
K. CAR, percent	11.4	12.0	11.5	12.7	13.7	9.3
Tier-1	7.6	7.6	7.0	7.8	11.2	7.6
Tier-2	3.9	4.5	4.6	4.9	2.5	1.7
Size						
L. Number of employees	95,745	64,470	41,768	17,004	6,927	31,275
M. Number of branches	3,817	2,648	1,598	790	324	1,169
N. Total assets (in billions of baht)	5,841	3,930	2,818	786	380	1,911
In percent banking system's assets	100	67	48	13	7	33
O. Total loans (in billions of baht)	4,071	2,603	1,770	594	283	1,468
In percent banking system's loans	100	64	43	15	7	36
Memorandum items:						
Risk weighted assets (billions of baht)	3,516	2,719	1,862	629	240	797

Sources: Bank of Thailand; and Fund staff calculations.

1/ Based on December 31, 2000, balance sheet information.
2/ Classified loans, as opposed to loans only overdue by more than three months.

Table II.2. Sensitivity Analysis of Bank Profits and Capital 1/
(In millions of baht unless otherwise indicated)

	Total	Large	Small	Foreign	State
Base case					
Net interest income (quarterly)	4,351	14,953	2,283	1,444	5,075
Net profit (quarterly)	1,814	6,811	-150	354	1,842
Net interest yield (annualized)	2.1%	2.4%	1.2%	2.5%	2.1%
Return on assets (annualized)	0.8%	1.0%	-0.1%	0.6%	0.7%
Scenario (i)	**(1 percent lower lending spreads)**				
Net interest income (quarterly)	2,685	9,534	990	1,008	2,963
Net profit (quarterly)	147	1,392	-1,442	-81	-270
Net interest yield (annualized)	1.3%	1.5%	0.5%	1.7%	1.2%
Return on assets (annualized)	0.0%	0.2%	-0.8%	-0.1%	-0.1%
Scenario (ii)	**(33 percent NPL reversion)**				
Net interest income (quarterly)	4,140	14,287	2,019	1,345	4,874
Net profit (quarterly)	-155	598	-2,613	-564	-38
Net interest yield (annualized)	2.0%	2.3%	1.1%	2.3%	2.0%
Return on assets (annualized)	-0.2%	0.1%	-1.4%	-0.9%	0.0%
Scenario (iii)	**(lower lending spreads and NPL reversion)**				
Net interest income (quarterly)	2,474	8,868	726	910	2,761
Net profit (quarterly)	-1,822	-4,821	-3,906	-1,000	-2,150
Net interest yield (annualized)	1.2%	1.4%	0.4%	1.6%	1.2%
Return on assets (annualized)	-1.0%	-0.7%	-2.0%	-1.6%	-0.9%
Tier-1 Capital Adequacy Ratio					
(changes from base case)					
Scenario (i)	-1.2%	-1.2%	-0.8%	-0.9%	-2.1%
Scenario (ii)	-1.3%	-1.2%	-1.5%	-1.7%	-1.6%
Scenario (iii)	-2.5%	-2.4%	-2.3%	-2.6%	-3.8%

Sources: SET, Société Générale Securities Research; and Fund staff estimates.

1/ The analysis here excludes the state-owned Bank Thai and intervened banks, BMB, and SCiB.

III. Design and Implementation of The Thai Asset Management Corporation[1]

A. Introduction

1. **To help alleviate weaknesses in the bank and corporate sectors (Chapter II), the authorities established the Thai Asset Management Corporation (TAMC) in June 2001.** The TAMC was designed to consolidate the management of distressed assets in the public sector, and provide an impetus to the restructuring of large multi-creditor corporate loans. It is expected to purchase up to one-half of the financial sector's distressed assets, of which a large majority (some 80 percent) is expected to come from state-owned financial institutions.

2. **The establishing law provides the TAMC with a flexible and powerful framework for the management and resolution of distressed loans.** The TAMC can choose among various loan resolution strategies, including debt restructuring, which aims to improve a debtor's balance sheet, and more intrinsic business reorganization, which aims to revive a debtor company so that it can recommence servicing its debts. To support these strategies, the TAMC is endowed with special legal powers to bypass weaknesses in the existing court-based framework for debt restructuring. Particularly notable are TAMC's powers to foreclose on the collateral of recalcitrant debtors, and to place cooperating debtors into a streamlined business reorganization proceeding.

3. **However, the TAMC's success will crucially depend upon the implementation of its mandate.** Experience in other countries illustrates that the success of a centralized agency is determined by several crucial factors. These include: (i) maximizing the use of private sector expertise in the management of bad loans; (ii) applying commercial criteria and the principle of value maximization to restructuring terms; (iii) using special legal powers in a consistent and even-handed manner; and (iv) minimizing political interference and maximizing transparency of operations.

4. **This chapter describes the TAMC's key features and objectives, the conditions under which it could be successful, and its likely financial impact.** The next section discusses the TAMC's main features as laid out in the establishing law. Section C then draws on the experience of other asset resolution entities in the region to determine the conditions under which the TAMC could be successful (Annex I compares and contrasts country experiences in more detail). Section D provides a preliminary assessment of the impact of the TAMC on banks and government debt, and Section E concludes.

B. Key Features and Objectives of the TAMC Law

5. **The TAMC's establishing law was formally enacted in June 2001.**[2] The law is comprehensive and highly detailed, containing both general principles and specific

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[1] Prepared by Lorenzo Giorgianni, with input from Sean Hagan and Vikram Haksar.

operational provisions. About one-third of the law's articles focus exclusively on the management of nonperforming loans (NPLs) and the administration of special legal powers. However, the law also mandates the separate issuance of operational guidelines to spell out more fully the TAMC's approach to debt and business restructuring. These guidelines are currently under preparation.

6. **The objectives of the TAMC are defined somewhat broadly.** Emphasis is put on the revival and continuation of businesses—to enable them to repay their debts—with a view to fostering national economic recovery. In addition, the law gives prominence to the speedy resolution of NPLs, containment of operating costs, and supportive treatment of cooperating debtors.

Eligibility and Pricing of Loans

7. **The TAMC is to acquire only large, multi-creditor loans from private banks, while it is expected to acquire a potentially large share of state bank distressed assets.** The TAMC is given statutory powers to buy assets with certainty of title (by-passing the need to obtain borrowers' consent), and the law mandates that the transfer of assets be a one–time operation. Eligibility for private banks is limited to collateralized loans of at least B 5 million ($110,000), and involving more than two creditors. State-owned institutions are expected to transfer both multi-creditor loans and uncollateralized single-creditor loans. Thus, loan transfers from state institutions could reach over 80 percent of total asset transfers to the TAMC (see Box III.1). Participation by private banks is voluntary. However, the law provides a strong incentive for participation by requiring banks that fail to transfer eligible NPLs to reappraise their holdings of collateral (by an independent appraiser appointed by the Bank of Thailand), and to top off any resulting provisioning shortfalls.

8. **The purchase price of loans by the TAMC is to be set equal to the value of collateral, with future gains or losses shared with the originating institutions.** Collateral appraisals are to be carried out according to procedures set by the TAMC.[3] The price received by private banks is not to exceed book value minus *regulatory* provisions.[4] Meanwhile, the purchase price of uncollateralized NPLs of state institutions has not yet been determined. Gains and losses from debt restructuring are to be shared over time with the originating institutions according to a loss–sharing formula. The formula implies that banks' exposure to losses realized in the TAMC is capped at no more that 30 percent of the transfer price (see Box III.2 for details). Financial institutions are expected to refund, *pro rata*, their

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[2] The law was first issued as a Cabinet Emergency Decree and later ratified by Parliament.

[3] For real estate collateral, the TAMC law requires financial institutions to use the Land Department's valuations, which are typically lower than banks' own appraisals.

[4] The book value is calculated by subtracting from the original principal claim any principal re-payments made by the debtor, and by adding up to 3 months of overdue interest payments.

portion of the TAMC's operating and funding costs. In the event the TAMC realizes gains, most of these will accrue to the originating institutions. Losses will be settled at the end of the 5th and 10th years of TAMC's operations by reducing the face value of the note it issued to purchase the NPLs (see below). Private banks also have the option of settling losses by issuing ordinary shares to the TAMC.

9. **The FIDF will provide the TAMC with the initial capital, and will guarantee bonds issued to purchase NPLs from financial institutions**. In addition to receiving an initial capital injection (of B 1 billion, or $22 million), the TAMC has the ability to issue new shares, borrow funds from the market, and extend loans and guarantees. The TAMC will purchase NPLs by issuing FIDF-guaranteed (ten-year) nontradable, callable bonds, with a yield comparable to bank funding costs.[5] Losses incurred by the TAMC are initially to be absorbed by the FIDF, and later refunded by the Ministry of Finance.

Loan Management and Restructuring Strategy

10. **The law enables the TAMC to manage the NPLs flexibly**. It is expected that multi–creditor loans acquired from financial institutions will be managed with bank participation. The TAMC can also outsource the management of NPLs in separate tranches to the originating institutions, or to private asset managers with priority given (by law) to Thai legal entities. Finally, the TAMC can bundle distressed loans and use them as collateral to issue asset-backed securities to investors.

11. **The TAMC is authorized to use three different loan resolution strategies**:

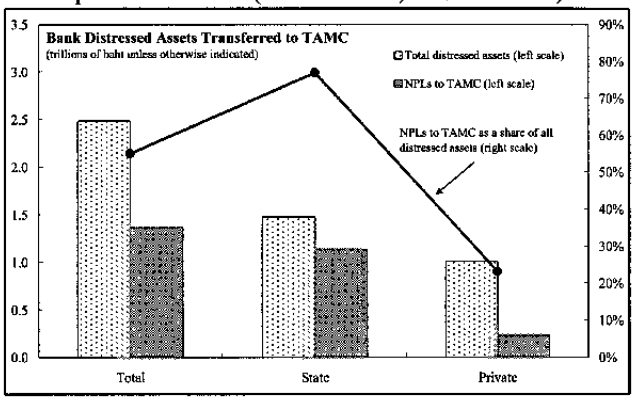
- **Debt restructuring**, including debt and debt–service reductions, debt-for-equity swaps, and settlement through transfer of collateral or other debtor assets;
- **Business reorganization** with a view to revive debtor companies and enable them to repay their debts;
- **Foreclosure** and disposal of loan collateral to settle the debtor's obligations.

The law permits the flexible use of these three approaches, so that, for example, elements of debt restructuring, which only affect a debtor company's balance sheet, can be combined with more fundamental business reorganization. The latter allows for management or staff changes, disposal of non-core assets, and closure or reorganization of business lines. The TAMC will decide on the loan resolution strategy to follow, based on a preliminary assessment of the financial position of the debtor, its level of cooperation, and overall business prospects.

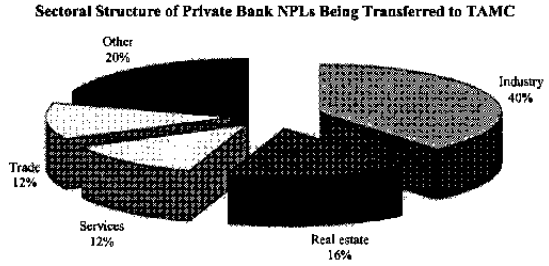
[5] The yield is paid annually and capped at the average of the deposit rates of five Thai banks.

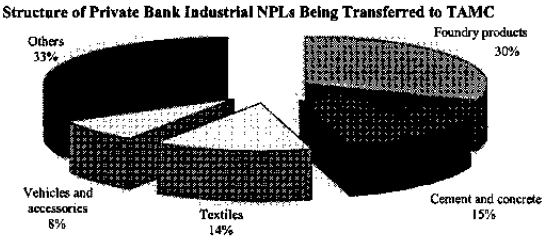
BOX III.1. LOAN PORTFOLIO ELIGIBLE FOR TRANSFER TO THE TAMC

The TAMC could acquire up to ½ of system-wide distressed loans, though only a small fraction is from private banks. About B 1.3 trillion ($30 billion) in book value of distressed loans, consisting of over 100,000 individual accounts, are eligible for purchase by the TAMC.[1] Of this, over 80 percent in value (B 1.1 trillion, or $25 billion) consists of the NPLs held by various state-owned institutions, including state banks and state-owned loan work-out units. The remainder (B 230 billion, or $5 billion) consists of around 2,500 multi-creditor loan accounts of private banks eligible for transfer (that is, those with an outstanding balance greater than B 5 million and with collateral). The pool of loans slated for transfer from private banks is equivalent to only about 6 percent of their total assets, and about ¼ of their distressed loans. This relatively small share is partly due to the fact that over ½ of all NPLs currently held by private banks is to single creditors. It could also reflect progress achieved thus far in restructuring larger, multi-creditor exposures.

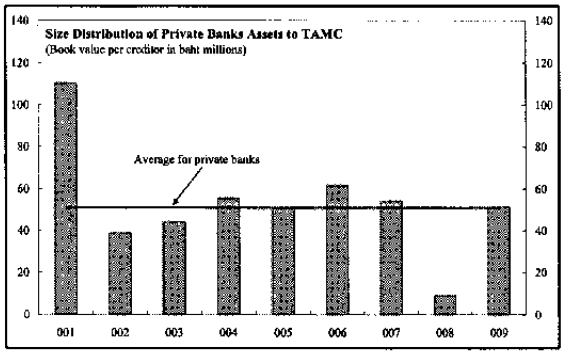


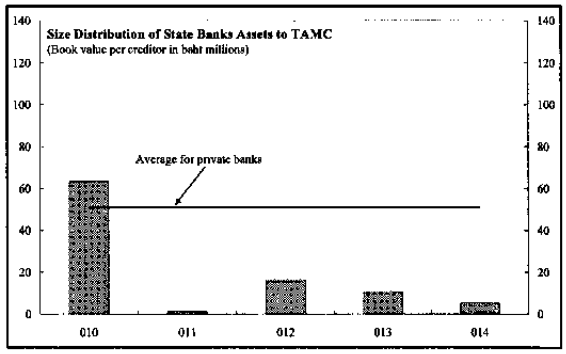
The corporate loans from *private banks* that could be transferred to the TAMC are dispersed across a wide variety of sectors, with industrial loans as the largest share. Data on the distribution of private bank NPLs eligible for transfer to the TAMC indicates that industrial loans account for about 40 percent of the total, with real estate loans accounting for another 16 percent. Moreover, even within the industrial sector, NPLs are fairly disparate, though the steel sector accounts for about of eligible industrial loans. These data highlight the fact that the TAMC will be charged with managing a fairly diverse asset portfolio, making it more difficult for the TAMC to specialize in a particular kind of asset resolution strategy.





The loan portfolios of *state financial institution* that could be transferred to the TAMC appear more fragmented than those of private banks. In particular, the size per borrower of state institution loans eligible for transfer is much smaller, on average, than is the case for private banks. The exception being for the loans transferred to the SAM (the AMC set up last year to resolve the NPLs of the state-owned Krung Thai Bank), which are of comparable size to those transferred from private banks. Data on the sectoral distribution of exposure by state institutions are not available, although it is likely that their NPLs are also spread across a wide array of retail and industrial type loans.





[1] These figures are based on preliminary analysis by the BOT. Therefore, the final amounts eligible for transfer could be different from those reported here.

BOX III.2. A CLOSER LOOK AT THE TAMC'S GAIN-LOSS SHARING ARRANGEMENT

Loans from commercial banks will be sold to the TAMC in the context of gain-loss sharing arrangements. Such incentives and risk sharing mechanisms are commonly used internationally in contracts for the sale of distressed financial assets, including recently in Thailand in the context of the sale of the two smaller intervened banks, Nakornthon and Radanasin.

Initial Pricing: In the case of the TAMC, eligible assets from private banks will be sold at a *transfer price* equaling the lesser of the value of the collateral securing the loan (excluding personal guarantees), or the loan's net book value. Net book value refers to a loan's original on-balance sheet value (not including unrecognized accrued interest in excess of three months, or other penalties) less required regulatory reserves as per BOT regulations. From a regulatory perspective, net book value should therefore reflect the currently assessed economic value of the underlying loan obligation.

Gain-loss sharing: The loss-sharing contract between the bank and the TAMC is non-symmetric. In the event that the TAMC realizes a gain, i.e., when the ultimate value realized from a loan is *higher* than the transfer price (after including operating and interest costs), the originating bank and the TAMC will share equally the first 20 percent of the gains relative to the transfer price, with the remainder accruing to the bank (though the share of total gains accruing to the originating bank cannot exceed the transfer price; any such excess gains will accrue to the TAMC). However, in the event of a loss, i.e., when the value realized from a loan is *less* than the transfer price (after including operating and interest costs), (i) the originating bank will assume the first 20 percent of additional losses relative to the transfer price, (ii) any losses above 20 percent but less than 40 percent of the transfer price will be shared between the bank and the TAMC, and (iii) losses in excess of 40 percent of the transfer price will be borne entirely by the TAMC. This effectively caps banks' losses at 30 percent of the transfer price (the first 20 percent plus half the next 20 percent of losses).

Thus, individual banks' maximum exposure will vary depending on the transfer price which, in turn, is related to the value of collateral and/or existing provisioning for the loan portfolios transferred to the TAMC. As illustrated in the Text Table, banks that transfer their loans at relatively lower prices (line C) are exposed to lower *additional* losses to be realized in the TAMC (equivalent to the sum of lines D and E). However, transferring at a lower price means effectively that a relatively larger share of losses has already been shouldered by the bank prior to the transfer (in the form of balance sheet provisions—i.e., line B of the Table). Thus, the banks' *maximum* loss depends directly on the transfer price: the *lower* the transfer price (line C), the *higher* is the ultimate loss to the bank (line G)—and the lower the ultimate cost to the TAMC. That is, banks with a higher appraised value of collateral are exposed to smaller overall losses compared to banks with lower appraised values of collateral. This is why, as in any typical loss-sharing arrangement, the seller (i.e., the bank) has an incentive to sell at the highest price possible. Therefore, fairness in a loss-sharing agreement is achieved when the *ex ante* transfer price is aligned as closely as possible with the *ex post* recovery value. In the case of TAMC, this means, putting particular emphasis on ensuring that collateral is appropriately valued.

Maximum Losses on TAMC Exposure

		Scenarios		
		I	II	III
A.	Book value	100	100	100
B.	Provisions	45	50	55
C.	Net book value	55	50	45
D.	Banks 20 percent *solo* loss	11	10	9
E.	Banks 10 percent *shared* loss	6	5	5
F.	**Max cost to TAMC (C - D - E)**	**39**	**35**	**32**
G.	**Max cost to Bank (B + D + E)**	**62**	**65**	**69**

12. **The law provides incentives for debtors and guarantors to cooperate in the debt restructuring process**. For example, guarantors are to be released from their obligations whenever debtors pledge additional collateral sufficient to cover their residual indebtedness to the TAMC. Moreover, in cases where the debtor has limited ability to repay its debts, the guarantor is discharged of any obligation provided it pays at least two-thirds of the debtor's outstanding obligations to the TAMC.

Special Legal Powers

13. **The law provides the TAMC with the power to foreclose on collateral and liquidate debtor businesses with minimum court involvement**. To speed up negotiation with recalcitrant debtors, the law provides the TAMC with enhanced foreclosure powers, enabling it to by-pass the existing slow court and administrative procedures. The TAMC may itself directly seize collateral, and dispose of it by public auction. If the recovery from the sale of the collateral is less than the original obligation, the debtor and guarantor remain liable for the outstanding debt. Moreover, if debtors do not cooperate in the debt restructuring process and are deemed to be fraudulently concealing their assets, the TAMC has the power to liquidate the assets of the debtor or the guarantor by obtaining a final court order to declare the debtor (or the guarantor) bankrupt.

14. **The TAMC is also empowered to administer its own business reorganization proceedings outside the current court-based insolvency system**. The TAMC may place consenting debtors directly into a five–year business reorganization proceeding, with the role of the bankruptcy court limited only to the approval of the business plan. The TAMC can initiate business reorganization provided it is a majority creditor, it obtains debtor consent, and the company is considered viable or of strategic importance. While the business reorganization plan is implemented, execution against the debtor's assets is stayed. If the plan fails, the debtor may agree to liquidate its business—in which case the debtor and guarantor are released from their obligation to pay any shortfall from the liquidation receipts.

Structure

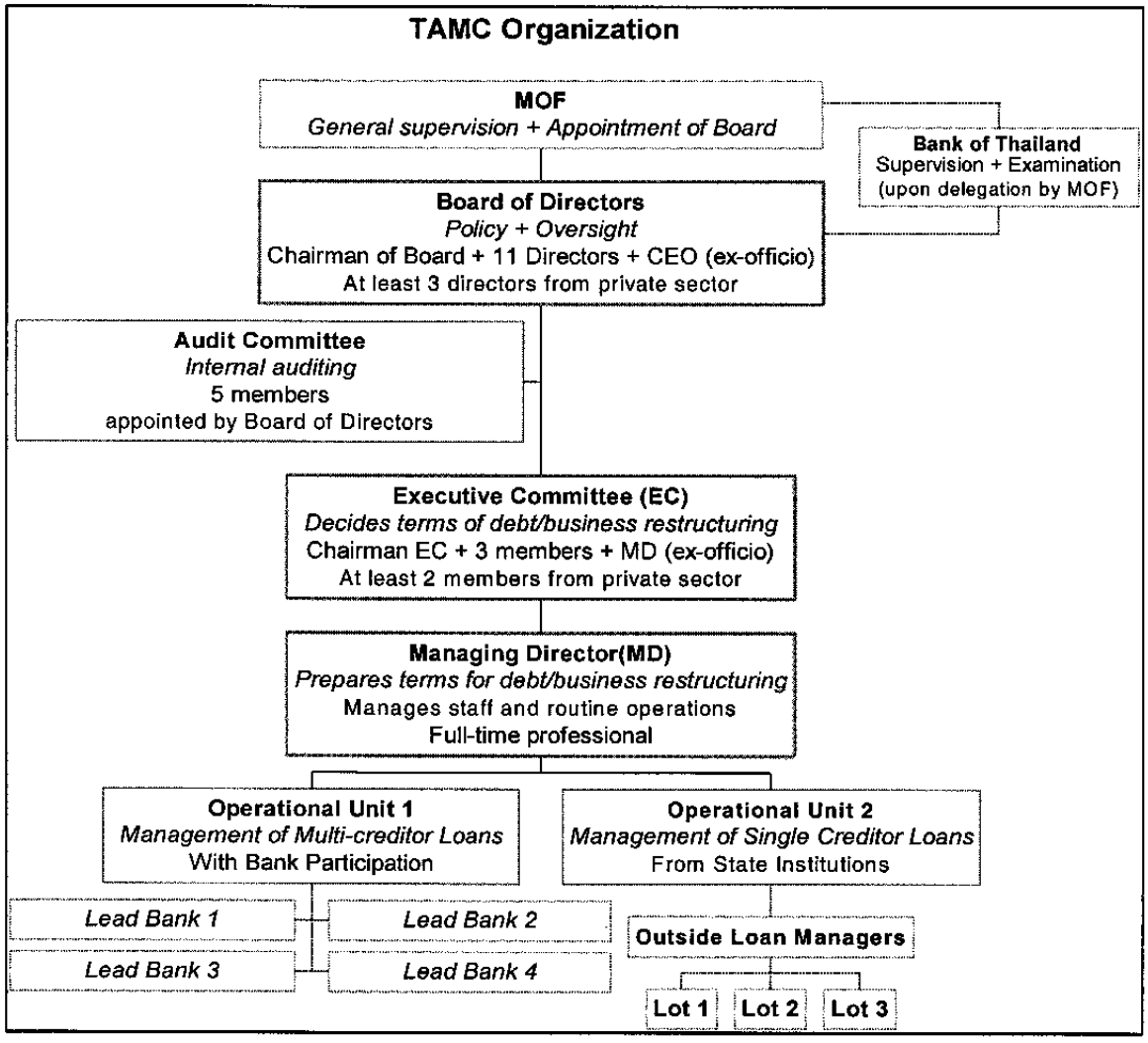
15. **The TAMC is established as a government agency (i.e., not a state enterprise) with a limited lifespan**. Therefore, it is not subject to laws pertaining to state enterprises. In particular, as the State Employee Liability Act does not apply, the TAMC's staff is immune from lawsuits for losses resulting from *bona fide* debt restructuring.[6] Moreover, the TAMC's operations are further insulated as decisions taken by the TAMC cannot be disputed through the filing of a petition with the Administrative Court. The TAMC is also granted tax exempt status, thus freeing it from paying taxes on asset transfers, and on cash or other asset

[6] Moreover, the TAMC law states explicitly that employees and staff are not liable when acting with "care and professionalism."

recoveries. A sunset clause requires the TAMC to cease its operations within ten years of establishment, and to liquidate itself within two years thereafter.

16. **Policies and operational guidelines are set by a Board of Directors**. In addition to providing policy direction, the Board has the authority to oversee broad implementation. The Board consists of twelve members, appointed by the Finance Minister with Cabinet approval. The Chairman of the Board and at least three other Directors are selected from the private sector. Politicians are not permitted as Board members. Two of the private sector members must be selected from industrial and commercial associations (representing debtors), while the third must come from financial institutions (representing creditors).

17. **Operational decisions are taken by a four–member Executive Committee** (ExCom). The law entrusts the ExCom with the authority to approve debt restructurings, asset disposals, business rehabilitations, and to take any decision on the management (and outsourcing) of NPLs. Two members of the ExCom, which is appointed by the Board, are from the private sector—with the other two chosen from amongst government officials. The



ExCom is headed by a Chairman (CEO), who is concurrently an *ex-officio* member of the Board, thus ensuring coordination between policy setting and executive decisions within the TAMC. The law also envisages the appointment by the Board of a professional Managing Director, in charge of managing staff and taking routine operational decisions, including with regard to the preparation of debt restructuring plans.

Supervision and Disclosure

18. **The law envisages Board appointment of an Audit Committee responsible for internal auditing and supervision.** General oversight is to be exercised by the Ministry of Finance, which may delegate to the Bank of Thailand the task of examining the TAMC's operations and reviewing its financial performance. The law also mandates a performance review of the TAMC after two years of existence. The review, to be carried out by a committee appointed by the Ministry of Finance, is to be submitted to Cabinet which, based on the findings, can decide on whether to overhaul or dismantle the TAMC's operations.

19. **The TAMC is required to produce and publish semi-annual audited financial statements.** The Minister of Finance is to appoint the Auditor General, or any other entity, to audit TAMC's financial statements on a semi-annual basis. The law also requires the TAMC to prepare a business report, including an assessment of past performance and elements of a forward-looking business plan. Prior to publication, audited financial statements and business reports are to be submitted to the Ministry of Finance and, for information, to the Cabinet.

C. Success Factors for the TAMC Derived from International Experience

TAMC Mandate and Incentive Framework

20. **As noted above, the TAMC has been provided with a flexible operational framework.** It includes the ability to resort to a wide range of approaches for the management of distressed assets, such as outsourcing and securitization. The TAMC will also be able to choose among different asset resolution strategies, including debt restructuring and business reorganization. Importantly, the law provides the TAMC with special legal powers to bypass weaknesses in the legal framework for debt restructuring. And finally, TAMC employees are granted immunity against losses from debt restructuring.

21. **The TAMC framework aims to balance incentives for participation of private banks against the objectives of containing taxpayer costs and minimizing moral hazard.** For example, by setting the initial transfer price of bad loans equal to the appraised value of collateral, bank shareholders are insulated from taking losses up-front when selling bad loans to the TAMC. Over time, the loss-sharing arrangement allows the TAMC to charge the private banks a portion of any realized losses. The existence of an effective cap on total bank exposure, the long-lags (5 to 10 years) on the settlement of losses, and the provision of a minimum yield on the transferred assets allow bank shareholders to "buy time" while strengthening their banks' financial position. If banks' positions deteriorate over time, to the point that they are unable to refund their portion of losses, the TAMC has the ability to obtain compensation by acquiring share ownership in the banks. A key incentive for banks to

participate in the TAMC is the provision of special legal powers to leverage debtor cooperation and assist in recovery efforts. The TAMC framework also includes other features to curb moral hazard, including with respect to the terms for loan transfers.[7]

22. **The TAMC law also includes elements of protection for cooperating debtors**. The TAMC has the discretion to place consenting debtor companies into out-of-court business restructurings, effectively providing debtors with a "second chance" to repay their debts while retaining their businesses. Other elements of debtor protection include: (i) the need for debtor consent to commence bankruptcy proceedings; (ii) the inclusion of cooperating debtors in the design and implementation of restructuring plans; (iii) the provision of an automatic stay against the assets of the company; (iv) the option for debtors to self-liquidate their companies upon failure of the restructuring plan; and (v) the release of debtors (and guarantors) from the obligation to top off any shortfall from the liquidation receipts.

Lessons of Regional Experiences

23. **The TAMC framework shares features in common with other centralized asset resolution entities in the Asia region** (Table III.1). Such entities include Malaysia's Danaharta, Indonesia's AMC unit of IBRA, and Korea's KAMCO (see also Annex I). The overall design of the TAMC is most similar to Danaharta, although, in terms of size and scope of operations, the TAMC resembles IBRA more closely. More specifically, the TAMC draws on Danaharta's three-pronged loan resolution strategy, encompassing debt restructuring, business reorganization, and liquidation, and on its design of special legal powers, including the ability to foreclose and to place debtors under a streamlined business reorganization proceeding (through so-called "special administrators"). In terms of size and complexity of operations, the TAMC draws a closer parallel to IBRA's AMC unit, which manages a differentiated portfolio of loans, amounting to some 25 percent of GDP in book value and accounting for more than 130,000 individual debtors.[8] In contrast, Danaharta's operations are more focused, with loans under management amounting to less than 15 percent of GDP in book value, and just over 3,000 accounts.

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[7] The law mandates that the transfer of assets from the private banks be a one–time operation and subject to meeting predefined criteria—reducing banks' discretion to transfer only their worst NPLs. The law also incorporates a sunset date, limiting the duration of its activities.

[8] Interestingly, in the case of the TAMC, large corporate loans account for less than half of the *value* of the total portfolio of eligible loans for transfer (in terms of *number* of debtors, the share is estimated at about 5 percent). In the case of IBRA's AMC, instead, corporate exposure accounts for a much larger share (close to 80 percent in *value,* and just over 1 percent in *number* of accounts) of total exposure.

Table III.1. Key Features of AMCs in Asia: Korea, Malaysia, Indonesia, Thailand.

	KAMCO (Korea)	Danaharta (Malaysia)	IBRA (Indonesia)	TAMC (Thailand)
Objectives	Freeing banks from NPLs and supporting corporate restructuring while maximizing recoveries	Freeing banks from NPL problem; maximizing recoveries	Assist banks in recapitalizing; aim at maximizing recoveries	Supporting recovery of the corporate sector
Structure—Policy Board	Professional Management Committee, with 5 out of 10 members from the private sector	Professional and independent Board of Directors, with 6 out of 9 members from the private sector	Professional Oversight Committee, with most of the 7 members from the private sector	Non-professional Board of Directors, with 3 out of 11 members from the private sector
Disclosure of financials (FS)	FS: independently audited, published semi-annually	FS: independently audited, published semi-annually	FS: independently audited, published annually	FS: audited by Auditor-General of Thailand, published semi-annually
Criteria for Asset Transfer	▪ Ordinary NPLs (overdue more than 3 months) ▪ Special NPLs (court approval obtained for restructuring)	▪ NPLs over RM 5 million ($1.3 million), in most cases ▪ NPLs from FIs seeking state recapitalization (at least 10% of their loan portfolio)	Classified loans (Cat. IV and V) from closed, state-owned, and jointly recapitalized banks	▪ Private banks: multi-creditor, secured NPLs over B 5 million ($110 million) ▪ State financial institutions: all NPLs eligible
Purchase/Transfer Price	▪ Ordinary NPLs: 45 percent of appraised valuc of collateral less senior liens ▪ Special NPLs: NPV of projected cash flows. ▪ Unsecured loans: 3 percent of face value	▪ At market value as appraised by Danaharta based on independent auditors ▪ Gain-sharing with 80 percent (after deducting costs) to financial institution	Purchased at zero value but bank losses from the sales were effectively shouldered by the state (see below)	▪ Private bank NPLs: collateral value—appraisal standards by TAMC ▪ State NPLs: collateral value ▪ Unsecured loans: to be decided ▪ Gain-loss sharing: cap bank losses at 30% of transfer price
Pays with	Interest bearing KAMCO bonds guaranteed by the government	Zero coupon Danaharta bonds guaranteed by the government	Bank losses from selling NPLs at full discount were made up with issuance of interest bearing government bonds	Interest bearing TAMC bonds guaranteed by the FIDF
Funding	▪ Contributions from FIs; ▪ Borrowing from Korea Development Bank; ▪ Issuance of government guaranteed bonds	▪ Government capital injection; ▪ Loans from Khazanah/EPF ▪ Issuance of zero coupon government guaranteed bonds	▪ Government capital injection ▪ Operational cash-flow from asset recoveries	▪ FIDF capital injection ▪ Issuance of FIDF guaranteed bonds ▪ Loan recoveries
Asset disposition and management	Auction; public sale; equity partnership; and securitization	Private auction; tenders; securitization; special administration (business restructuring)	Debt and business restructuring of larger loans; outsourcing of medium sized loans; auctions of smaller loans; foreclosure	Debt and business restructuring; foreclosure; outsourcing
Special powers	n.a.	▪ Appointment of special administrator for business restructuring ▪ Foreclose on collateral	Power to seize debtor assets (PP17)	▪ TAMC administered business restructuring largely bypassing court process ▪ Foreclosure on collateral

24. **The experience with centralized asset resolution agencies in other countries suggests factors needed to ensure success.**[9] Among such factors are:

- **Keeping the acquired loan portfolio to a manageable size** to allow for more focused operations and specialization. The most successful centralized asset management vehicles have been those designed to acquire a relatively small share of financial system loans, with a small number of individual accounts and concentrated exposure to a limited number of sectors or industries.

- **Narrowing and better focusing the statutory objectives** enhances prospects of achieving them.

- **Making full use of private sector expertise**, and employing a variety of methods for the management of distressed loans. A successful example of this is KAMCO, which invited private equity partnership in the management of NPLs. Private sector expertise has also been used in Danaharta (e.g., by appointing outside experts as "special administrators" of companies under restructuring), and to a lesser extent in IBRA (through its outsourcing program of medium-size commercial loans).

- **Applying commercial criteria** and value maximization in designing the terms for debt and business restructuring. In all three of the other Asian AMCs, value maximization is a key objective (if not explicit in the enabling laws, reference to this principle is made in operational guidelines). This highlights the need for the TAMC Board to clarify in its operational guidelines the key principles for the preparation of debt and business restructuring agreements. It would also be beneficial to clarify the conditions under which foreclosure or business liquidation would be preferred over the objective of preserving the existence of debtor businesses.

- **Leveraging the use of special legal powers.** Danaharta provides an example of how the provision of special legal powers, and willingness to exercise them when appropriate, can facilitate the transformation of ("strategic") NPLs into performing loans.

- **Minimizing political interference**, and conducting operations transparently. Although difficult to quantify, the operations of Danaharta and KAMCO have enjoyed a relatively high degree of independence, which is likely to have contributed to their success. In these cases independence was provided "by design," in that, for instance, the management boards of KAMCO and Danaharta were designed to have large representation from the private sector. Given that the risk of political interference increases directly with the degree of operational discretion, and inversely

[9] See Klingebiel, D. (2000), "The Use of Asset management Companies in the Resolution of Banking Crises: Cross-Country Experiences," *mimeo*.

with the degree of disclosure, one way to shield government entities from political interference is to limit management discretion, enhancing accountability, and imposing a high standard for disclosure.

25. **Finally, experience elsewhere illustrates the importance of the design of the governance framework.** In this context, it would be useful for the TAMC Board to draw up and implement TAMC's governance framework, specifying elements of accountability, disclosure, and oversight in the operations. This is particularly important in light of the limited private-sector participation at the Board and executive level (especially when compared with other Asian AMCs), which could raise questions about TAMC's degree of independence. Related to the governance framework, the Board will also need to clarify the respective roles of various bodies (including the MOF, Bank of Thailand, the Auditor General, and TAMC's Audit Committee and Board of Directors) in overseeing and reviewing the performance of TAMC operations.

D. The Impact of the TAMC

Private Banks

26. **While it is too early to draw conclusions about the broad economic impact of the TAMC, information is available to assess the probable impact on private banks.** The TAMC is expected to have only a modest positive up-front impact on private banks, given their fairly small share of the total loans eligible for transfer (see Box III.3). After the sale of loans to the TAMC, private banks' NPL ratios will fall and, given the resulting decline in risk assets, capital adequacy ratios will automatically increase. Cash flows are also likely to improve, as interest bearing bonds replace non-performing assets in bank balance sheets. The beneficial impact will likely differ across banks, depending on the relative share of NPLs transferred and their net book value (i.e., their transfer price). Banks that sell a relatively high share of distressed loans at comparatively high net book values would benefit the most.

27. **Ultimately, the extent to which banks benefit will depend on the TAMC's ability to recover value.** If recovery is less than the transfer value, some of the up-front financial benefits to banks (discussed above) would be eroded over time, because of the loss-sharing arrangement. However, banks could still benefit, as the loss-sharing arrangement effectively acts as a stop-loss on the loan portfolios transferred to the TAMC. In particular, the agreed formula implies that private banks' total exposure will be capped at an estimated 60-65 percent of original book value (this includes exposure from provisions set aside by banks prior to the loan transfers). In the event the TAMC recovers more than the transfer value, however, private banks may not reap the full benefits from selling NPLs given that gains are also to be shared. Ultimately, the benefit to banks depends on the extent to which the TAMC has a greater ability to recover value than the banks themselves.

BOX III.3. FINANCIAL IMPACT OF THE TAMC ON PRIVATE BANKS

The TAMC is not expected to have a large up-front impact on the private banking sector, though some individual banks will likely benefit more than others. An analysis of the impact of the TAMC on the private banks is presented in the following Table, and this highlights key features of the overall low, but somewhat varied impact of the TAMC on the private banks:

- **The aggregate share of private bank loans eligible for transfer is not large, but the ratio of eligible loans varies across banks.** The TAMC could take on NPLs worth about 6 percent of private banks' total assets on average. However, this masks some variation, with three banks in particular having a larger ratio of eligible assets. These include one large private bank, due to its significant exposure in syndicated/multi-creditor industrial lending, as well as two medium-sized private banks, which will all be transferring NPLs worth up to 9 percent of their total assets.
- **Given the small absolute size of the transfer, overall private bank distressed loan ratios are not much affected by the establishment of the TAMC.** Both headline NPL and distressed loan ratios fall by about 8-9 percentage points, but distressed loans remaining on private banks books will still account for about 25 percent of all loans (compared with 50 percent at the peak of the crisis). As a result, over ¾ of private bank distressed loans will remain to be resolved on their own books.
- **Distressed loans eligible for transfer appear to have higher collateral value and less provisioning than those that would remain in private bank books.** Very preliminary information (not presented in the Table below) on the provisioning coverage for NPLs eligible for transfer indicates that net book value (NBV) of these loans (i.e., their acquisition price) is on average just over 60 percent of book value. However, based on information on the *actual* overall provisioning rate, the NBV of the *overall* NPL portfolio is lower (at about 50 percent of original book value). A number of banks will transfer NPLs at a higher price (NBV) than average. In particular, preliminary information on the NBV of loans eligible for transfer shows that two medium-sized private banks could sell their NPLs at a price close to 65-70 percent of original book value, while the average price for all banks could be just over 60 percent.
- **The up-front financial impact of the TAMC on private banks is small.** Private bank CARs would on average be increased by about ½ of a percentage point by the end of the first year of TAMC operations, while the cash flow from receiving the TAMC note in lieu of NPLs should add about 0.1 percentage point to banks' net interest margins (currently at about 2 percentage points). Given the small gain in annual margins, it is unlikely that banks could afford any reduction in lending rates after transferring loans to the TAMC.
- **While loss-sharing will partly insulate bank capital from future large losses, the overall impact on capital is not large.** In particular, assuming a conservative loss of 60 percent of original book value on the overall portfolio transferred to the TAMC (which implies a recovery rate for the TAMC of 65 percent of acquisition value), private banks would bear *additional* losses of about 0.4 percent of their total assets (B 16 billion), while the TAMC would take on losses of about 1 percent of total bank assets (B 36 billion). However, given the high level of pre-existing provisions, banks would still take the bulk of *total* loan losses, in this case about 3 percent of their total assets (B 100 billion).

BOX III.3. FINANCIAL IMPACT OF THE TAMC ON PRIVATE BANKS (CONCLUDED)

Table: Impact of TAMC on Private Banks

	001	002	003	004	005	006	007	Total
Size								
Book value of NPLs eligible for transfer 1/								
(share of gross assets)	9%	3%	3%	6%	9%	7%	2%	**6%**
Transferred NPLs/Total Current NPLs	34%	10%	12%	25%	24%	22%	10%	**24%**
Pre-transfer Distressed Asset Ratio 2/	36%	34%	31%	29%	42%	36%	23%	**33%**
Adjusted Distressed Asset Ratio	24%	30%	27%	22%	32%	29%	21%	**25%**
Share of distressed assets remaining	66%	87%	88%	75%	76%	78%	90%	**76%**
Impact								
Pre-transfer CAR 3/	5.2%	7.1%	9.9%	7.2%	8.5%	10.0%	10.1%	**7.4%**
Post-transfer CAR 4/	5.6%	7.3%	10.3%	7.6%	9.2%	10.9%	10.3%	**7.8%**
Implied net book value of NPLs eligible for transfer (NBV/BV) 5/	37%	31%	50%	65%	60%	55%	6%	**47%**
Impact of cash-flow from TAMC note								
on net interest margin 6/ 7/	0.2%	0.1%	0.1%	0.1%	0.2%	0.2%	0.1%	**0.1%**
Adjusted CAR 8/	5.9%	7.4%	10.4%	7.8%	9.5%	11.1%	10.4%	**8.0%**
Loss Sharing Scenario 9/								
Loss, net of existing provisions								
share of NBV	-24%	-26%	-56%	-40%	-42%	-60%	-54%	**-36%**
Loss sharing borne by bank								
(share of gross assets)	-0.3%	-0.1%	-0.9%	-0.9%	-1.5%	-2.4%	-0.6%	**-0.4%**
Loss sharing borne by TAMC								
(share of gross assets)	-0.8%	-0.3%	-0.6%	-0.6%	-1.0%	-1.6%	-0.4%	**-0.9%**
Total loss borne by bank								
(share of BV of assets transferred to TAMC)	-51.0%	-50.3%	-39.5%	-49.2%	-48.6%	-36.0%	-40.9%	**-44.2%**
(share of gross assets)	-4.6%	-1.7%	-1.1%	-2.9%	-4.3%	-2.4%	-0.9%	**-2.7%**
Memorandum items:								
Excess provisions at end-2000 as share of RWA 10/	6.0%	3.2%	3.1%	1.4%	2.3%	1.2%	1.9%	**3.6%**

1/ In the data presented in this table, NPL is used to signify classified assets.
2/ Distressed assets are classified assets plus write-offs and transfers to AMC's.
3/ CARs here are for Tier-1 capital only.
4/ Post-transfer CARs are boosted by the reduction in risk weighted assets only.
5/ This is the ratio of current provisions plus write-offs to current NPLs plus write-offs. It provides a sense of the NBV of the overall NPL portfolio, which is useful given the preliminary nature of the BOT data used to derive the current NBV of loans to be transferred to TAMC.
6/ The cash flow is based on the book value of the note at an assumed interest rate of 3 percent per annum.
7/ This shows how much higher the average annual net interest margin (based on the previous four quarters) would be following the payment of interest on the TAMC note.
8/ The adjusted CAR in this case adds in to Tier-1 capital the one year of the cash flow from the TAMC note.
9/ The assumed loss rate for this scenario is 60 percent of book value across all banks.
10/ Excess provisions is the difference between current and required provisions per BOT regulations.

Impact on the Government's Fiscal Position

28. **The effect on the fiscal position is limited by the fact that much of TAMC's activities involve impaired assets already within the public sector.**[10] Shifting the responsibility for the resolution of the assets to the TAMC does not in and of itself add to the long-term government debt burden. In fact, the incremental impact on long-term government debt is confined to the additional potential losses stemming from the resolution of the private bank loans purchased by the TAMC. The fiscal impact of these operations is capped given the loss-sharing arrangement and the principle that banks will ultimately also bear TAMC's interest and operational expenses (TAMC losses are capped at 70 percent of the acquisition value of private bank loans, which should not exceed 2 percent of year 2000 GDP). However, given that private banks' responsibility for their share of losses is back-loaded in time, the incremental effect on government debt may initially be above the maximum estimated losses, but not larger than the acquisition value of private bank loans (3 percent of year 2000 GDP).

Wider Impact on the Economy

29. **The establishment of the TAMC could also have ripple effects on the economy through its impact on the corporate sector**. Provided the TAMC is successful in catalyzing debt restructuring and improving its quality, corporate indebtedness could be reduced over time to more sustainable levels. This would in turn increase the pool of performing borrowers in the economy. It is unlikely, however, that an improvement in corporate balance sheets *alone* will be sufficient to accelerate lending and revive investment demand, given the current depressed rates of return on capital and the sizable overcapacity in the economy. Over time, however, investment demand can accelerate and contribute to faster economic growth provided that more fundamental rationalization of enterprises and liquidation of nonviable businesses is implemented—both are areas where the TAMC could play a role. The above considerations, however, hinge on the assumption that the TAMC will be able to identify and restructure *viable* enterprises, and is decisive in liquidating *unviable* enterprises.

E. Conclusion

30. **The Thai authorities have moved rapidly to set up the TAMC as a vehicle to centralize the management of unresolved distressed assets**. The TAMC will soon begin purchasing the first tranches of distressed loans, most likely starting with the largest multi-creditor exposures from private and state institutions.[11] The smaller, individual-creditor loans from state institutions are expected to be transferred later.

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[10] See Chapter VI for a detailed analysis of the public debt dynamics and the impact of financial sector restructuring costs.

[11] According to the latest announcements by the authorities, the TAMC would initially buy from private and state financial institutions close to B 400 billion in book value of the largest

(continued)

31. **The framework has been designed to overcome existing obstacles to debt restructuring**. By centralizing loan management, the TAMC will minimize creditor coordination problems and facilitate the restructuring of large multi-creditor loans. The provision of immunity to TAMC staff will remove the main obstacle thus far to progress in debt restructuring by state banks. The combination of these features, together with the provision of special legal powers to circumvent existing weaknesses in the legal framework, could considerably speed up and improve the quality of debt restructuring in Thailand.

32. **However, lessons from international experience show that for TAMC's chances of success to be maximized, a number of conditions will need to be met**. These include, in particular: (i) making full use of private sector expertise in managing the assets under TAMC's purview; (ii) applying consistently the principle of value maximization in drawing up terms for debt and business restructuring; (iii) using the provided special legal powers in a consistent and even-handed manner; and, finally, (iv) minimizing political interference and conducting operations transparently.

33. **It is premature to assess the full impact of the TAMC on the economy and much will depend on implementation**. However, it is likely that the near-term beneficial impact on private banks will not be large, on account of the fairly small share of private bank distressed assets eligible for transfer to the TAMC. For the same reason, the *incremental* long-term impact of the TAMC on the public debt is limited. The key issue is whether the TAMC will be able to improve the quality of debt restructuring, thereby accelerating the much-needed process of de-leveraging of the corporate sector. In this regard, as the TAMC has control over half of system-wide distressed assets, it is in a unique position to act as a catalyst for debt and corporate restructuring, particularly given its special legal powers.

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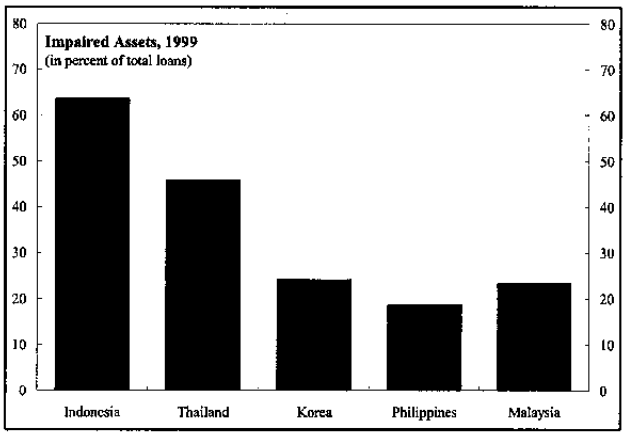
multi-creditor loans (roughly equivalent to 300 accounts out of an estimated total of over 5,000 accounts comprising the universe of multi-creditor loans eligible for transfer).

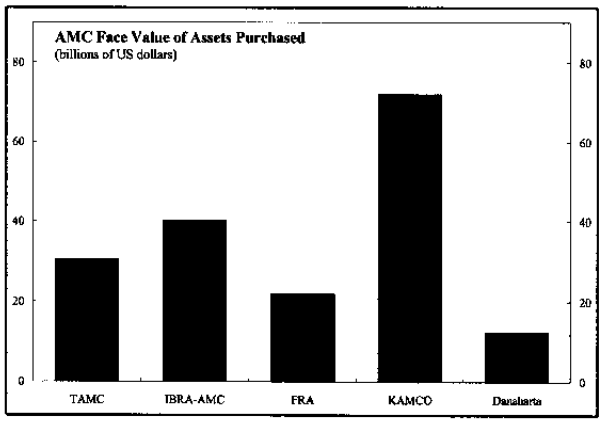
ASIAN AND INTERNATIONAL EXPERIENCE WITH CENTRALIZED AMCS

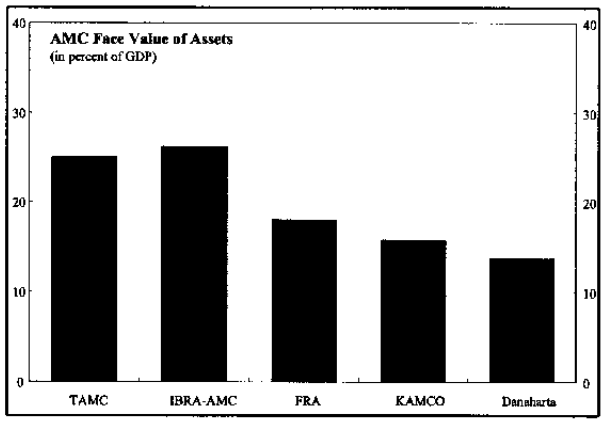
1. **Reflecting the magnitude of the financial sector dislocation in the Asia region, most affected countries established some form of centralized national AMC.** Peak distressed assets rose to above 20 percent of all banking system loans in most Asian countries during the crisis. However, the severity of the financial sector crisis in Thailand—where distressed assets peaked at close to ½ of banking system loans—was surpassed only by that in Indonesia.



2. **Asian centralized AMCs have generally been given broad mandates for bank and corporate sector restructuring**. This is in part a reflection of the systemic nature of the financial crises they have been designed to address. They have also varied in terms of size and efficacy. Some key features of regional AMCs with regards the size of assets acquired, the purchase price, and the current rates of asset disposal and recovery by AMCs across the Asia region are as follows (see below for a broader international experience):

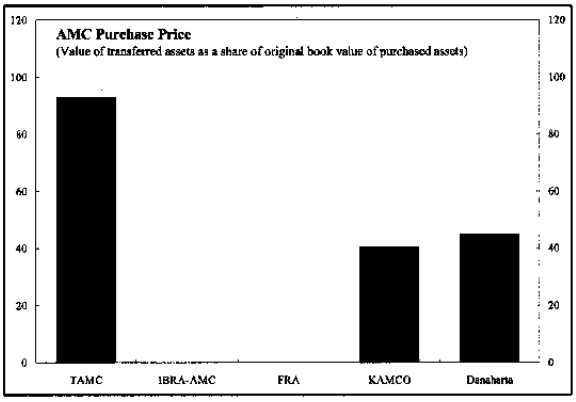
- **Regional AMCs have been large relative to international comparators**, and have acquired assets with value ranging from between US$10-70 billion, but more importantly, ranging from between 15 to 40 percent of GDP. The TAMC will be among the largest regional AMCs as a share of GDP, and large also in absolute terms.



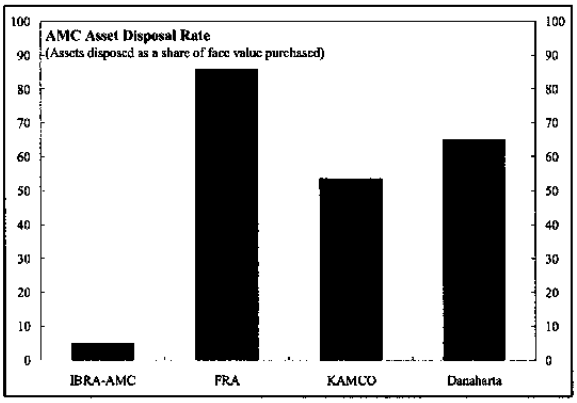


- **Most regional AMCs have purchased assets at a heavy discount.** The Indonesian Bank Restructuring Agency (IBRA) and Thailand's Financial Sector Restructuring Authority (FRA) acquired NPLs at essentially zero direct cost—the resulting recapitalization needs generated in the counter party financial institutions were effectively met by other government entities. Both the Korean Asset Management Company (KAMCO) and Malaysia's Danaharta have acquired assets at a steep discount, generally reflecting a rigorous market-based valuation. The TAMC is

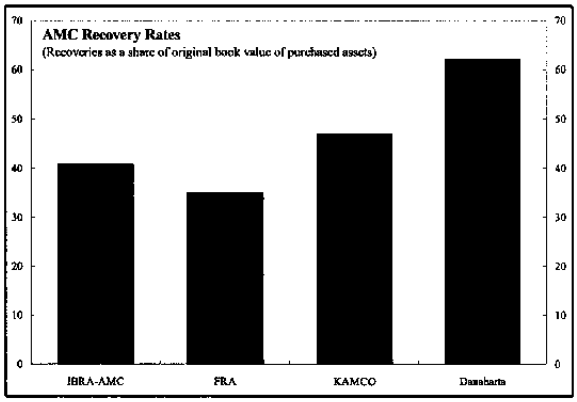
expected to acquire assets on average at fairly low *overall* discount, reflecting the low provisioning (and consequent high net book value) of NPLs held by state financial institutions. The discount on acquired private bank NPLs is instead larger, though the resulting purchase price of just over 60 percent of original book value is still above others in the region. Nevertheless, because of the loss-sharing arrangement the ultimate cost to the banks may be higher than those reflected in the transfer price.



- **The speed of asset disposal has varied depending on the mandate and method of asset resolution**. The FRA was designed to focus on rapid asset disposal of the loans acquired from closed finance companies. KAMCO disposed quickly of a large share of assets reflecting in part its innovative approach to bundling and securitization of loans for rapid sale on secondary markets. Danaharta's relatively high disposal rate reflects in part a willingness to combine asset sale methods with slower business restructuring, but more importantly that its special powers have resulted in a large proportion of up-front payments and settlements of loans. This raises the issue that a large fraction of Danaharta's assets under continued management are those in business restructuring, such that the disposal rate will likely slow. This contrasts with the situation in KAMCO, which has adopted more across the board asset sale and auction methods.

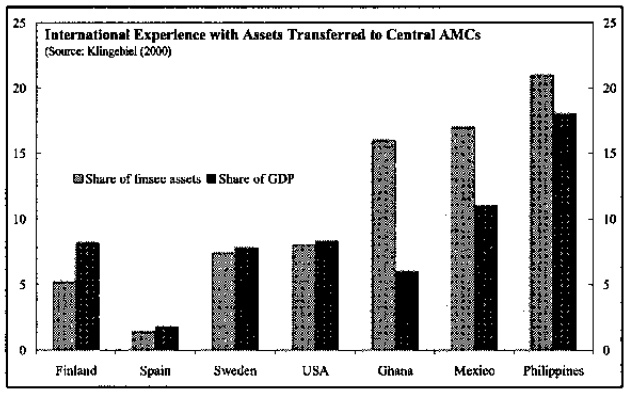


- **Recovery rates on disposed assets have tended to be low across the region,** including relative to best international results. The U.S. Resolution Trust Corporation recovered 87 percent on original book value of assets under management. In comparison, recovery rates in the Asia region have so far averaged around 50 percent. Danaharta is the best performer with recoveries to date averaging just over 60 percent. However, it is important to bear in mind that recovery rates can be expected to drop as harder to resolve assets are addressed last. Moreover, expressing recovery on remaining



assets in appropriately discounted (NPV) terms would likely depress ultimate recovery rates further. Also, country-specific measurement issues further complicate comparisons of recovery rates.

3. **International experience suggests that successful central AMCs have tended to be relatively small and with focused operations.**[1] Centralized AMCs have been used in many different countries as vehicles for addressing distressed asset problems arising from financial sector crises. The size, scope and modalities of AMCs have however varied significantly. Most importantly, the success of AMCs in an international context has been highly variable. Indeed, most "successful" AMCs have tended to be small relative to the economy and have been fairly focused in the nature of their operations (for example on managing largely real estate assets).[2]



4. **AMCs have been set up both as business restructuring and rapid asset disposal vehicles.** A review of 7 international asset management companies, set up prior to the Asian crisis and for which data are available, indicated that 3 were established mainly as restructuring vehicles. Further, it is argued that 2 of the 3 restructuring vehicles did not achieve their narrow goals, with the successful Swedish experience reflecting in part a concentration on real estate asset management. Meanwhile, only 2 of the 4 rapid disposal vehicles were considered successful (in Spain and the U.S. RTC), reflecting their relatively small size, easily sellable assets, professional management, political independence, as well as a strong overall legal framework. These characteristics are shown in the Text Table across the range of countries considered.

Table: Characteristics of Countries Which Established Central AMCs

	Enforcement of Creditor Rights 1/	Bond Market Capitalization (percent of GDP	Peak Level of NPLs (percent of financial system assets)
Finland	18	39.7	18.7
Spain	8	43.2	5.7
Sweden	24	58.5	10.8
USA	18	50.5	4.1
Ghana	1	n.a.	60
Mexico	6	1.1	18.9
Philippines	7.7	16.6	23.1

Source: Klingebiel (2000)
1/ Combined index of protection afforded secured creditors by legal framework and overall law and order conditions. Higher value implies better protection/conditions.

[1] This discussion draws on Klingebiel, D. (2000), "The Use of Asset Management Companies in the Resolution of Banking Crises. Cross-Country Experiences," *mimeo.*

[2] Success could include the achievement of broader social goals, but here refers to the ultimate recoveries achieved by central AMCs.

IV. Improving The Legal Framework for Corporate Rehabilitation[1]

A. Introduction

1. **Among the reforms needed to facilitate corporate rehabilitation in Thailand, perhaps none is more pressing than the design and application of the legal framework.** Reform in this area was a central component of the Fund-supported reform program, and considerable progress has been achieved. Prior to the financial crisis, Thailand's bankruptcy law was oriented towards the liquidation, rather than the rehabilitation, of corporations. The introduction of the Reorganization Chapter of the Bankruptcy Law in 1998 represented an important step in addressing this deficiency. The law was further revised in 1999 to enhance the prospects for rehabilitation, among other things, by including provisions to facilitate the availability of new financing to corporations during the period of rehabilitation proceedings. In addition, a specialized bankruptcy court was established in 1999. The establishment of this court was based on a recognition that, given the complexities arising in corporate restructurings, specially trained and dedicated judges would be needed if the newly revised law was to be properly implemented.

2. **Notwithstanding the progress that has been made to date, further legal reforms are necessary to accelerate rehabilitation of the corporate sector.** This is based on the experience with corporate sector restructuring in Thailand over the past several years. It should be recognized at the outset that it is not unusual for countries to keep their insolvency laws under continuous review, and to make adjustments from time to time as circumstances warrant. This is particularly true for emerging markets that have recently weathered financial crises. Korea, for example, has amended its law twice since 1998 and is contemplating a new set of amendments. Mexico also recently amended its insolvency law.

3. **The establishment of the Thai Asset Management Company (TAMC) is not a substitute for general legal reform** (see Chapter III). Although TAMC will help accelerate corporate rehabilitation through its special legal powers, the resolution of impaired assets (accounting for no less than ½ of system-wide distressed assets) that are not transferred to the TAMC will continue to be subject to the general framework. Indeed, the ability of the TAMC to maximize recovery of the assets it manages will be adversely affected by weaknesses in the general framework. In particular, to the extent that the TAMC wishes to sell impaired assets on the secondary market, potential purchasers who would have to rely on the general legal framework to resolve these assets would take into account its weaknesses when deciding upon an appropriate purchase price. Further, given the magnitude of corporate distress in Thailand, it is likely that most debtor/creditor negotiations will take place outside formal rehabilitation proceedings. As such, the type of out-of-court framework that is currently administered by Bank of Thailand's Corporate Debt Restructuring Advisory

[1] Prepared by Sean Hagan and Seng Chee Ho.

Committee (CDRAC) will continue to guide this process. Such a framework, however, would be hampered by the absence of a predictable rehabilitation law.

4. **This chapter identifies key strengths and weaknesses of the existing legal framework and attempts to provide insights into addressing remaining shortcomings.** It also briefly discusses the reform of other economic laws that can increase the availability of credit to corporations by reducing the riskiness of new lending. The chapter draws on the recent experience with insolvency reform in a number of countries and recent studies that attempt to identify international best practices in this area.[2]

B. Objectives of a Rehabilitation Law

5. **The overriding economic objective of a rehabilitation law is to enable financially distressed, but viable, enterprises to become competitive and productive.** The goal is to benefit not only the stakeholders of the enterprise (owners, employees and creditors), but also the broader economy in general. For a rehabilitation law to achieve this objective it must create incentives for all stakeholders to participate in the proceedings. Thus, for example, the features of the law must be sufficiently attractive to encourage debtors to commence proceedings sufficiently early in their financial difficulties, thereby increasing the chance of rehabilitation. On the other hand, the law must provide adequate protection to creditors in order to assure them that the proceedings will not be used merely as a device for nonviable enterprise to delay liquidation. To ensure that rehabilitation will provide for long-term competitiveness, rather than a temporary respite, the insolvency law (and other supporting laws) must avoid placing undue constraints on the type of restructuring that can take place. Thus, for example, the insolvency law must provide an effective means by which the indebtedness of the enterprise can be reduced, through, for example, debt-for-equity conversions or, where necessary, debt forgiveness.

6. **An additional objective of some rehabilitation laws is to help foster the development of an entrepreneurial class by providing owners a "second chance".** To achieve this, the law should give the debtor the opportunity to prepare and propose a rehabilitation plan, either directly or through an administrator.

7. **Meanwhile, from the perspective of an unsecured creditor, a rehabilitation law is intended to enhance the value of a claim through the continuation of the enterprise.** To achieve this objective, the law must provide unsecured creditors with a method to vote on a plan proposed by the debtor. Many countries also allow the creditors to propose their own plan. With respect to secured creditors, while the law must prevent them from undermining

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[2] The United Nations Commission on International Trade Law (UNCITRAL) is currently preparing a legislative guide that distills and elaborates upon a number of recent insolvency studies, including those prepared by the Fund, the World Bank and the Asian Development Bank. See, *Orderly and Effective Insolvency Procedures – Key Issues* (IMF 1999).

the rehabilitation of a viable enterprise, it also should provide for measures that will ensure that their claims or property rights will not be impaired.

8. **Finally, and particularly in the context of a systemic financial crisis, an objective of a rehabilitation law is to limit the public sector costs of crisis resolution.** This requires maximizing the involvement of the private sector in order to force creditors to bear the costs of the risks they incur. In this context, the law should enable a plan that provides for significant debt reduction and which is supported by a majority of creditors, to be imposed on a minority of dissenting creditors.

9. **As some of the above objectives conflict with one another, a critical policy challenge is finding an appropriate balance among them**. Individual countries will inevitably strike their own balance in resolving such an issue. Irrespective of the choices that are made, however, the desired rules need to be established clearly in the law and applied consistently by the institutions that are charged with implementing them. A law that is applied effectively and consistently will engender greater confidence in financial markets than an unpredictable law. In this respect, predictability should be seen, in and of itself, as a key objective of an effective rehabilitation law.

10. **Thailand's reorganization chapter is seen to contain a number of positive features, when judged against the above objectives and existing best practices.** Among the most significant are:

- A comprehensive stay on legal action during the proceedings that apply to both unsecured and secured creditors, thereby providing protection to the debtor during the period when the rehabilitation plan is prepared;

- Rules that provide for voting on a rehabilitation plan by different classes of creditors, thereby maximizing the chances that a rehabilitation plan will be approved;

- Provisions that encourage new financing to the enterprise during the proceedings, by providing repayment priority to new credits; and

- Comprehensive avoidance rules that nullify fraudulent and preferential transactions made by the debtor prior to the commencement of the proceedings, thereby not only maximizing the value of the estate but also ensuring equity among creditors.

Perhaps even more importantly, Thailand's judiciary and, in particular, the newly established bankruptcy court, have made steady progress in applying the law in an effective and consistent manner.

11. **Notwithstanding these strengths, experience with the application of the law over the past several years has revealed a number of shortcomings.** The most important of these relate to: (a) the rules relating to debtor control of the enterprise and plan preparation; (b) criteria relating to the commencement of rehabilitation proceedings; and (c) the conversion from reorganization to liquidation. These shortcomings have undermined the

law's predictability and have made both debtors and creditors reluctant to use it. Each of the shortcomings is discussed in turn, with a view to identifying ways to address these problems.

C. Debtor Control and Plan Preparation

12. **A key shortcoming of the reorganization chapter relates to the selection of the preparer of the rehabilitation plan (plan preparer).** The chapter provides that whoever requests commencement of court proceedings (the "petitioner") may propose the plan preparer. The court will then appoint the proposed preparer unless other interested parties are able to overrule this choice. For example, in the case where a petition is filed by a creditor, any plan preparer proposed by the petitioner (i.e., creditor) can be rejected in favor of a plan preparer proposed by the debtor. However, the creditors may overrule the debtor's choice of plan preparer and propose their own, as long as there is an affirmative vote of the creditors holding two-thirds of the outstanding debt. As a result, a debtor that wishes to commence proceedings can only be assured that he will prevail in his choice of plan preparer if he has the support of creditors holding more than one-third of the outstanding debt. Conversely, creditors will only be assured that their choice will prevail if they have the support of a two-thirds majority of the creditors.

13. **Given the important role of the plan preparer in a rehabilitation process, the uncertainties in the selection process under the current law undermine its effectiveness.** Not only is the preparer responsible for the reorganization plan, he is also given complete control of the enterprise once the proceedings commence. Thus, from the debtor's perspective, unless he is assured the support from the requisite percentage of creditors, he has no incentive to initiate proceedings and will, in fact, resist their initiation because of the likelihood that he will lose total control of the business during the duration of the rehabilitation. Meanwhile, from the creditors' perspective, unless they have sufficient support from within their group, the debtor's plan preparer will assume total control. This may be of concern to creditors in view of the fact that the law does not contain rules regarding conflicts-of-interest or professional qualification. Creditors may legitimately fear debtor's plan preparer will be an insider, who will permit the owners to continue to operate the company without sufficient oversight, during which time the value of their claims will continue to dissipate.

14. **The risks posed for both the debtor and creditors in selecting the plan preparer are key reason why there have been few contested reorganization petitions.** Indeed, petitions have generally been filed only once the debtor and creditors have been able to reach a compromise agreement as to the identity of the plan preparer and the nature of his powers. In a number of cases, the agreement has provided for the appointment of an independent professional (e.g., a certified accountant) as the plan preparer who is responsible, *inter alia*, for the continued operation of the business by incumbent management. As is discussed below, if the law were revised to provide for such a power sharing arrangement, the filing of petitions would not need to be contingent upon reaching an agreement on this issue.

15. **International experience suggests that the law must contain inducements for debtors to use the proceedings early on its financial difficulties, thereby maximizing the chances for effective rehabilitation.** In some cases (e.g., Chapter 11 of the United States) the debtor is given full control over the enterprise during the proceedings. As a further inducement, the debtor is sometimes also given the first opportunity to prepare a plan (Chapter 11 in the U.S.). Only when the debtor has failed to do so within a specified time frame are creditors given the right to propose their own plan. An advantage of this approach is that it enables the owners of the enterprise, who typically have the best understanding of the underlying business, to maintain operational control, thereby increasing the likelihood of a successful rehabilitation.

16. **However, international experiences also suggests that there are disadvantages to giving the debtor unrestricted control over the enterprise during the proceedings**. Since, under such an approach, a debtor will often feel that it has nothing to lose by filing a rehabilitation petition, it may do so in circumstances where rehabilitation is not feasible. If the rehabilitation proceedings are used solely as a means of delaying inevitable liquidation, the interests of creditors may be undermined since the value of the assets—and therefore the value of their claims in liquidation—will be reduced. Moreover, even in circumstances where the enterprise is viable, there is the possibility that the debtor's management may act irresponsibly and, in some cases, fraudulently during the proceedings, to the detriment of creditors.

17. **To balance the interests of creditors and debtors, while still providing inducements to use the system, many countries allow for "power sharing" arrangements between the debtor and a court-appointed administrator**. While the debtor continues to be responsible for the operation of the day-to-day business of the enterprise, the administrator is responsible for approving all significant transactions. Under the approach followed in the United States, and which could also be used in Thailand, the debtor is given the first opportunity to prepare and propose a plan. To avoid abuse, it is desirable under such an approach that the maximum length of "plan exclusivity" be specified in the law. Moreover, specific rules are needed regarding the qualification and selection of the court-appointed administrator to ensure that he is both independent and competent.

20. **In Thailand, changes to the law along these lines would likely be of considerable benefit to debtors, but would also most likely be welcomed by creditors**. Creditors would no longer be concerned that, absent support by two-thirds of the creditor group, the debtor would effectively control the plan preparer. Moreover, they would most likely accept the continuation of incumbent management as long as they had the assurance that it was subject to oversight by an independent professional with adequate financial experience.

D. The Commencement Criteria

21. **Under Thailand's Bankruptcy Act, the commencement criteria for the opening of reorganization proceedings are onerous.** Specifically, commencement proceeds upon a court determination that: (i) the debtor is insolvent; (ii) the debtor is indebted to one or more

creditors for an amount of at least B10 million; and (iii) there are reasonable grounds and prospects for reorganization of the debtor.

Insolvency

22. **Although the Bankruptcy Act does not define "insolvency," it does establish a list of events that create a "presumption" of insolvency.** These include, among other things, events that evidence liquidity (i.e., an inability to pay debts as they fall due). However, in a number of decisions to date, the Thai Supreme Court has clarified that the determination of "insolvency" under the Bankruptcy Act is to be based on an assessment of whether the value of the debtor's liabilities exceed the value of its assets.[3] Moreover, the courts have also confirmed that this concept is applicable to the reorganization chapter. While evidence of illiquidity provided by the creditor would create a presumption of insolvency under the law, this presumption can be rebutted by the debtor demonstrating that, notwithstanding its inability to meet debt obligations as they fall due, the value of its assets still exceeds the value of its liabilities.

23. **This feature of Thailand's rehabilitation law stands in contrast to modern rehabilitation laws elsewhere, which do not require, as a condition for commencement, a determination of insolvency based on the value of the debtor's assets and liabilities.** Rather, most laws allow for proceedings to be commenced upon a determination that the debtor is unable to pay its debts as they fall due, i.e., that the debtor is illiquid. A number of tests are used to determine illiquidity, including a debtor's general cessation of payments.

24. **It is preferable for commencement criteria to be based on a determination of illiquidity, rather than insolvency.** In particular, two reasons can be cited why reliance on a demonstration of illiquidity is to be preferred over a demonstration that the value of liabilities exceeds assets:

- First, since rehabilitation is more likely to be successful if proceedings are commenced at an early stage in a debtor's difficulties, the test of illiquidity is more appropriate as it will normally, though not necessarily always, precede insolvency.

- Second, a determination of insolvency requires valuation of the debtor's assets and liabilities, which can be a complicated and uncertain process. This is all the more so in cases, such as Thailand, where the underlying value of assets is difficult to determine given the repercussions of the financial crisis. Determination of illiquidity, in contrast, requires no valuation process.

For these reasons, one option to consider is revising the commencement criterion for rehabilitation proceedings to that of illiquidity. Indeed, consistent with the laws of some

[3] See, e.g., Krung Thep Metal Works Co. Ltd. vs. Somchai Holding International.

countries (such as Germany), the law could provide that petitions filed by debtors need only demonstrate a *likelihood* of illiquidity. This would allow for debtors to seek protection under the law at an even earlier stage of the their financial distress.

Prospects for Reorganization

25. **Under the current Reorganization Chapter, proceedings can be commenced only upon determination of a "reasonable ground and prospect" for reorganization.** The law provides that the petition for commencement, whether filed by the debtor or the creditor, must clearly set forth the basis for this determination. By establishing a further barrier to commencement, this criterion injects uncertainty into the system. For a debtor seeking protection, he may not be able to demonstrate such "reasonable grounds" at the very outset of the process. With respect to a creditor petition, the creditor will only have adequate information to make such an assessment once a plan preparer has conducted an investigation of the company. Accordingly, the requirement that such an assessment be made at the time of commencement (i.e., before a plan preparer is even appointed) is circular. This barrier is another reason why, to date, most filings for rehabilitation have only occurred once a debtor and the majority of its creditors have reached agreement on the broad parameters of a reorganization plan. It would therefore be desirable to consider eliminating this separate criterion.

E. Conversion to Liquidation

26. **It is critical that a bankruptcy law provide a means by which reorganization proceedings can be converted into liquidation proceedings in circumstances where there is no feasible possibility for reorganization.** Otherwise, there is a risk that a nonviable debtor will use the reorganization proceedings to delay an inevitable liquidation, during which time the value of creditors' claims are dissipated. In part, Thailand's bankruptcy law addresses this issue, as the ability of a debtor to use the reorganization proceedings solely as a means of delaying liquidation is reduced by the time limit imposed by the law (a plan must be submitted for approval within five months of commencement).

27. **Thailand's law, however, falls short of fully ensuring certainty with respect to liquidation.** In particular, if this time limit for submitting a plan expires and no reorganization plan has been approved, all insolvency proceedings terminate, with the effect that the debtor merely resumes its activities. Unlike most other insolvency laws, a failed reorganization attempt will not automatically result in liquidation proceedings. The existing rule in Thailand would not be as problematic if, upon the failure of a rehabilitation plan, creditors could initiate liquidation proceedings on the basis of illiquidity. However, as in the case of the reorganization chapter, the test for liquidation is that of insolvency, which requires the application of an uncertain valuation process.

28. **To address this problem, consideration should be given to allowing liquidation proceedings to commence automatically once the time period for reorganization lapses, consistent with best practices.** This time period may need to be lengthened if a debtor

"exclusivity" period is to be introduced (i.e., when only the debtor may propose a plan), which would then be followed by a period (perhaps an additional 3 months) during which time creditors could propose their own plan. But following the termination of this latter period, liquidation would become automatic unless a plan had been approved. If this rule is not introduced, then as a minimum, consideration could be given to establishing the criterion for commencing liquidation as illiquidity so that, following the failure of rehabilitation, the barrier to liquidation would be minimized.

F. Other Measures to Increasing the Availability of Credit

18. **An effective corporate restructuring strategy needs to include measures to enhance the availability of credit.** Beyond reform to the Bankruptcy Law, legal reform in two other areas could be of considerable assistance. First, a modern legal framework that supports the granting and enforcement of a wide variety of security interests would serve to reduce the risk of lending. Consideration is currently being given to reforming Thailand's laws in this area (a draft secured lending law has been submitted to the Council of State). Second, experience to date demonstrates that the weakness of the general credit enforcement mechanism in Thailand will continue to curtail the flow of credit, particularly in circumstances where banks, already hampered by nonperforming loans, are understandably risk adverse. The experience of other emerging markets clearly demonstrates that improvements in this area can be of great benefit for borrowers.

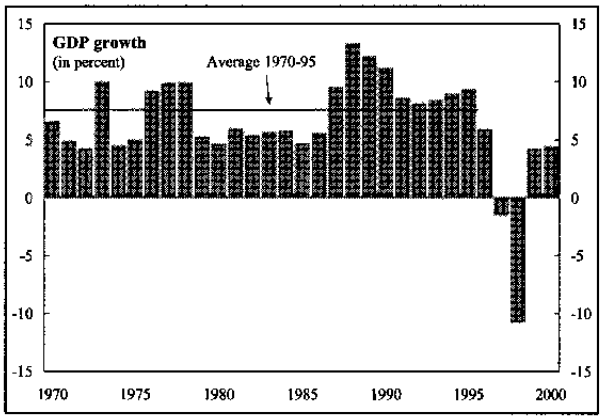
19. **Although progress has been made over the past several years in improving the enforcement mechanism, there is considerable scope for further reform.** In particular, reform is needed both with respect to the procedures applicable to the granting of a judgment and those that relate to judgment execution. With respect to obtaining a judgment, part of the problem relates to the chronic overcrowding of the civil courts. However, the absence of continuous civil proceedings also exacerbates delays that are encountered by creditors wishing to enforce both secured or unsecured claims. With respect to the execution of judgments, reforms introduced over the past several years have reduced the opportunity for the execution process to be delayed by appeals through the court system. However, the auction process continues to be problematic. For example, the establishment of a "reserve" price, above which the asset in question must be sold, often gives rise to multiple auctions.

G. Conclusion

20. **This chapter has identified weaknesses in the existing insolvency framework and, in that context, has made specific recommendations for reform.** Drawing from international best practice, it identifies key areas for improvement, including greater certainty with respect to the selection and responsibilities of the rehabilitation plan preparer, an enhanced role for incumbent management during the proceedings, simplification of the criteria relating to the commencement of rehabilitation proceedings, and providing for automatic conversion to liquidation in the event that rehabilitation fails. In addition, as a means to enhance the availability of credit in the economy, it is critical that steps be taken to strengthen the legal framework for secured lending and, more generally, credit enforcement.

V. Growth Accounting and the Medium-Term Outlook in Thailand[1]

A. Introduction



1. **Thailand has gradually recovered from the crisis; however, recent GDP growth rates remain well below the average recorded in previous decades** (Text Figure). As noted in Chapters II and III, a prerequisite for the restoration of robust economic growth is an acceleration of bank and corporate debt restructuring. This chapter goes beyond this, to examine the role of total factor productivity (TFP) and supporting policies to enhance economic growth. The chapter uses a growth accounting framework to examine Thailand's growth performance before and after the crisis. It draws implications for the medium-term outlook, with a view to establishing the conditions necessary for Thailand to return to growth rates of at least 5-6 percent.

2. **A principal finding is that, in the future, economic growth would have to be driven by higher TFP growth.** The high growth rates of the pre-crisis period were driven by capital accumulation, rather than TFP growth. Indeed, TFP growth slowed during the 1990s. As capital accumulation is expected to remain modest in the medium term, economic growth will have to be increasingly driven by higher TFP growth and, to a lesser extent, employment growth. A pick-up in TFP growth, in turn, will require maintenance of an open trade and investment regime, as well as investments in human capital.

B. Growth Accounting and Methodology

3. **TFP measures the efficiency of a given set of input factors (normally capital and labor) in generating output.** Alternatively, it can be thought of as the level of technological development in the economy; a given amount of factor input will generate more or less output depending on the technological capacity. TFP is an important concept in the economic growth literature, because output growth (per capita) is typically regarded as more sustainable if driven by improvements in TFP rather than capital accumulation; a given rate of capital accumulation will gradually lead to lower rates of output growth as diminishing returns set in.[2]

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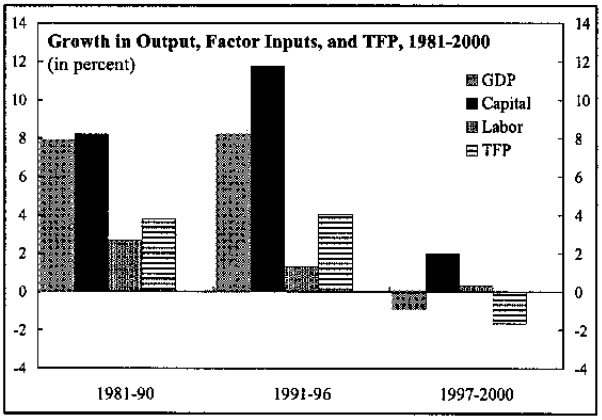
[1] Prepared by Gunnar Jonsson.

[2] Indeed, per capita output growth is exclusively driven by TFP growth in the simplest neoclassical growth model (assuming that population growth equals employment growth).

4. **TFP growth can be measured empirically as the difference between growth in output and growth in labor and capital, for given estimates of the technological factor shares.**[3] Different ways of measuring factor shares have been proposed in the literature. The most common ones are "the national income approach" and "the regression approach." However, both approaches suffer from several methodological shortcomings. For example, the national income approach implicitly assumes that capital and labor markets are perfectly competitive and that the income accruing to each factor is always equal to the value of its marginal product. The regression approach typically assumes that the factor shares are constant over time and the growth rates of the input factors are exogenous. In both cases, the assumptions are often violated in practice, yielding biased estimates of the factor shares and, therefore, the TFP growth rates. Instead, an alternative approach—based on Sarel (1997)—is used in this chapter. The approach basically derives the aggregate capital share by taking the weighted average of the capital shares in different sectors (agriculture, manufacturing, construction, etc), with the weights equal to the sectors' proportion of Thailand's GDP. The capital shares for the various sectors are assumed to be equal to what has been found in a large sample of other countries, where data availability has allowed for a thorough estimation of the factor shares (see Appendix for further details).[4] Thus, the aggregate capital share varies as the composition of GDP changes, yielding an annual time-series of this parameter. The TFP growth rate in Thailand was then estimated for each year by subtracting capital and labor growth, weighted by their respective factor shares, from output growth.[5]

C. Results

5. **The high rate of output growth during the 1980s and early 1990s was mainly driven by capital accumulation** and, to a lesser extent, TFP growth. The Text Figure plots Thailand's annual growth rates of output, factor inputs, and TFP for 1981-2000. It can be noted that the high annual GDP growth rates (averaging about 8 percent) between 1981-96 were largely explained by high rates of capital accumulation. In fact, Thailand experienced an investment boom

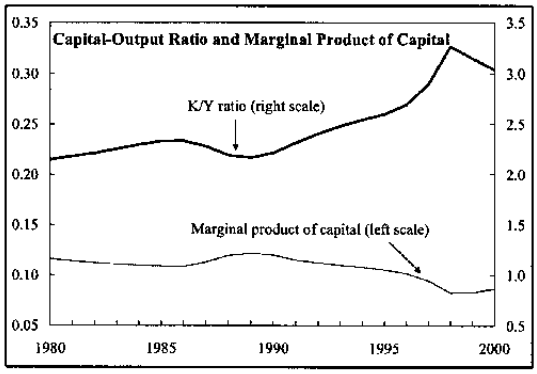


[3] See the Appendix for a more complete description of the growth accounting framework and the methodology for estimating the factor shares.

[4] Sarel (1997) shows that the estimated capital shares in a specific sector do not vary with the level of income.

[5] The labor share was defined as one minus the capital share. All data is from the National Economic and Social Development Board (NESDB).

during the first half of the 1990s such that its investment rate (as a share of GDP) was nearly the highest in Asia (Text Table). The high rates of investment led to a sharp increase in the capital-output ratio, and to a declining trend in the marginal product of capital (Text Figure).[6] Taken together, these findings are indicative of a degree of "over-investment" in Thailand in the period before the Asian crisis.[7] In addition to the high rates of capital accumulation, output growth was also explained by a relatively robust rate of TFP growth (averaging nearly 4 percent per year), possibly reflecting factors such as a high degree of openness to trade and foreign investment (see further discussion below). The findings are similar to what has been found in several other studies.[8] In particular, Sarel (1997) compares the growth performance of several Asian countries, and shows that Thailand's accumulation of capital was substantially higher than in other Asian countries in the early 1990s, although its capital-output ratio was on average somewhat lower than elsewhere.[9] He also finds that TFP growth



Capital and Investment in Selected Asian Countries

	1991-96			1997-2000
	K/Y	MPK	I/Y	I/Y
	(In percent)			
Thailand	**1.8**	**16.8**	**41**	**23**
Malaysia	2.3	14.1	43	34
Singapore	2.7	12.9	36	37
Indonesia	2.1	15.4	28	25
Philippines	2.0	15.2	22	23
Korea	...	...	36	30
Memorandum item:				
Thailand in 1998	**2.3**	**12.7**		

Sources: Sarel (1997); WEO; and Fund staff estimates.

[6] The marginal product of capital is calculated as the capital share divided by the capital output ratio (see Appendix for details).

[7] Tinakorn and Sussangkarn (1998) also find empirical evidence of a degree of pre-crisis over-investment in Thailand. In particular, they show that there exists a non-linear relationship between productivity and capital growth, implying that the capital accumulation exhibited diminishing returns.

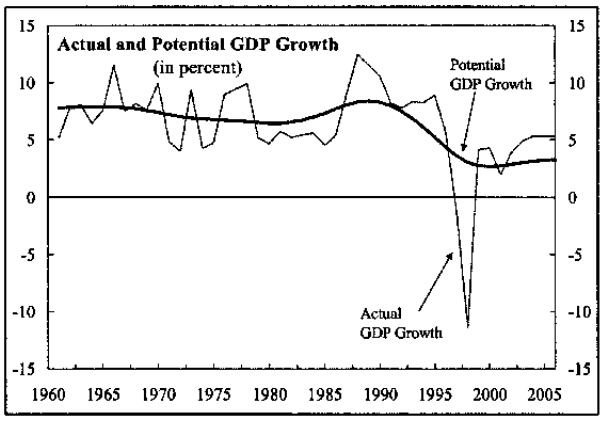
[8] See, for example, Young (1994, 1995), Collins and Bosworth (1997), Sarel (1997), and Felipe (1999). Owing to differences in methodology, estimation technique, data, and sample period, the results in these studies differ with regard to the estimated rates of TFP growth. However, the general conclusion is that capital accumulation explained a substantial part of East Asia's exceptional growth performance during the 1980s and early 1990s.

[9] The differences between the numbers for the capital-output ratio and marginal product of capital in the figure and the table above are due to different data sources and estimates of Thailand's capital stock. The Text Table is based on Sarel (1997), who derives capital stock data from investment flows using Penn World Tables, while the Text Figure uses actual capital stock data as published by the NESDB.

played a role in explaining Thailand's high output growth between 1978-96, in line with other countries in the region.

6. **The collapse of output growth during the Asian crisis (1997-2000) is reflected in a substantial slowdown of capital accumulation and negative TFP growth.** The capital-output ratio peaked in 1998, as the slowdown in output growth was more pronounced than the slowdown in capital growth. As a consequence, Thailand's marginal product of capital continued to decline, and by 1998 was lower than the 1991-96 average for several other Asian countries (see earlier Text Table). However, a trend-break in the capital-output ratio and marginal product of capital is evident in 1998, possibly pointing to a reversal of the over-investment that took place during the 1990s. Indeed, Thailand's investment rate was lower than in most other Asian countries during 1997-2000. Meanwhile, TFP growth is estimated to have been *negative* during this period. This may seem odd, as it is unclear why the overall technological level would deteriorate in the economy. The result is, however, partly explained by a business cycle phenomenon, as explained below.

7. **Taking into account the cyclical pattern of output growth, indications are that the slowdown in TFP growth in fact began in the early 1990s, and has held up reasonably well in recent years.** It is likely that measured TFP growth is affected by the business cycle in the short-run. For example, if firms find it difficult to adjust the capital stock swiftly—firms rarely scrap capital in the face of a short-term downturn—aggregate data would indicate higher rates of TFP growth during booms and lower rates during recessions.[10] To address this problem, effectively arising from changes in capacity utilization, the TFP growth rates were recalculated using the *potential* (rather than actual) rate of output growth (Text Figure).[11] The results now indicate that TFP growth began slowing in the early 1990s, and has since remained at about 2 percent per year



[10] Alternatively, a cyclical element in the measure of TFP growth could appear if the labor market is inflexible, and the firms engage in some labor hoarding behavior.

[11] The potential GDP series was extracted from the actual GDP series by using a Hodrick-Prescott (HP) filter (with the smoothing parameter set to 100). The resulting series indicate that potential GDP dropped from nearly 8 percent in the 1980s to about 3 percent in 2000. A potential GDP growth rate of about 4 percent during the second half of the 1990s is consistent with the observation that, during the same period, capacity utilization in the manufacturing sector fell by 20 percentage points while manufacturing production grew at a modest rate.

(see Text Table). Thus, even after controlling for the business cycle element, it is clear that TFP growth was about 1½ percentage points lower per year during the 1990s compared to the 1980s. This indicates that the exceptionally high investment rates during the early 1990s were offset by a substantial reduction in the efficiency by which additional capital (and labor) was used. This lower rate of efficiency gain has continued in recent years. Thus, the negative TFP growth rate that was derived above by using actual GDP is likely less accurate and largely driven by the sharp drop in actual output during 1997-98.

Growth in Output, Factor Inputs, and TFP

	1981-90	1991-96	1997-2000
	(In percent)		
Actual GDP	7.9	8.2	-0.9
Potential GDP	7.5	6.3	3.0
Capital	8.2	11.8	2.0
Labor	2.7	1.3	0.3
TFP based on actual GDP	3.8	4.0	-1.7
TFP based on potential GDP	3.4	2.2	2.3

Sources: NESDB; Bank of Thailand; and Fund Staff estimates.

8. **The large capital accumulation in the 1980s and early 1990s reflected increases in both "dwellings" and "machinery and equipment"**. The pre-crisis investment boom was accompanied by a sharp rise in credit (both by banks and finance companies) to the real estate sector. Construction of residential and office property increased sharply, although demand seemed to be lagging as vacancy rates rose.[12] This development was also reflected in high growth rates of the capital stock classified as "ownership of dwelling." However, the high growth in the aggregate capital stock was not driven exclusively by an increase in dwellings. Accumulation of other types of capital—defined as "machinery and equipment"—was also very rapid, growing on average by about 9 percent per year between 1981-96 (Text Table). As a consequence, even after excluding dwellings from the measure of the capital stock, the capital-output ratio rose while the marginal product of capital fell in the early 1990s (see Text Figures on next page).[13]

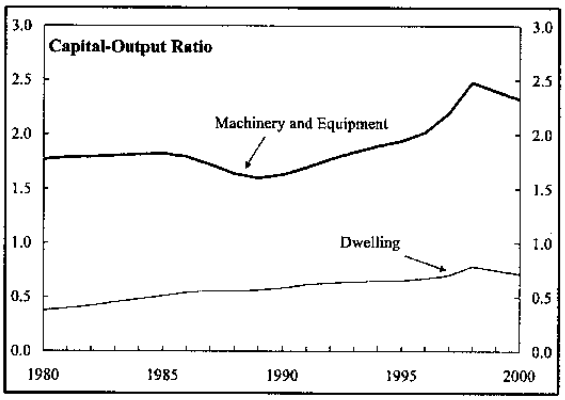
Growth in Capital, 1981-2000

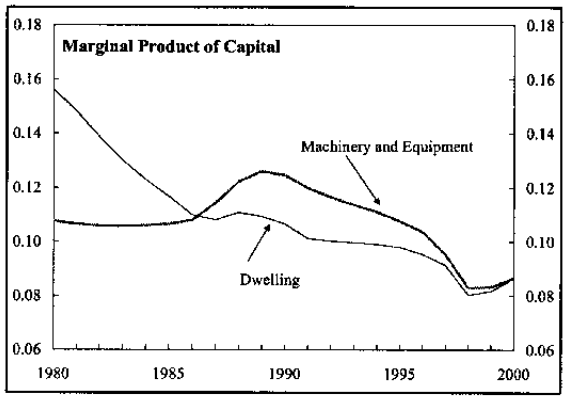
	1981-90	1991-96	1997-2000
	(In percent)		
Total net capital	8.2	11.8	2.0
Dwelling	12.8	10.8	0.4
Machinery and Equipment	7.0	12.1	2.5
Memorandum item:			
Share of dwelling in total capital	22.5	25.7	23.8

Source: NESDB

[12] See IMF (1999), *Thailand—Selected Issues*, SM/99/304 (Chapters I and III).

[13] See Appendix for a description of the assumptions underlying the calculations of the marginal product of different kinds of capital.





9. **The evolution of TFP growth in Thailand is similar to developments elsewhere in the region.** A number of studies have estimated TFP growth rates in several Asian countries. As noted earlier, the studies differ with regard to methodology, data, and estimation technique, and the results are therefore not easily comparable. Nevertheless, it is interesting to note that three different studies covering various (albeit overlapping) time periods show that TFP growth has slowed in Thailand during the last two decades; a result which is consistent with the findings in the current study (Text Table). Also, the estimated level and pattern of the TFP growth rate in Thailand is fairly similar to what has been found in other countries.[14]

TFP Growth in Selected Countries

Study:	Collins and Bosworth	Sarel	Lee et al.
Sample period:	1984-94	1991-96	1995-99
		(In percent)	
Thailand	**3.3**	**2.3**	**-0.8**
Singapore	3.1	2.5	-0.3
Malaysia	1.4	2.0	-1.1
Philippines	-0.9	0.7	1.1
Korea	2.1	...	3.0
Memorandum item:	1984-94	1991-96	1995-99
Thailand, current study 1/	**3.1**	**2.1**	**1.9**

Sources: Collins and Bosworth (1997); Sarel (1997); and Lee at al. (2001).
1/ Based on potential GDP.

D. Medium-term Outlook

10. **Over the medium term, high rates of economic growth would be expected to be driven by TFP growth.** As factor accumulation—especially capital—is likely to be limited in the medium-term, high rates of output growth ought to be driven by high TFP growth. For example, in the staff's medium-term projection (see the staff report), the GDP growth rate is projected at 5-6 percent while gross investment grows by 8-9 percent. However, most of the investment is expected to simply replace depreciated capital and the net capital accumulation is projected to be much lower (about 2-3 percent). Likewise, employment growth is projected

[14] The main exception seems to be the Philippines, where the evolution of TFP growth is the opposite of the other countries.

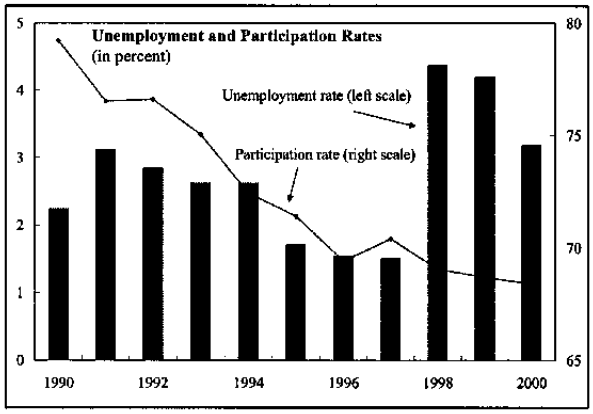
to be positive but modest (about 2 percent). Taken together, this implies that annual output growth of 5-6 percent would require TFP growth of about 3-4 percent per year.

Capital growth

11. **The growth rate of the capital stock would likely be lower than output growth in order to generate a pick-up in the marginal product of capital in the medium term.** Given the indications of over-investment during the 1990s, it is likely that firms would accumulate relatively modest amounts of capital in the medium term, and focus instead on improving the efficiency of their operations (e.g., through corporate restructuring). This would also result in a decline in the capital-output ratio. For example, a gradual increase in the net capital stock of 2-3 percent per year together with annual output growth of about 5-6 percent would imply that the capital-output ratio would fall back to its average 1991-96 level within five years. Such an increase in the net capital stock together with an annual depreciation rate of about 6 percent (which is close to the average rate of depreciation during the last five years) translates into a growth rate of gross fixed capital formation of about 8-9 percent in the medium-term.[15]

Labor growth

12. **Thailand's labor market is relatively flexible and unemployment has traditionally been low.**[16] However, as the crisis hit Thailand in 1997, the labor market was adversely affected and employment fell. This was especially pronounced in the construction sector, which shed 1.2 million jobs during 1997-99. As a result, the official unemployment rate rose from 1.7 percent in 1995 to 4.4 percent in 1998 (Text Figure). Moreover, the participation rate—defined as the ratio of the labor force to population aged



[15] It is possible that firms might increase the rate of capital scrapping in the coming years as a response to the previous over-investment. As a result, the depreciation rate could rise, implying that a given amount of gross fixed capital formation will generate a relatively smaller increase in the net capital stock.

[16] The official unemployment rate was, on average, 2½ percent during 1991-95. However, this figure excludes the seasonally unemployed, who typically account for another 2½ percent of the labor force. The seasonally unemployment rate has remained fairly stable during the 1990s at around 2 percent per year, although it temporarily increased to 2.7 percent in 1998.

13 and above—fell in the second half of the 1990s, indicating that the more difficult labor market conditions discouraged people from participating in the formal labor market.[17] Also, a degree of labor hoarding became evident, as the share of "underemployed" workers rose in 1997-98.[18] These trends have been partly reversed during the last two years as the economy began to recover. Employment grew by about 2 percent in 1999 and 2000, respectively, and the official unemployment rate fell to 3.6 percent by 2000. The participation rate, however, has remained well below pre-crisis levels.

13. **As the economy continues to recover, a gradual pick-up in employment could be expected in the medium-term.** Although employment opportunities in the construction sector would be expected to remain constrained in the near future, it is likely that demand for labor in the manufacturing sector and, in particular, the service sector would pick up as economic activity improves. Likewise, it is possible that the overall participation rate will increase, as workers who left the labor force during the crisis—for schooling and retraining—return to work, but also reflecting demographic factors; the share of the population below the age of 13 has been on a declining trend since the early 1980s, which is likely to be conducive to a higher participation rate in the medium term.[19] Taken together, these factors suggest that labor input would grow by nearly 2 percent per year during the coming years, compared with an annual population growth rate of about 1 percent (which is equal to its average growth rate during the past five years). This would also imply that the unemployment rate would fall by 1-1½ percentage points.

TFP growth

14. **A robust rate of TFP growth would be crucial to reach high rates of output growth in the medium-term.** Given the possibility of low rates of capital and employment growth, a substantial improvement in the efficiency of the factor inputs will be essential to reach GDP growth rates that are closer to the pre-crisis rates. For example, capital growth of about 3 percent coupled with employment growth of 2 percent would imply that TFP would need to grow by more than 3 percent for GDP growth to reach 5-6 percent. This example illustrates the importance of understanding the factors that would drive TFP growth.

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[17] The participation rate was on average 74½ percent in 1991-95, compared with 69 percent in 1996-2000.

[18] The definition of 'underemployed' is divided into the 'severely underemployed' defined as working less than 20 hours a week, and 'moderately underemployed' defined as working 20-34 hours per week. See Siamwalla (2000) for further discussions.

[19] The share of the population below age 13 has fallen from 34 percent in 1980 to 29 percent in 1990 to 26 percent in 2000.

E. Determinants of TFP Growth

15. **Ample theoretical and empirical literature indicates that TFP and output growth are positively associated with trade openness as well as human capital indicators.** In the case of Thailand, it is also possible that TFP growth could be stimulated by reaping further benefits in the areas of information technology (IT) and research and development (R&D).

Openness

16. **There are several channels through which an open trade and investment regime could benefit productivity growth.** For example, trade facilitates technology transfers from abroad, provides incentives for domestic firms to innovate, and puts pressure on firms to enhance efficiency owing to foreign competition. Indeed, a number of cross-country studies have found a positive empirical relationship between various 'openness-indicators' and output growth.[20] In particular, Coe et. al. (1997) and Edwards (1998) show that TFP growth is higher in more open economies.

17. **The relatively robust rates of TFP growth in Thailand in the past appear to be, in part, a consequence of its open trade and investment regime.** Thailand's openness, as measured by the ratios of exports plus imports to GDP and foreign investment to GDP, are higher than in many other Asian countries, although not quite as high as in Singapore and Malaysia (Text Table).[21] A simple time-series chart suggests that TFP growth in Thailand is positively correlated with changes in openness (defined as exports plus imports of goods and services as a share of GDP) until 1996. Moreover, Tinakorn and Sussangkarn (1998) shows that this relationship is statistically significant in Thailand for the period

Trade in Selected Asian Countries

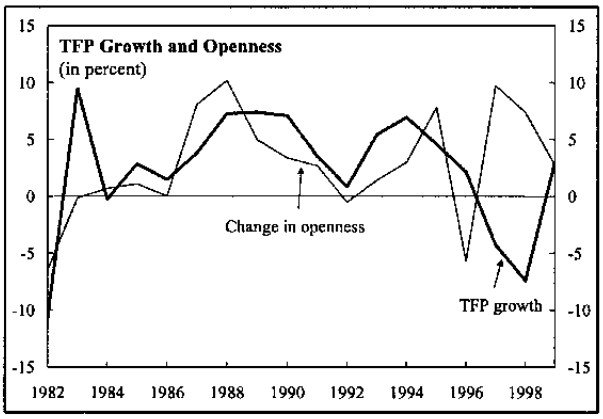
	1991-2000 (Exp+Imp)/GDP	1991-1999 FDI/GDP
	(In percent)	
Thailand	**92**	**2.6**
Malaysia	186	5.6
Singapore	204	8.7
Indonesia	60	1.0
Philippines	87	1.8
Korea	67	0.7

Sources: IFS, IMF; and Fund staff estimates.

[20] See, for example, Dollar (1992), Sachs and Warner (1995) and Ben-David (1993). Rodriguez and Rodrik (1999) have noted, however, that a more relevant question is whether liberal trade *policy* is good for growth, rather than whether openness—defined in terms of trade *outcomes*—is positively related to growth, and that the empirical evidence for the former proposition is less convincing.

[21] It can be noted, however, that Thailand's simple average tariff rate is higher than in several other Asian countries, although its effective rate is much lower, in part owing to a complex system of rebates and exemptions.

1980-95, even after controlling for other factors that are important for productivity growth.[22]



Human capital

18. **Skills development is another key factor in generating high and sustainable output growth**. The importance of the human capital stock in explaining economic growth is well established.[23] The fact that this aspect is not taken into account in the simple growth accounting exercise above could be viewed as a shortcoming of such an exercise. More precisely, to the extent that improvements in TFP are explained by a more skilled employment base rather than more efficient use of factor inputs, the TFP growth rates would be overestimated while labor inputs would be underestimated. A number of studies therefore adjust the labor data (by, for example, the number of years of schooling) to account for improvements in the quality of labor. However, an alternative view is to argue that a more educated labor force will lead to improved technology, and higher TFP growth rates therefore would be *explained* by skills development.

19. **Although Thailand has a strong foundation in basic education, there is scope for improvement in the area of higher education**. The human capital stock has been enhanced in Thailand during the past decades, as schooling and training has become more widespread.[24] For example, Tinakorn and Sussangkarn (1998) construct an index of labor quality, and show that this index has improved almost continuously in every sector since 1980. Consequently, after adjusting labor data for this quality improvement, they find

Education in Selected Asian Countries

	Gross Enrollment Rates in 1997 (in percent)		
	Secondary	Tertiary	
	Gross rate	Gross rate	Share in technology 2/
	(In percent)		
Thailand	**59**	**21**	**0.32**
Korea	102	68	1.55
Singapore	74	39	0.56
Philippines	78	35	0.55
Malaysia	64	11	0.14
Indonesia	56	11	0.13
Lower middle income countries 1/	64	22	...

Source: The World Bank.
1/ Unweighted average.
2/ As of 1995. Technology enrollment include natural science, engineering, and maths/computing.

[22] A similar positive relationship between openness and TFP growth have been found also for some other economies using time-series data; see, for example, Coe and Moghadam (1993) and Jonsson and Subramanian (2001).

[23] See, for example, Barro and Lee (1994).

[24] However, the primary enrollment rate has fallen somewhat during the 1990s.

that the contribution of TFP growth to output growth is about 0.8 percentage points lower per year between 1980-95, while 'effective' labor growth is correspondingly higher. Nevertheless, enrollment rates at the secondary and tertiary levels are lower in Thailand than in several other Asian countries, with particular gaps in the areas of science and technology (Text Table). Improvements in these areas could help stimulate output and TFP growth in the medium term.

Information technology and R&D

20. **TFP growth could possibly be enhanced in Thailand by further adoption of information and communication related technology (ICT).** It has been argued that the high rates of output growth in the U.S. during the last decade is in part explained by the very rapid growth in the use of computers and information technology (see Oliner and Sichel (2000)). Likewise, a recent study by Lee and Khatri (2001) notes that the high output growth in Asia in the early 1990s is to a large extent attributed to strong ICT-related exports. Investment in ICT activities has also contributed to a degree of capital deepening, although the impact on TFP growth has been relatively modest thus far.[25] The study also shows that Thailand compares poorly with other Asian countries with regard to investment in ICT (Text Table) and other IT-indicators, such as computer penetration and e-commerce. Government initiatives to develop a comprehensive information technology framework are now underway, with the aim of facilitating access and diffusion of information technology in all segments of the society. The implementation of this framework could enhance the overall technological capacity of the Thai economy in the medium term.

Information and Communication Technology Capital in Selected Countries
(as multiple of GDP)

1990-94				1995-99			
Non-ICT capital stock		ICT capital stock		Non-ICT capital stock		ICT capital stock	
Indonesia	2.07	Singapore	0.21	Indonesia	2.35	Singapore	0.22
China	1.64	U.S.	0.15	China	1.87	Hong Kong	0.21
Malaysia	1.63	Hong Kong	0.15	Malaysia	1.77	U.S.	0.14
Taiwan Province of China	1.26	Korea	0.13	Taiwan Province of China	1.39	Korea	0.14
Philippines	1.23	Taiwan Province of China	0.09	Philippines	1.29	Taiwan Province of China	0.11
Thailand	**1.09**	Malaysia	0.09	**Thailand**	**1.13**	Malaysia	0.08
Hong Kong	0.97	**Thailand**	**0.04**	Hong Kong	1.02	**Thailand**	**0.04**
Singapore	0.73	Indonesia	0.03	Singapore	0.73	Philippines	0.03
Korea	0.70	China	0.01	Korea	0.71	Indonesia	0.02
U.S.	0.63	Philippines	0.00	U.S.	0.63	China	0.02

Source: Lee and Khatri (2001).

[25] ICT-export is defined as computer and communication equipment and electronic components, while ICT-investment is defined as investment in telecommunication, computer hardware, and computer software.

21. **Thailand is also lagging behind other countries in indicators of technology-related capabilities**, such as expenditures on R&D activities, number of researchers per capita, and international patenting. For example, it is estimated that the total amount of expenditure on R&D as a share of GDP was about 0.1 percent in Thailand in 1995, compared with about 3 percent in Korea, while the number of researchers per 10,0000 population was about 2, compared to 30 in Korea (see Arnold et. al., 2000).[26]

F. Conclusion

22. **Economic growth will need to be driven by TFP growth rather than accumulation of capital and labor in the medium term.** This contrasts with the composition of output growth during the past two decades, which was largely explained by capital accumulation. The need of TFP-led output growth underscores the importance of maintaining an environment that is conducive to efficiency gains and technological development. Factors that appear crucial in contributing to such a development include: preserving an open trade and investment regime, further emphasis on education and skills development, the implementation of initiatives to stimulate R&D activities, and the adoption and diffusion of information technology.

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ANNEX

GROWTH ACCOUNTING

1. The simplest growth accounting exercise starts with a Cobb-Douglas production function:

$$Y = AK^{\alpha}L^{(1-\alpha)}, \tag{1}$$

where Y, K, and L denote output, capital, and labor, respectively, A refers to the technological or TFP level, and the parameters α and $(1-\alpha)$ are the technological factor shares. In growth terms, expression (1) translates to:

$$\frac{\Delta Y}{Y} = \frac{\Delta A}{A} + \alpha\left(\frac{\Delta K}{K}\right) + (1-\alpha)\left(\frac{\Delta L}{L}\right) \tag{2}$$

where $\Delta Y/Y$, $\Delta K/K$, and $\Delta L/L$ denote growth in output, capital, and labor, respectively, while $\Delta A/A$ is the technological progress or, put differently, TFP growth. In the empirical analysis, TFP growth is calculated residually given observations of Y, K, L, and an estimation of the parameter α.

2. The marginal product of capital can be derived from expression (1) as $dY/dK = \alpha Y/K$. Thus, given an estimate of α, it is easy to empirically calculate the marginal product of capital at any point in time.

3. Different methods for estimating the capital share, α, have been proposed, including the national income approach and the regression approach. However, both approaches suffer from statistical shortcomings, and an alternative approach introduced by Sarel (1997) is used in the current paper. This approach uses detailed data on the compensation for the use of capital inputs for nine different economic activities for 26 countries (one-digit ISIC classification). The average of the sample is then defined as the typical capital share in the specific activity. The aggregate value of the capital share is derived by weighing the sector-specific capital shares by their respective share in GDP. The estimated capital shares in the different sectors are: (i) agriculture, 0.275, (ii) mining and quarrying, 0.601, (iii) manufacturing, 0.308, (iv) utilities, 0.538, (v) construction, 0.189, (vi) commerce, 0.232, (vii) transport and communication, 0.320, (viii) financial and business services, 0.604, and (ix) government and other services, 0.081.

4. When estimating the marginal productivity of 'dwelling' and 'machinery and equipment', respectively, the following production function is used

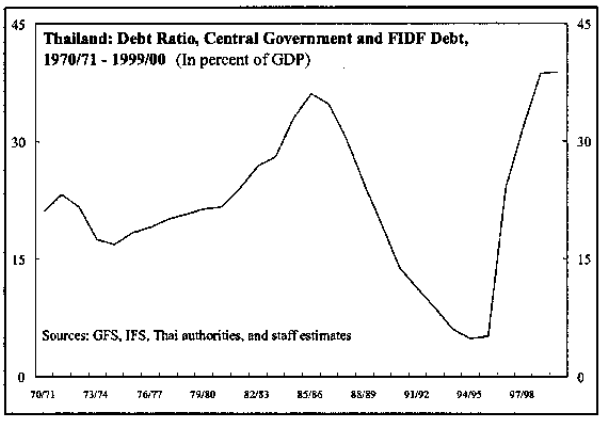
$$Y = AK_D^{\alpha\beta}K_M^{\alpha(1-\beta)}L^{(1-\alpha)}, \tag{3}$$

i.e., the capital stock is decomposed into dwelling, K_D, and machinery, K_M, respectively, where β denotes the factor share of K_D. In the empirical analysis, β is assumed to 0.26, which is equal to the average share of dwelling in total capital between 1980-2000.

VI. Medium-Term Debt Outlook[1]

A. Introduction

1. **In the decade preceding the financial crisis, Thailand's public debt ratio fell steadily, to around 5 percent of GDP in 1995/96** (Text Figure).[2] The decline in debt was driven by a combination of sizeable primary surpluses, which peaked at more than 6 percent of GDP, and high economic growth rates (in excess of the real interest rate). These factors were mutually reinforcing, as the high real growth rates created an economic environment conducive to running fiscal surpluses.



2. **Since the crisis, however, the debt ratio has risen sharply**. Thus, from around 5 percent of GDP before the crisis, the debt ratio increased to 39 percent of GDP ($48 billion) by end 1999/2000. The increase in debt is notable not only for the pace with which it has accumulated, but also for its level, which is high by historical standards. The increase is even larger when measured using a broader (and more commonly cited) debt aggregate that includes non-financial public enterprises (NFPEs). On this basis, the debt ratio has risen from 14 percent of GDP before the crisis to 57 percent of GDP ($70 billion) at end 1999/2000 (Text Table).

Thailand: Public Debt, 1995/96 - 1999/2000

(In percent of GDP)

	1995/96	1996/97	1997/98	1998/99	1999/00
1. Central govt. + FIDF Liabilities	5.2	24.1	31.8	38.6	38.8
Central government	3.9	5.1	10.7	20.9	22.6
Domestic	1.1	0.8	4.9	13.0	14.6
Foreign	2.8	4.4	5.8	7.8	8.0
FIDF liabilities	1.3	19.0	21.1	17.8	16.2
2. Non-financial public enterprises	9.3	12.1	13.4	17.2	18.5
Of which: Foreign	5.0	7.2	8.0	10.5	9.5
3. Total (1 + 2)	14.5	36.3	45.2	55.9	57.3

Sources: Country authorities; and staff estimates.

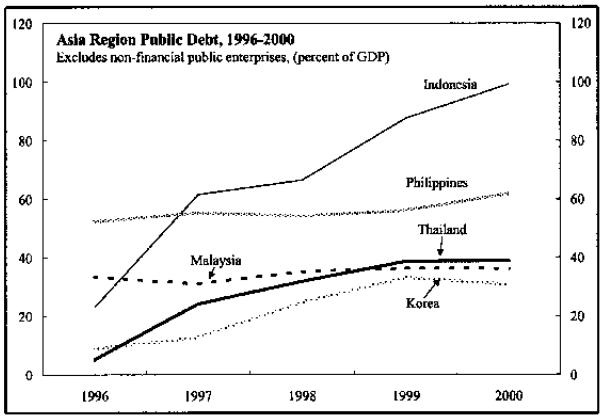
3. **The increase in the debt ratio is due largely to the costs of financial sector restructuring**. Indeed, over two-thirds of the increase in debt is directly attributable to the

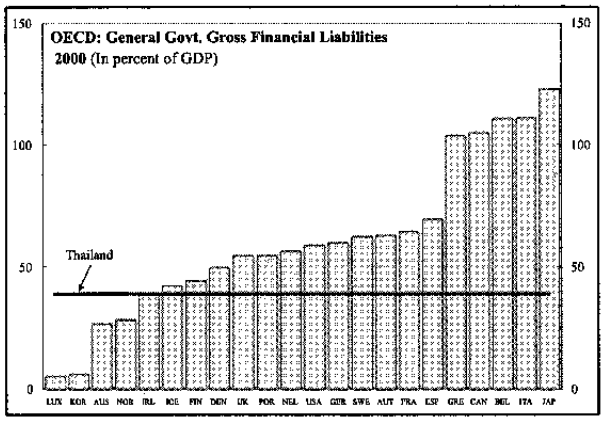
[1] Prepared by Steven Barnett and Vikram Haksar.

[2] For purposes of this study, the debt ratio is defined as the sum of central government debt and FIDF liabilities divided by nominal GDP (see Technical Annex for a further discussion).

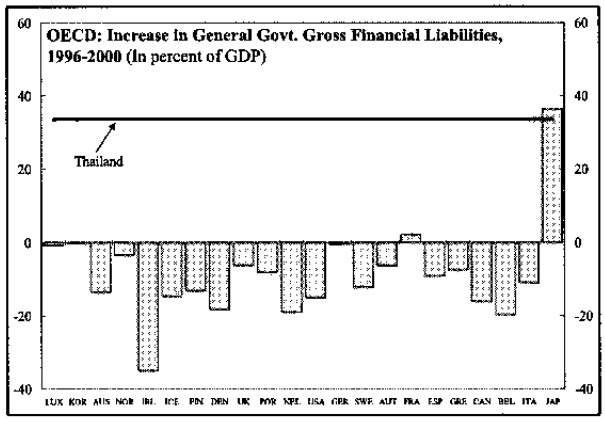
financial sector restructuring costs (see below). The remainder is mainly due to expansionary fiscal policies in support of the economic recovery.

4. **Even though Thailand's government debt ratio is high by its own historical standards, the debt ratio does not compare unfavorably with other countries** (Text Figures). Differences in data coverage complicate comparisons, especially with regard to the accounting treatment of the costs of financial sector restructuring. However, based on a broadly uniform definition, the relative size of the debt ratio in Thailand is estimated to be comparable to that of Korea and Malaysia, and below that of Indonesia and the Philippines. Thailand's debt ratio also does not compare unfavorably with OECD countries, although important differences between levels of development and structures of OECD economies relative to Thailand must be borne in mind (for example, the OECD countries typically have deeper tax bases and financial markets than in the case of Thailand).[3]





5. **Nevertheless, Thailand's debt ratio has risen steeply in a short period of time**. Any static comparison of debt *levels* must be interpreted carefully as these are not indicative of future debt-dynamics and mask underlying differences in levels of economic development and relative importance of the public sector in the economy. A better indicator is instead the *change* in the debt ratios. Under this metric, Thailand does not compare



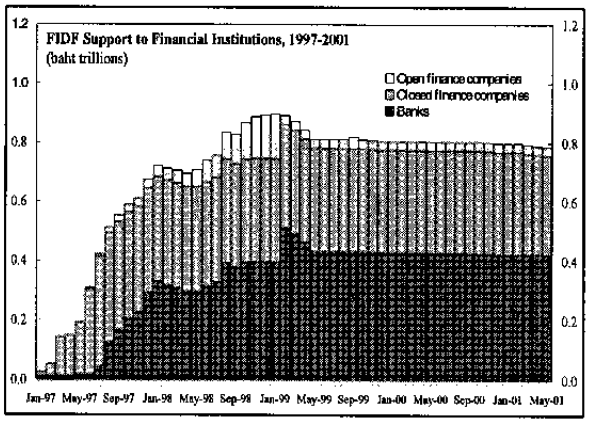
[3] With the exception of Thailand, the data in the figure are based on OECD definitions. For Korea this yields a debt ratio lower than estimates based on a definition more comparable to that being used to calculate Thailand's debt (the OECD definition differs because it excludes the equivalent of FIDF liabilities and consolidates inter-governmental holding of debt).

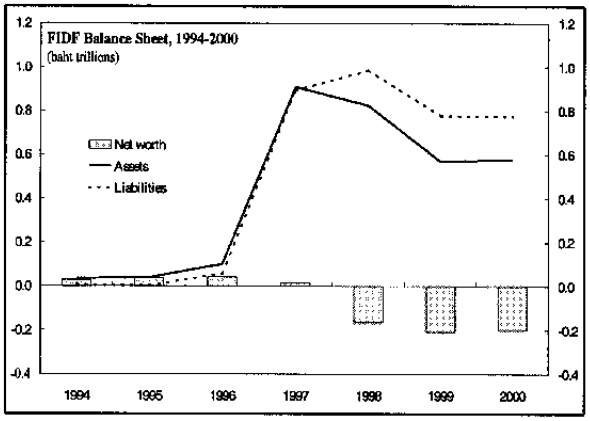
favorably with other OECD countries, as the *increase* in Thailand's debt ratio occurred during a time when nearly all of the OECD countries were pursuing policies that succeeding in substantially reducing their debt ratios. In this regard, the magnitude of Thailand's increase in government liabilities since 1996 has been among the highest in the crisis-hit Asian countries, and is on par with the increase in Japan (Text Figures above).

B. The Costs of Financial Sector Restructuring

6. **As noted above, the largest single contributor to the increase in government debt has been the cost of supporting the ailing financial system.** By the end of fiscal year 1999/00, the stock of debt for financial sector assistance, including cumulative principal costs *plus* interest costs, had reached about 30 percent of GDP (or $33 billion, at the then prevailing exchange rate). Of this: (i) roughly 14 percent of GDP was related to the resolution of the 56 closed finance companies; (ii) 10 percent was mainly due to the recapitalization and resolution of the state and intervened banks, and (iii) the remaining 6 percent was due to the cumulative carrying cost of these principal injections.

7. **The financial sector restructuring costs are associated with the considerable public sector liquidity and capital support provided to the financial system.** Beginning in early-1997, the FIDF[4] provided liquidity support to the finance company sector, peaking in mid-year with the suspension of 56 finance companies (Text Figure). As the crisis unfolded and confidence in the overall financial sector waned, additional support was provided to a number of weak banks that were eventually intervened. Ultimately, the bulk of the overall liquidity injections were essentially transformed into capital support, while state-owned financial institutions also received large capital injections necessitated by their extensive credit losses. The FIDF's overall balance sheet increased substantially as a result of these

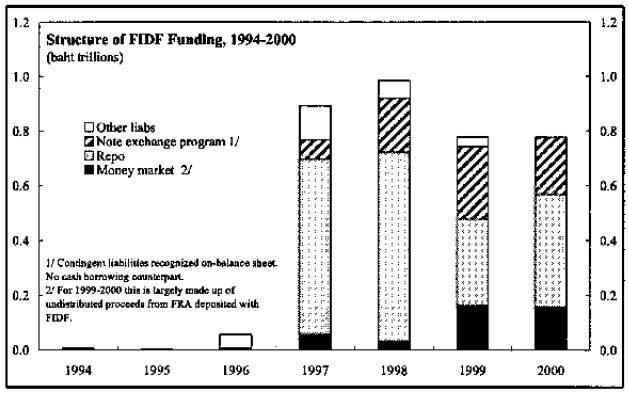




[4] The FIDF was established as a vehicle for channeling public support to the financial sector during previous crises, and after years of dormancy became active again at the onset of the crisis in 1997. It is an independent body within the framework of the BOT, and maintains separate financial accounts. It is overseen jointly by the BOT and MOF.

activities, and its accumulated losses have resulted in a large negative net worth position on the basis of currently recognized cash and contingent liabilities (Text Figure).[5]

8. **To date, the financing of the public sector costs of financial sector restructuring has come entirely from the domestic market** (Text Figure). The main sources have included borrowings from the money market, including through repurchase operations, issuance of government bonds, and recoveries from FRA's sale of assets from the intervened finance companies. Especially during 1997-98, the FIDF financed its operations through large borrowings in the repo market, where it effectively recycled liquidity that had been built-up in stronger financial institutions as depositors fled weak finance companies and banks.



9. **Over time, the FIDF has decreased its reliance on short-term money market borrowing**. The government issued domestic bonds totaling B 500 billion (equivalent to about 10 percent of GDP) during 1998-99 as a first step towards fiscalizing the costs incurred by the FIDF in supporting financial sector restructuring. Meanwhile, with the winding up of FRA operations, approximately B 175 billion of its auction proceeds have been placed on deposit at the FIDF, further contributing to the reduction in borrowing from the repo market. The small switch back into repos in 2000 has been matched by a reduction in money market and other borrowings. In recognition of the maturity risks inherent in short-term borrowing from the repo and money markets, the authorities have also decided to allow the FIDF to issue up to B 200 billion in longer dated instruments during 2001, guaranteed by the Ministry of Finance. The FIDF has thus far auctioned such bonds worth about B 85 billion, mostly in the 2-5 year duration.

10. **Meanwhile, the process of liquidating the assets of the 56 closed finance companies by the FRA is coming to an end**. The last major Financial Sector Restructuring Agency (FRA) auction was completed in early-2000. Thus far, the FRA has auctioned about 85 percent of the roughly $22 billion of core and non-core assets acquired from the closed finance companies, with an average recovery rate of 35 percent of the principal amount. About $5 billion (or 23 percent of the total assets on sale) have been acquired by the state-owned AMC.

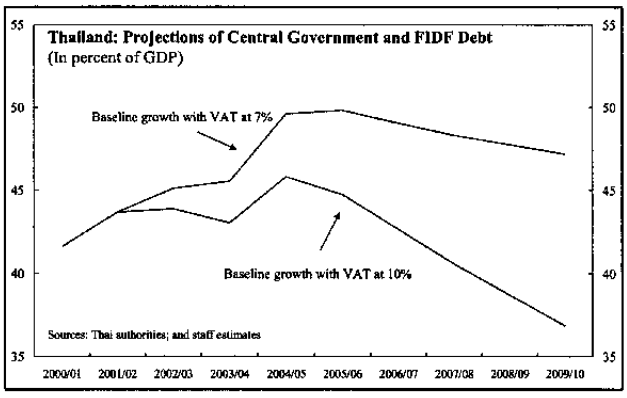
[5] More details are provided in the Technical Annex.

11. **Interest payments on the component of public sector debt associated with financial sector assistance have ranged in recent years between 1½–2½ percent of GDP.** The interest costs can be divided into two categories: *fiscalized* and *non-fiscalized*. The first refers to the interest cost on bonds issued by the government to compensate FIDF for part of its losses. These interest expenses are "fiscalized" as they are paid out of the central government budget. The "non-fiscalized" component of interest costs is imputed on the basis of FIDF's financing in the (short-term) repo and money markets. These imputed costs also include interest payments made by the FIDF to the holders of promissory notes issued to depositors and creditors of the closed finance companies (under the so-called "note-exchange program"), as well as yield maintenance payments on the nonperforming loans of the intervened banks that have been merged with other state-owned institutions. They are however net of interest incomes received by the FIDF but exclude receipts accruing to FIDF from the deposit guarantee fee, which are instead counted towards FIDF's capital accounts.

C. Projections and Sensitivity Analysis

12. **In the near-term, Thailand's government debt is expected to continue to rise.** The debt to GDP ratio is projected to peak in year 2005/06, driven by a continuation of fiscal deficits, and the realization of additional costs for financial sector restructuring (see below). Any privatization receipt would reduce the debt level below the estimates presented here.

13. **However, over the medium term, fiscal consolidation and a return of robust economic growth could put Thailand's public debt ratio on a declining path** (Text Figure). The key assumptions underlying this outlook are: (1) a reversion of the VAT rate to 10 percent in 2002/03, (2) a gradual increase in GDP growth to 5-5½ percent; (3) from 2002/03 onward, constant non-interest expenditure at the 2000/01 ratio to GDP; and (4) some modest buoyancy in revenue as the output gap is gradually eliminated (see the Technical Annex for details). Reversion of the VAT to 10 percent is projected to increase revenue by around 1¼ percent of GDP a year. Together with the general revenue buoyancy, the primary balance would improve by around 3 percentage points of GDP.[6] However, the main contributor to the falling debt ratio would be GDP growth (see Text Table on next page). As mentioned above, the decline in the debt ratio would not begin for several years: the debt ratio would start declining only after reaching a peak of around 45 percent of GDP



[6] The assumption that growth rates exceed real interest rates implies that the debt ratio would fall even if the government runs small primary deficits.

in 2005/06. This highlights the risks to the scenario, and the dependence of the debt dynamics on strong economic growth.

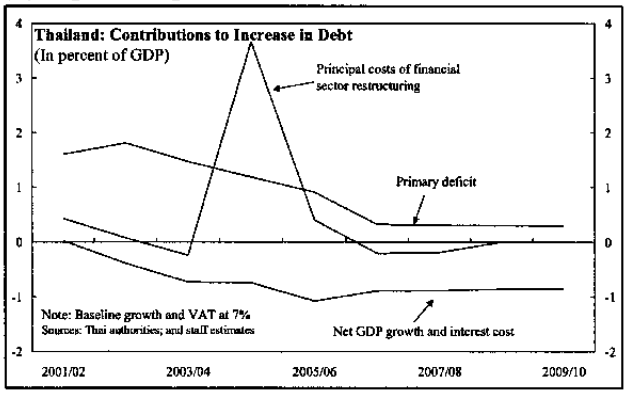
Thailand: Central Government and FIDF Debt--Contributions to Changes in Debt/GDP, 2001/02-09/10

	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
	Fiscal adjustment scenario (in percent of GDP)								
Debt	43.7	43.9	43.0	45.8	44.8	42.7	40.6	38.7	36.9
Change in debt	2.1	0.2	-0.8	2.8	-1.1	-2.1	-2.1	-1.9	-1.8
	Contribution to debt change (+ is increase in debt)								
Primary balance	1.6	0.6	0.2	-0.1	-0.4	-1.1	-1.1	-1.1	-1.1
Interest payments	2.7	2.7	2.5	2.5	2.4	2.3	2.2	2.1	2.0
Principal costs of fin. restruct.	0.4	0.1	-0.2	3.7	0.4	-0.2	-0.2	0.0	0.0
Nominal GDP growth	-2.6	-3.0	-3.3	-3.2	-3.4	-3.2	-3.0	-2.9	-2.7

Source: Staff projections

14. **Without fiscal adjustment, on the other hand, the debt ratio would remain relatively flat.** Indeed, in the absence of the VAT reversion, the debt ratio would be projected to remain above 45 percent by 2009/10. This underscores the centrality of fiscal adjustment for reducing the debt ratio. It also highlights that even under relatively favorable interest rate and growth assumptions, Thailand cannot simply grow out if its debt.

15. **Financial sector restructuring costs will continue to have a large impact on the debt ratio for the next several years.** This is seen by the large hump in the ratio in 2004/05. The increase largely reflects additional principal costs associated with the final resolution of intervened and state banks.[7] The key assumptions underlying these projections are (i) recovery rates of between 40-45 percent; (ii) a gradual pattern of asset resolution; and, (iii) and a pick-up in interest costs. The other main contributors to the evolution of debt are an improvement in the primary balance stemming from the assumed revenue buoyancy, and GDP growth in excess of real interest rates (see Text Figure). Fiscal adjustment could be also be complemented by other measures to improve the medium-term efficiency of the tax system (see Box VI.1).



[7] These projections assume that the distressed assets in the state sector are resolved over the next five years, including within the TAMC framework. However, the TAMC is envisaged to have an operational life of up to 10 years, such that the disposal process could in principle take longer than assumed here. As discussed in the Technical Annex, this would mostly affect the timing of the realization of costs, and not the long-term level of the public debt.

BOX VI.1. MEDIUM-TERM TAX REFORMS

Overall, the tax system in Thailand is modern, reasonably efficient, and in broad conformity with international good practices. The key challenges over the medium term, therefore, are to pursue structural reforms directed at improving some of the weaker aspects of the tax system, and to resist pressures for policies that would weaken the tax system. In addition to the reversion of the VAT—which is relatively low but efficient by regional standards (see Text Table)—the priority areas for reform include the following:

- **Simplify, improve the fairness, and enhance the revenue buoyancy of the personal income tax (PIT).** Reforms could be aimed at broadening the base by scaling back allowances and deductions; improving the fairness by replacing retained allowances and deductions with tax credits; and lowering the marginal rates of taxation. In addition, the system of capital taxation should also be modernized. In a regional context (Asian PIT yields tend to be lower than in non–Asian OECD countries), the PIT in Thailand yields relatively little revenue, and its buoyancy over the medium term could be increased.

- **Modernize the tax treatment of financial services** by replacing the specific business tax (levied on gross turnover or transactions) with a VAT–type tax, or by simply eliminating it and exempting financial services from the VAT. Such a modernization would also likely reduce the tax burden on the financial sector.

- **Eliminate or replace Board of Investment (BOI) tax incentives.** The present system of incentives offers significant tax holidays and rate reductions, is difficult to administer, not very transparent, and expensive in terms of foregone revenue. One option would be to completely eliminate the present incentives. Another, and second-best, option would be to replace the present incentives by a system of investment tax credits based on investment cost recovery, with the corresponding lost revenue recorded in the budget as a tax expenditure. Such a system would be more transparent, and easier to administer.

- **Reform the social security system.** The recently established old age pension system (OAPS) is most likely not financially viable over the long run as benefits would eventually exceed contributions. Although this problem would not emerge for some time (perhaps 40 years or so), it would be beneficial to implement the necessary reforms now while the system is still at an early stage of implementation and there are not many beneficiaries. Options for improving the long–run viability of OAPS include increasing the retirement age and lengthening the qualification period.

Selected Countries: Comparison of Tax Rates and Revenue

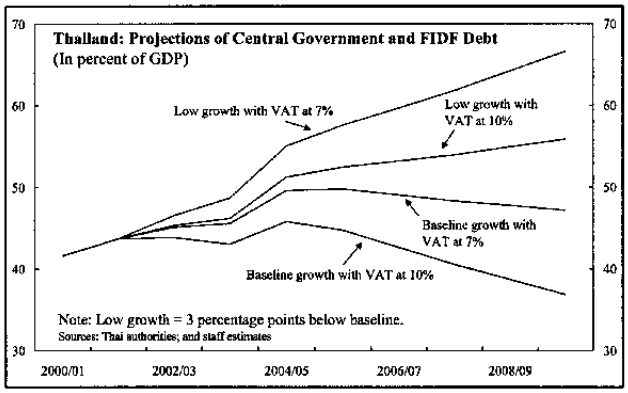
	VAT				Total and personal income tax			
	Year	Main rate (1)	Revenue (In percent of GDP) (2)	Efficiency (2) / (1) (3)	Year	Total tax (In percent of GDP) (4)	Personal (In percent of GDP) (5)	Personal / Total (In percent) (6)
Thailand	1999/2000	7.0	3.3	0.48	1999/2000	13.6	1.8	13.2
Australia	...	10.0	...	...	1997	29.8	12.5	41.9
Cambodia	...	10.0	...	...	1997	...	...	...
China	1998	17.0	5.3	0.31	1997	...	...	...
Indonesia	1998	10.0	2.7	0.27	1997	15.6	1.4	9.1
Japan	1998	5.0	2.1	0.41	1997	18.2	5.9	32.4
Korea	1999	10.0	4.2	0.42	1997	19.5	3.6	18.5
Malaysia	1999	...	...	...	1999	16.0	2.1	13.1
New Zealand	1999/2000	12.5	8.4	0.67	1997	36.4	15.7	43.1
Philippines	1999	10.0	3.2	0.32	1997	16.8	2.2	13.0
Singapore	1997/98	3.0	1.4	0.47	1997/98	16.3	2.0	12.3
OECD Average	...	...	...	...	1997	27.6	10.2	35.2

Sources: Country authorities; OECD; and staff estimates

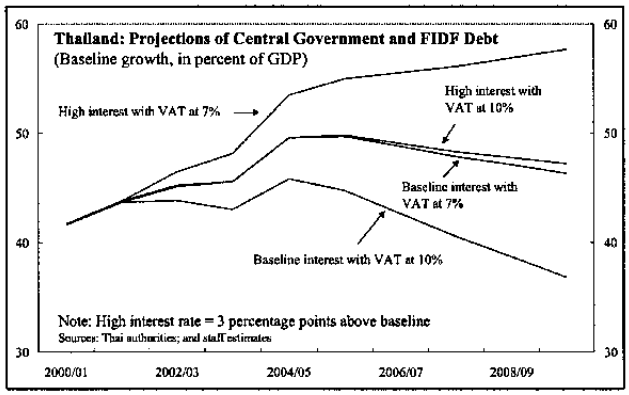
Sensitivity analysis

16. **The medium-term debt dynamics are highly sensitive to the underlying assumptions**, including with regard to economic growth, interest rates, buoyancy of the tax system, and the costs of financial sector restructuring.

- **A prolonged period of slow growth could result in a continuously rising debt ratio** (Text Figure).[8] Slower growth increases the debt ratio by reducing nominal GDP (the denominator of the debt ratio), and also by adversely affecting revenue buoyancy. Under a slower growth scenario, even with fiscal adjustment of the magnitude contemplated earlier in this paper, the debt ratio would continue to grow and thus be on an unsustainable path. Without fiscal adjustment, slow economic growth would make the debt ratio grow even more sharply, exceeding 65 percent of GDP by 2009/10. This sensitivity analysis highlights the risk of waiting too long to begin the process of consolidation.



- **The debt-dynamics are also sensitive to interest rate assumptions**. An increase in the assumed average interest rate on outstanding debt by 3 percentage points per year (from 6½ to 9½ percent) from 2002/03 onwards would raise the 2009/10 debt ratio by about 10 percent of GDP (see figure).[9] In a "worst case" scenario (not shown) with slow growth, no VAT reversion, and the higher interest rate, the 2009/10 debt stock would exceed 80 percent of GDP. Even with robust growth and the VAT at 7 percent the



[8]On the assumption that real GDP growth was lower by 3 percentage points per year relative to the baseline scenario (i.e., from 5-5½ percent to 2-2½ percent).

[9]Since the interest rates in this exercise are expressed as averages applied to the stock of outstanding debt, a 3 percentage point increase is rather significant, especially in the near term, as it would imply a sharp up-tick in the interest rate on new debt.

debt-dynamics would be explosive (mainly because interest rates would exceed growth rates). Whereas under the baseline interest rate assumption the debt ratio falls even though there is a small primary deficit in the outer years (around ¼ percent of GDP), the reversal of the beneficial relationship between interest rates and growth (through higher interest rates) results in even a small primary deficit leading to explosive debt dynamics.

- **Revenue buoyancy also contributes significantly to the debt dynamics**. Revenue buoyancy comes from the closing of the output gap and the projected increase in the ratio of consumption to GDP (which boosts the VAT and excise revenue). In the baseline growth scenario, the effect of holding revenue buoyancy at zero is to increase the 2009/10 debt ratio by around 10 percent of GDP (the majority of which is attributable to holding the output gap constant). For comparison, in the low growth scenario the 2009/10 debt ratio would be around 20 percent of GDP higher than in the baseline scenario. This 20 percent of GDP increase could thus be decomposed into the impact of revenue buoyancy and the relationship between interest rates and growth. Specifically, half of the increase arises from shutting down the revenue buoyancy in the low growth scenario and the other half from altering the relationship between interest rates and growth, as highlighted above in the discussion of the higher interest rate scenarios.

- **The projections are also sensitive to the costs of financial sector restructuring.** On the up-side, the current projections assume no privatization proceeds, although the FIDF and MOF have currently projected that sale of some of the state-owned banks could generate as much as B 200 billion in privatization revenues (about 4 percent of GDP). Further, if the TAMC is highly effective, recovery rates could be somewhat higher than those currently assumed. For example, if rates similar to those registered by Danaharta are achieved (about 65 percent of the face value of assets acquired), by end 2004/05 the stock of debt could be reduced by about 3½ percent of GDP. On the other hand, the risk remains that recovery rates could be lower than assumed, reflecting the poor quality and hard to manage (fragmented) nature of state bank assets. In this case, if recovery rates were instead 20 percent on average, this would add about 5 percent of GDP to the 2009/10 debt stock.

D. Conclusion

17. **Fiscal consolidation and a resumption of strong economic growth are needed to put the government debt ratio on a declining path in the medium term.** The sensitivity analysis presented above illustrates that debt projections are highly sensitive to assumptions about medium-term macroeconomic developments, especially GDP growth and interest rate levels. Should developments not be as favorable as currently projected, the debt ratio would remain high. This underscores the importance of taking action over the next few years, particularly with respect to returning the VAT to its previous level of 10 percent, to consolidate the deficit.

Technical Annex

1. **The main definition of debt used in this study is the sum of central government debt and the FIDF liabilities**. This differs from the *Government Finance Statistics* (GFS) definition of government debt, which excludes the FIDF liabilities as they are considered to be part of the financial public sector liabilities. For analytical purposes, however, it is useful to include these liabilities in the definition of public debt, since the FIDF financial sector restructuring activity is of a fiscal nature and the FIDF liabilities are conceptually interchangeable with government debt (indeed around 10 percent of GDP in the FIDF losses have already been *fiscalized*). Consistent with GFS, other financial sector public debt, such as state bank liabilities or BOT debt, is excluded. Non-financial public enterprise (NFPE) debt is also excluded on the grounds that the NFPEs reportedly have substantial positive net worth, are largely profitable, and thus are unlikely to present a future fiscal burden. Moreover, depending on privatization developments, NFPEs could actually contribute to a reduction in government debt. The remainder of this annex describes the methodology used to project the various fiscal variables that contribute to the evolution of the debt ratio.

Central government

2. **The revenue projections are based on a model linking revenue to changes in the output gap (the difference between potential and actual GDP)**. The projections are done separately for each major component of revenue, for which a different tax base and elasticity are assumed. Changes in the revenue to GDP ratio for a given component are thus driven by (1) policy changes; (2) changes in the revenue base as a share of GDP; or (3) movements in the output gap. The intuition behind the latter is that, setting aside policy or revenue base changes, the structural budget balance (at least from the revenue side) should be constant. Structural revenue is defined as,

$$r^s = r_t\left(\frac{y_t^p}{y_t}\right)^{\alpha}$$

where r^s is the structural revenue to GDP ratio, r_t is the revenue to GDP ratio in period t, y_t^p is potential GDP in period t, y_t is GDP in period t, and α is the elasticity. Holding r^s constant across time implies that the revenue to GDP ratio in $t+1$ is given by,

$$r_{t+1} = r_t\left(\frac{y_t^p}{y_t}\right)^{\alpha}\left(\frac{y_{t+1}}{y_{t+1}^p}\right)^{\alpha}.$$

To account for the fact that each revenue component may have a different base, the actual formula for revenue item X is given by,

$$\frac{X_{t+1}}{Y_{t+1}} = \frac{B_{t+1}}{Y_{t+1}}\frac{X_t}{B_t}\left(\frac{y_t^p}{y_t}\right)^{\alpha}\left(\frac{y_{t+1}}{y_{t+1}^p}\right)^{\alpha}$$

where B is the relevant base, and Y is nominal GDP. While the selection of the base is relatively straightforward, the choice of elasticity is more subjective and is based on an

assessment of historical performance (see Text Table). The results, however, are not highly sensitive to the choice of elasticity.

Thailand: Revenue Elasticity Assumptions

Tax	Base	Elasticity
Personal income	Nominal	1.20
Corporate income	Nominal	1.80
VAT	Private	1.30
Excise	Private	1.00
Specific business	Nominal	1.00
Custom	Import	1.00
Other tax	Nominal	1.00
Nontax	Nominal	1.00

Source: Staff

3. **The expenditure projections are more straightforward**. Non-interest expenditure is held constant as a share of GDP at the projected 2000/01 level. Unlike revenue, expenditure is not directly linked to the business cycle, justifying holding it constant as a share of GDP. Nonetheless, a case could be made for both increasing the ratio over time (for example due to the costs of fulfilling education and other development objectives) or decreasing it (for example due to declining foreign financed expenditure). Interest expenditure is calculated by multiplying the beginning of period debt stock by the assumed nominal interest rate, which is best interpreted as the average interest on outstanding debt. This interest rate is assumed to stay at around 6.5 percent, or 4 percent in real terms (see below).

4. **Extra-budgetary funds are excluded from the projections**. The main reason is that their activities by and large do not directly affect the debt stock. The largest of the extrabudgetary funds, those managed by the social security office (such as for the old age pension system), have accumulated financial assets, are expected to continue to run surpluses throughout the projection period, and therefore would not be expected to borrow or otherwise impact the debt-dynamics. Consistent with this, holdings of government securities by these funds are not subtracted from the outstanding debt stock.

5. **The main macroeconomic assumptions for the baseline scenario** are summarized in the following Text Table. A summary of the fiscal projections for the baseline and adjustment scenario are reported in the attached tables (Tables VI.1 and VI.2 respectively).

Thailand: Medium-term Macroeconomic Assumptions
(In percent)

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Real GDP growth	2.1	3.7	4.7	5.4	5.5	5.5	5.0	5.0	5.0	5.0
Inflation (GDP deflator)	2.4	2.9	2.7	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Nominal GDP growth	4.6	6.8	7.5	8.0	8.1	8.1	7.6	7.6	7.6	7.6
Output gap	-6.8	-6.7	-5.9	-4.6	-3.6	-2.7	0.0	0.0	0.0	0.0
Avg. interest rate	6.4	6.5	6.5	6.5	6.4	6.4	6.4	6.4	6.4	6.4
Priv. Consumption / GDP	56.7	56.8	57.6	58.3	58.8	59.4	59.5	59.5	59.5	59.5
Imports / GDP	62.6	63.1	63.1	63.5	63.9	64.6	64.8	64.8	64.8	64.8

Source: Staff projections

Financial sector restructuring costs

6. **The estimates for the resolution of the state and intervened banks are currently based on the establishment of individual asset resolution vehicles for each bank.** (See Table VI.3 for details, including historical costs.) These would offer yield maintenance and gain-loss sharing arrangements for the individual banks. Such arrangements have already been established for the management of assets at KTB–SAM and Bank Thai, though they have lain dormant in anticipation of the TAMC. The yield maintenance is projected as a mark-up over the average of savings deposit rates of the four largest private banks, with a 200 basis point pick-up over the life of the gain-loss sharing agreement of 5 years beginning 2001. It is assumed that the AMC/CAP cash flows are broadly in balance through the first 4 years of the arrangements, with remaining principal costs recognized as a lump sum at the end of the period. The interest rates on the debt are assumed to tend towards 3½ percent in real terms in the medium-term. However, overall interest costs deviate periodically, reflecting the gradual pick-up assumed in the yield maintenance rates.

7. **The establishment of the TAMC is not projected to change substantially the overall estimated resolution costs for the state and intervened banks.** While the exact modalities of financing and the timing of recognition of losses may change, it does not yet appear likely that the TAMC will lead to a substantially different resolution path and outcome than currently assumed. First, the TAMC will not take on additional state bank assets relative to what has been assumed in the current estimates presented here. Also, this reflects in part an assumption that the TAMC could continue with some of the same asset resolution models already established, particularly for KTB–SAM and Bank Thai. More generally, it would appear reasonable to assume that the existing overall parameters, such as the recovery rate and the interest rate on TAMC bonds (also based on banks' average deposit rates), will continue to apply.

8. **Some additional costs could arise with regards to the resolution of the private bank assets transferred to the TAMC.** However, reflecting the small size of the private bank assets expected to be transferred to the TAMC (assuming there are no further rounds) as well as the existing high level of loan loss reserves set aside by most banks, the TAMC should not be exposed to significant down-side risk on this front. Indeed, it is expected that within the confines of the gain-loss sharing arrangements with private banks, the TAMC's maximum exposure would not exceed 2 percent of GDP.

Table VI.1. Thailand: Medium-term Fiscal Projections, Central Government and FIDF
(Baseline, VAT at 7 percent)

	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
					(B billions)				
Total revenue and grants	817	891	984	1,084	1,192	1,329	1,432	1,542	1,660
Tax revenue	747	816	901	993	1,093	1,219	1,312	1,412	1,519
Personal income tax	105	113	125	136	149	166	179	192	207
Corporate income tax	151	165	182	201	221	249	268	289	311
VAT	155	169	188	208	230	257	276	297	320
Excise	196	215	238	263	290	321	346	372	400
Specific business tax	13	14	15	17	18	20	22	24	25
Custom duties	97	105	116	127	140	156	168	180	194
Other tax	32	34	38	41	45	50	54	58	62
Nontax revenue	70	76	83	91	99	109	118	127	136
Grants	0	0	0	0	0	1	2	3	4
Expenditure and net lending	994	1,092	1,185	1,284	1,391	1,500	1,614	1,737	1,869
Non-interest	903	997	1,077	1,164	1,259	1,355	1,458	1,569	1,689
Interest	91	96	108	120	132	145	156	167	180
1. Cent. gov. (CG) balance	-177	-201	-201	-200	-199	-170	-182	-195	-209
2. FIDF interest	53	59	56	63	63	64	65	67	69
3. CG + FIDF balance (1-2)	-231	-260	-257	-263	-262	-234	-247	-262	-278
4. FIDF pincipal costs	23	4	-15	249	30	-16	-16	0	0
5. Augmented balance (3+4)	-254	-264	-242	-512	-292	-218	-231	-262	-278
Government debt	2,357	2,618	2,855	3,362	3,651	3,869	4,101	4,363	4,641
Central government	1,471	1,668	1,864	2,060	2,256	2,426	2,609	2,804	3,013
FIDF	886	950	991	1,302	1,395	1,443	1,492	1,559	1,628
					(In percent of GDP)				
Total revenue and grants	15.1	15.4	15.7	16.0	16.3	16.9	16.9	16.9	16.9
Tax revenue	13.8	14.1	14.4	14.7	14.9	15.5	15.5	15.5	15.5
Personal income tax	1.9	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1
Corporate income tax	2.8	2.8	2.9	3.0	3.0	3.2	3.2	3.2	3.2
VAT	2.9	2.9	3.0	3.1	3.1	3.3	3.3	3.3	3.3
Excise	3.6	3.7	3.8	3.9	4.0	4.1	4.1	4.1	4.1
Specific business tax	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
Custom duties	1.8	1.8	1.8	1.9	1.9	2.0	2.0	2.0	2.0
Other tax	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Nontax revenue	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4
Grants	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Expenditure and net lending	18.4	18.8	18.9	18.9	19.0	19.0	19.0	19.0	19.0
Non-interest	16.7	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2
Interest	1.7	1.6	1.7	1.8	1.8	1.8	1.8	1.8	1.8
1. Cent. gov. (CG) balance	-3.3	-3.5	-3.2	-3.0	-2.7	-2.2	-2.1	-2.1	-2.1
2. FIDF interest	1.0	1.0	0.9	0.9	0.9	0.8	0.8	0.7	0.7
3. CG + FIDF balance (1-2)	-4.3	-4.5	-4.1	-3.9	-3.6	-3.0	-2.9	-2.9	-2.8
4. FIDF pincipal costs	0.4	0.1	-0.2	3.7	0.4	-0.2	-0.2	0.0	0.0
5. Augmented balance (3+4)	-4.7	-4.6	-3.9	-7.5	-4.0	-2.8	-2.7	-2.9	-2.8
Government debt	43.7	45.1	45.6	49.6	49.8	49.1	48.3	47.8	47.2
Central government	27.3	28.7	29.7	30.4	30.8	30.8	30.7	30.7	30.6
FIDF	16.4	16.4	15.8	19.2	19.0	18.3	17.6	17.1	16.6
Memorandum items:									
Primary balance (percent of GDP)	-1.6	-1.8	-1.5	-1.2	-0.9	-0.3	-0.3	-0.3	-0.3
Nominal GDP (fiscal year)	5,397	5,802	6,267	6,777	7,328	7,887	8,488	9,136	9,832

Source: Staff projections.

Table VI.2. Thailand: Medium-term Fiscal Projections, Central Government and FIDF
(Adjustment, VAT at 10 percent from 2002/03)

	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
					(B billions)				
Total revenue and grants	817	964	1,065	1,173	1,290	1,439	1,550	1,669	1,797
Tax revenue	747	888	982	1,082	1,192	1,329	1,430	1,539	1,657
Personal income tax	105	113	125	136	149	166	179	192	207
Corporate income tax	151	165	182	201	221	249	268	289	311
VAT	155	241	268	297	328	367	395	425	457
Excise	196	215	238	263	290	321	346	372	400
Specific business tax	13	14	15	17	18	20	22	24	25
Custom duties	97	105	116	127	140	156	168	180	194
Other tax	32	34	38	41	45	50	54	58	62
Nontax revenue	70	76	83	91	99	109	118	127	136
Grants	0	0	0	0	0	1	2	3	4
Expenditure and net lending	994	1,092	1,180	1,274	1,374	1,476	1,581	1,695	1,816
Non-interest	903	997	1,077	1,164	1,259	1,355	1,458	1,569	1,689
Interest	91	96	104	109	116	121	123	125	127
1. Cent. gov. (CG) balance	-177	-128	-116	-101	-84	-36	-31	-26	-19
2. FIDF interest	53	59	56	63	63	64	65	67	69
3. CG + FIDF balance (1-2)	-231	-188	-171	-164	-147	-100	-97	-93	-88
4. FIDF pincipal costs	23	4	-15	249	30	-16	-16	0	0
5. Augmented balance (3+4)	-254	-192	-156	-412	-177	-84	-81	-93	-88
Government debt	2,357	2,545	2,697	3,105	3,280	3,364	3,445	3,537	3,625
Central government	1,471	1,595	1,707	1,803	1,885	1,921	1,953	1,978	1,997
FIDF	886	950	991	1,302	1,395	1,443	1,492	1,559	1,628
					(In percent of GDP)				
Total revenue and grants	15.1	16.6	17.0	17.3	17.6	18.2	18.3	18.3	18.3
Tax revenue	13.8	15.3	15.7	16.0	16.3	16.8	16.8	16.8	16.8
Personal income tax	1.9	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1
Corporate income tax	2.8	2.8	2.9	3.0	3.0	3.2	3.2	3.2	3.2
VAT	2.9	4.2	4.3	4.4	4.5	4.6	4.6	4.6	4.6
Excise	3.6	3.7	3.8	3.9	4.0	4.1	4.1	4.1	4.1
Specific business tax	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
Custom duties	1.8	1.8	1.8	1.9	1.9	2.0	2.0	2.0	2.0
Other tax	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Nontax revenue	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4
Grants	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Expenditure and net lending	18.4	18.8	18.8	18.8	18.8	18.7	18.6	18.5	18.5
Non-interest	16.7	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2
Interest	1.7	1.6	1.7	1.6	1.6	1.5	1.5	1.4	1.3
1. Cent. gov. (CG) balance	-3.3	-2.2	-1.8	-1.5	-1.1	-0.5	-0.4	-0.3	-0.2
2. FIDF interest	1.0	1.0	0.9	0.9	0.9	0.8	0.8	0.7	0.7
3. CG + FIDF balance (1-2)	-4.3	-3.2	-2.7	-2.4	-2.0	-1.3	-1.1	-1.0	-0.9
4. FIDF pincipal costs	0.4	0.1	-0.2	3.7	0.4	-0.2	-0.2	0.0	0.0
5. Augmented balance (3+4)	-4.7	-3.3	-2.5	-6.1	-2.4	-1.1	-1.0	-1.0	-0.9
Government debt	43.7	43.9	43.0	45.8	44.8	42.7	40.6	38.7	36.9
Central government	27.3	27.5	27.2	26.6	25.7	24.4	23.0	21.7	20.3
FIDF	16.4	16.4	15.8	19.2	19.0	18.3	17.6	17.1	16.6
Memorandum items:									
Primary balance	-1.6	-0.6	-0.2	0.1	0.4	1.1	1.1	1.1	1.1
Nominal GDP (fiscal year)	5,397	5,802	6,267	6,777	7,328	7,887	8,488	9,136	9,832

Source: Staff projections.

Table VI.3. Thailand: Estimated Fiscal Costs of Financial Sector Restructuring, 1996/97-2004/05

	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
I. FINANCIAL SECTOR ASSISTANCE, PRINCIPAL PAYMENTS (1+2+3+4)	**568**	**296**	**5**	**-71**	**17**	**23**	**231**	**-15**	**249**
In percent of GDP	**12.1**	**6.3**	**0.1**	**-1.5**	**0.3**	**0.4**	**4.0**	**-0.2**	**3.7**
In billions of US dollars	11.8	8.1	0.1	-1.6	0.4	0.5	5.5	-0.4	6.0
1. Finance Companies	421	61	-125	-77	19	0	228	0	-16
a. Fifty-six suspended finance companies	394	12	0	0	58	0	229	0	0
Liquidity support	394	2	0	0	0	0	0	0	0
Note exchange program, principal repayments	0	11	0	0	58	0	229	0	0
b. Twelve intervened finance companies	16	82	-70	0	0	0	0	0	0
Liquidity support	16	54	-70	0	0	0	0	0	0
Long-term investments (including debt-equity conversions)	0	28	0	0	0	0	0	0	0
c. Remaining finance companies, liquidity support	11	-5	0	0	0	0	0	0	0
d. Asset recoveries, FRA/AMC	0	-29	-63	-77	-39	0	-1	0	-16
e. Recapitalization of Krungthai Thanakit (prior to merger)	0	0	9	0	0	0	0	0	0
2. Commercial Banks	152	252	106	-8	18	43	23	3	282
a. Seven intervened banks	137	246	-118	-8	33	60	40	20	146
i. Liquidity support	137	56	-206	0	0	0	0	0	0
ii. Long-term investments (including debt-equity conversions)	0	190	43	0	0	0	0	0	0
iii. Resolution cost of intervened banks, of which: 1/ 2/	0	0	45	-8	33	60	40	20	146
Initial recapitalization	0	0	45	-15	-29	0	0	0	0
Loan losses	0	0	0	7	62	60	40	20	146
b. State-owned banks (Krung Thai and Radanasin)	0	20	224	0	-15	-17	-17	-17	136
Liquidity support	0	0	39	0	-39	0	0	0	0
Recapitalization	0	21	185	0	25	-17	-17	-17	136
c. Remaining commercial banks, liquidity support	14	-14	0	0	0	0	0	0	0
3. Recapitalization Schemes	0	0	46	35	0	0	0	0	0
a. Tier-1	0	0	46	35	0	0	0	0	0
b. Tier-2 (net injection)	0	0	0	0	0	0	0	0	0
Gross placement of government bonds	0	0	6	0	0	0	0	0	0
Bond-for-debenture swap	0	0	-6	0	0	0	0	0	0
4. Other Items	-4	-17	-21	-21	-20	-19	-19	-18	-18
a. Deposit guarantee fee	-4	-18	-21	-21	-20	-19	-19	-18	-18
b. Capitalization of FRA/AMC, etc.	0	2	0	0	0	0	0	0	0
II. INTEREST COST (i+ii+iii+iv)	**27**	**117**	**76**	**81**	**102**	**100**	**102**	**99**	**109**
In percent of GDP	**0.6**	**2.5**	**1.7**	**1.7**	**2.0**	**1.9**	**1.8**	**1.6**	**1.6**
In billions of US dollars	0.6	3.2	2.0	1.9	2.4	2.3	2.4	2.4	2.6
i. Imputed debt servicing cost	44	151	69	67	66	69	85	90	101
ii. Interest payments under the note exchange program (closed finance companies)	1	24	16	13	11	12	4	0	0
iii. Yield payments on nonperforming loans of intervened banks	0	0	3	5	25	20	13	9	9
iv. Interest income of FIDF	-18	-58	-12	-3	0	0	0	0	0
Memorandum items:									
Stock of debt for financial sector assistance (end of period, in billions of baht) 3/	**651**	**1,349**	**1,429**	**1,439**	**1,500**	**1,624**	**1,731**	**1,815**	**2,172**
In percent of GDP	**13.8**	**28.9**	**31.1**	**29.8**	**29.7**	**30.1**	**29.8**	**29.0**	**32.1**
In billions of US dollars	14	37	38	33	34	38	41	43	52
Average cost of funding (annualized, in percent)	12.5	17.2	5.1	5.5	6.1	6.0	6.0	6.0	5.9
Real average cost of funding	9.4	6.9	7.3	5.4	3.7	3.0	3.3	3.5	3.4

Sources: Bank of Thailand; FIDF; FRA; and staff estimates.

1/ Increased by the liquidation cost of Bangkok Bank of Commerce and decreased by the receipts for initial privatization of Nakorthon and Radanasin Banks.
2/ Includes loan losses and gain loss sharing, but excludes yield maintenance payments. No receipts from future divestiture of government banks is assumed here.
3/ Includes off-balance sheet liabilities such as the promissory notes issued under the note exchange program for the closed finance companies. These obligations have no immediate cash impact.