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FOREWORD

The ERD Working Paper Series is a forum for ongoing and recently completed research and policy studies undertaken in the Asian Development Bank or on its behalf. The Series is a quick-disseminating, informal publication meant to stimulate discussion and elicit feedback. Papers published under this Series could subsequently be revised for publication as articles in professional journals or chapters in books.

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ABSTRACT

This paper examines the performance of Asian asset management companies (AMCs). The analysis reveals that the AMCs vary in their design and performance. The paper claims that AMCs can trigger moral hazard-induced bank lending. Empirical examination of the Thai experience of AMCs reveals that moral-hazard induced bank lending resulted in creating more new nonperforming loans (NPL) in the case of public AMCs. On the other hand, the centralized Thai Asset Management Company decreases the new NPL ratio, suggesting that this centralized AMC provokes no adverse moral hazard effect on financial institutions.

I. INTRODUCTION

Many countries that have experienced financial crisis or have fragile banking systems due to high nonperforming loans (NPLs) in the financial system have turned to asset management companies (AMCs) as a central strategy for solving this problem. In Asia, in particular, the four crisis-affected countries of Indonesia, Republic of Korea, Malaysia, and Thailand established centralized AMCs soon after the onset of the financial crisis in 1998 to help clean out their bad loans problem. The same holds true for the transition economies in Central Asia like Kazakhstan, Kyrgyz Republic, and Mongolia, which experienced bank runs and financial instabilities in the early 1990s. The more recent addition to the list of Asian countries that have adopted centralized AMCs is People's Republic of China, which established not just one but four AMCs to handle the bad loans of the four state-owned banks. Even developed economies like Sweden and the United States, and Latin American countries like Mexico, have used centralized AMCs to solve their big and small financial crises.

Other countries adopt a decentralized approach to the bad loans problem of their financial system. Argentina, Norway, and Poland have adopted private individual workout units, instead of centralized AMCs, but the motivations—that of unburdening banks and facilitating credit intermediation—are the same as those of centralized AMCs. In Asia as well, economies like India; Philippines; and Taipei,China have not instituted centralized or government AMCs but have enacted laws, or provided for fiscal incentives, for the establishment of private entities that can help unload bad loans from banking institutions.

How effective are AMCs in solving the bad loans problems in the financial system? If the reason why governments resort to AMCs is that they are able to remove bad loans from banks and allow these banks to make a fresh start in their intermediation activities, the presence of AMCs still begs the question of possible moral hazard on banks that benefit from being freed from nonperforming loans. Do AMCs lead to improved behavior and performance of the banking system? This paper attempts to answer these questions by looking at the experience of debt resolution of Asian AMCs, particularly in Thailand, a country that experienced severe shock in its financial system during the Asian crisis and where detailed NPL data is available.

The paper is organized as follows. The next section discusses general characteristics of AMCs and their role in the financial system. Section III reviews the experience of four centralized AMCs that were established by the crisis-affected countries in 1998 and analyzes some macroeconomic links. The specific experience of Thai banks with the rise of new NPLs and re-entry NPLs and possible influence of moral hazard behavior are examined in Section IV. Section V concludes.

II. ASSET MANAGEMENT COMPANIES AND THE FINANCIAL SYSTEM

If banks are saddled with huge unpaid loans, its credit intermediation role is hampered because a huge portion of loanable funds have to be reserved as provisions for possible losses, instead of being productively used for new loans and investments. Asset management companies can abate the debt overhang in the banking system by removing much of the bad debts out of the books of financial institutions and freeing up tied capital. Banks are, thereby, allowed to reinvigorate their lending activities, while the AMCs dispose or restructure the purchased bad loans for future sale. Asset management companies, specially centralized ones allow banks to "turn a new leaf" more rapidly and focus on its core business of financial intermediation, instead of being bogged down with management of bad loans, for which few banks may have expertise in.

Besides halting debt overhang, the establishment of centralized AMCs can also help preserve the economic values of bank loans by effectively setting a minimum price for bad assets. At times, the effort by banks to get rid of bad debts can result to fire sale prices of otherwise valuable assets. This is particularly true during times of crisis when markets are thin and values shift with changing circumstances, which, consequently, lead to unreliable and, often, too low asset valuation (see Iannariello, Morsy, and Terada-Hagiwara 2003 for evidence). The purchase by a well-funded AMC can help arrest the free fall of loan prices in a buyers' market, and in the process, arrest further bank losses. For example, in Thailand, Asset Management Corporation (AMCorp) acted as bidder of last resort for the Financial Restructuring Agency (FRA)'s foreclosed assets from finance companies, thereby providing FRA with a virtual floor price for those assets.

On the selling side, centralized AMCs also help other sectors in the economy, particularly the real estate sector, in ensuring price stability. For instance, the US Resolution Trust Corporation timed the future sale of its acquired real estate assets so as not to cause further deterioration in real estate prices.

A. Models

There are different models of asset management companies. Some AMCs are centralized or government-funded; others are decentralized or privately funded. Among the private AMCs, some are independent entities, others are subsidiaries of banks, while others can be workout units or departments within the bank. Each AMC's institutional set-up has its own advantages and disadvantages. As Table 1 shows, a centralized AMC is usually effective when the bad loans problem is systemic and the legal infrastructure for debt resolution is weak. At a time when no one would be able to buy loan assets, the centralized AMCs provide the demand for them; and when the legal infrastructure is weak, the centralized AMC can short-cut the legal process in disposing bad loans and thus expedite the cleaning up of the financial mess. Moreover, through the government purchase of bad loans via the AMC, government is able to attach conditions that aid the operational and financial restructuring of banks. For instance, in exchange for government purchase of NPLs, the authorities in crisis-affected countries in Asia were able to ask banks to increase private capital or spin off noncore businesses.

TABLE 1
DIFFERENT MODELS OF ASSET MANAGEMENT COMPANIES

ITEM	BANK-BASED		GOVERNMENT-BASED
	WORKOUT UNIT	"BAD BANK" (INDEPENDENT OUTFIT OR SUBSIDIARY)	CENTRALIZED AMC
Consideration			
Extent of industry problems	Limited	Concentrated	Systemic
Need for government funding	None	Limited	Significant
Need for legal reform	Low	Medium	High
Potential Benefits and Issues			
Synergies with originating bank	High	Moderate to High	Low
Debtor conflicts with originating bank	High	Moderate to High	Low
Country Examples	Poland: State banks' workout units	India: ARCIL Taipei,China: TAMCO	Crisis countries: Securum (Swedish), USRTC, AMCs

Source: Adapted from Cooke and Foley (1999), IMF country reports (various issues).

On the other hand, the establishment of a centralized AMC requires an enormous amount of money from the government, which explains why some countries are reluctant to establish one. Thailand did not establish a centralized AMC until 2001, while India and the Philippines have, instead, provided legal cover and fiscal incentives for the establishment of private asset management companies. Often, centralized AMCs are prey to political interference and lack administrative flexibility in the management of its assets because of interagency coordination, as the experience of Asian AMCs show (discussed below). If not efficiently run, centralized AMCs tend to incur high carrying cost from high operational costs as well as from the erosion in the value of undisposed and unrestructured assets over time. Lack of trained personnel is another roadblock in establishing centralized AMCs.

In contrast, because of lesser layers in the decision making process, private AMCs possess greater managerial flexibility than centralized AMCs. In the case of workout departments within banks or bank subsidiaries, debt restructuring can be easier done because they possess all data relevant to the debt as well as debtors because of previous dealings. If the private AMCs, whether independent or subsidiaries, possess specialized skill-mix and expertise in management of distressed assets, they can more deftly add value to their purchased bad assets and, consequently, sell them at higher prices. For example, Sweden relied on real estate expertise of some asset management groups to better preserve the foreclosed asset values. Hence, in general, private AMCs offer greater advantage over government AMCs, specially if the loans are not too complicated in nature—for instance, when they involve no multiple and complicated creditor claims, when the bad loans problem is not systemic, and when the legal framework is fairly sound.

However, if the legal environment is particularly biased in favor of debtors, private AMCs could get stuck in protracted restructuring negotiations, which increase its carrying cost, especially if the delays lead to further deterioration of the foreclosed assets. In contrast, centralized AMCs can leapfrog the deficiencies of the legal structure through special powers that could allow it to bypass the labyrinthine court procedures. Arguably, especially in developing countries, the public sector can manage the process of wresting control from existing management more effectively than can the private sector, which, perhaps, explains the Asian crisis countries' reliance on centralized asset management companies.

The other disadvantage of private AMCs, particularly if bank subsidiaries, is that they could be used by the parent banks to windowdress bad loan problems by transferring assets to the subsidiary at artificially inflated prices. As a consequence, because high transfer price would reflect little or no bank losses in the books, the purchase by the AMC subsidiary becomes tantamount to a bailout of bank shareholders by shareholders of the AMC. Or, if the shareholders of the bank and the AMC are exactly the same, the process of asset transfer becomes a cosmetic bank restructuring, done only to presumably satisfy certain regulatory provisions on bad loans ratio, but without solving the banking sector's problem. If not properly monitored through consolidated accounting reports, bank managers may be essentially allowed to continue with risky loan activities with impunity. While the same moral hazard problem can happen if a centralized AMC buys banks' bad assets at deliberately inflated prices, the pressure on fiscal budgets can, at least, force the government to lean more toward a transparent market criteria and force greater "haircuts" on banks.

The other form of private AMC—a separate workout unit within the bank—does not provide as much incentive for window dressing as the AMC subsidiary arrangement, since bad loans are retained in the books of the banks. But in so doing, it could not expedite the removal of debt overhang on the economy. Its main advantage, however, lies in the informational efficiency derived from the continuity of a creditor-debtor relationship. Its chance for success depends mainly on the incentives of bank managers to pursue debt restructuring to improve the banks' market value,[1] as well as in the efficiency of the legal framework.

B. Elements for Success

A review of AMCs all over the world reveals a mixed record of AMC performance. Klingebiel (2000) finds that centralized AMCs that acted as rapid disposition vehicles appear to have had generally greater success than AMCs that were set up to assist in corporate restructuring. Among those that succeeded, several conditions proved vital like the liquifiability of acquired assets, professional management, political independence, skilled resource base, and sufficient funding. Moreover, in countries where bankruptcy and foreclosure laws were adequate, AMC operations transparent, and information and management systems fairly established, the centralized AMCs performed relatively better than those in countries with weaker legal and regulatory regimes.

As for private AMCs, Klingebiel and Dado (2002), similarly underscored the elements that contribute to good performance, namely: adequate capitalization and high loss absorption capacity by banks; right incentive framework that facilitates bank and corporate restructuring; and limited

[1] In Poland's case, the bank managers and employees were given first priority in the purchase of bank shares when the bank was eventually privatized. Thus, they had strong incentives to collect bad loans to improve the banks' market value. The government also passed special, time-bound, legislations to aid debt restructuring efforts and to prevent dithering in the efforts to restructure, foreclose, or collect bad loans.

or severance of cross-ownership links between banks and corporations. High loss absorption capacity of banks facilitates the writing off of many bad assets that are, in fact, no longer realistically collectible, without endangering the stability of the financial institution. A right incentive framework such as loss carry-over or tax reductions for bad loan transfers, likewise, encourages banks to recognize and address their losses. Finally, severance of banks and corporation cross-ownership was found important, particularly in the case of Korea, for meaningful corporate rehabilitation to take place. Without it, banks tend to preserve the corporation as a going concern almost at any cost.

III. EXPERIENCE OF ASIAN AMCs

During the Asian crisis, when it became clear that the underlying root was weakness in the financial systems and not the typical high fiscal deficits that characterized the 1980s crises in Latin America and the Philippines, the governments of Indonesia, Korea, and Malaysia immediately established centralized AMCs to help in the disposal, collection, and restructuring of nonperforming loans. Indonesia established the Indonesia Bank Restructuring Agency; Malaysia, Danaharta; and Korea, the Korea Asset Management Company (KAMCO). Thailand, because of concern over its fiscal situation, at first did not institute a centralized AMC, but rather left much of restructuring on banks themselves. It did, however, establish a rapid disposal agency, the Finance Restructuring Agency to address the problems of finance companies. Three years after Indonesia, Malaysia, and Korea established their centralized AMCs, Thailand likewise established the Thai Asset Management Company (TAMC) in 2001.

A. Features of Asian AMCs

A common feature of the four Asian AMCs is that all are centrally organized and funded by the government. Also the systemic character of the banking problem and the magnitude of the NPLs dictated that these countries chose a centralized model over a bank-based model. In Thailand, for instance, NPL as a percentage of total loans was at an all-time high of 43 percent in 1998 and 39 percent in 1999. In Korea, several commercial banks closed, not to mention hundreds of merchant banks and nonbank financial institutions that went bankrupt. The Indonesian government ended up owning a huge swath of its financial system in a span of 3 to 4 years through nationalization. It was clear that for the financial system to continue operating, the Indonesian government's strong intervention was called for. In the case of the four crisis-affected countries, government intervention took the form, among others, of wholesale government purchase and restructuring of banks' (or finance companies') bad loans and assets. To a certain extent, the government purchases were a necessary conduit to the blanket guarantees, recapitalization, and closure schemes, which the government undertook, particularly in Indonesia and Thailand. The bad loans were what banks had to give up in exchange for fresh money from the central bank or from government agencies.

The centralized AMC model was, likewise, relied upon because many banks did not have sufficient resources to restructure a large amount of nonperforming assets through individual workout departments within the banks or through subsidiaries. Furthermore, the poor legal infrastructure in these countries, relative to international standards, also added to the necessity of centralized AMCs that would be endowed with special powers to surmount legal challenges that could derail restructuring plans and prolong asset deterioration. Whether the AMCs wielded those special powers or not is a different story (see Table 2).

TABLE 2
COMPARATIVE FEATURES OF THE ASIAN AMCS

	INDONESIA BANK RESTRUCTURING AGENCY	KOREA ASSET MANAGEMENT COMPANY	DANAHARTA (MALAYSIA)	THAI ASSET MANAGEMENT COMPANY
Sunset	2004	—	2005	2011
Special Powers	Yes	—	Yes	Yes
Acquisition	No preselection	No preselection but KAMCO had discretion on what assets to acquire	Loans worth more than RM 5 million	Loans worth more than Bt 5 million
Pricing	Zero value but government shouldered bank losses	Market value; with put and buy options	Market values; with profit sharing: 80:20 in favor of financial institutions	Market value with profit-loss sharing
Disposition Strategy	Corporate loans (through auctions, direct sale, asset-bond swap);	Extensive use of foreign partners through JVs: JV-AMC; JV–Corporate	Use of special administrators for different types of assets	Auctions, direct sale, debt rescheduling, settlement
	Commercial loans (outsourced management and collection); Small loans (settlement); Divestment of banks shares	Restructuring Companies; JV-Corporate Restructuring Vehicles	Use of foreign expertise	Outsourcing of management of assets to Thai entities

Source: Annual reports of AMCs.

The Asian AMCs also had sunset clauses that limited the number of years they were to operate. Except for KAMCO, which had its mandate extended by the government, IBRA, Danaharta, and TAMC are expected to wind down their activities in 2004, 2005, and 2011, respectively.[2] It can be said that a sunset clause is important in order that the personnel assigned in AMCs do not end up defending their employment, that the asset disposition be accelerated, and consequently, that government cost be limited.

[2] IBRA had turned over the remaining assets to holding companies supervised by the Ministry of State-Owned Enterprises, and some other functions to a special unit within the Ministry of Finance in February 2004.

The AMCs also had special powers to short-cut legal procedures, except for KAMCO, but have been either reluctantly used (e.g., IBRA) or effectively wielded as a credible threat for defaulting creditors to cooperate (e.g., Danaharta). For instance, in the case of Danaharta, it was authorized to dispose of transferred assets without seeking the permission of the original owners of the assets. TAMC used its special powers to force debtors to enter into negotiation for loan repayment. KAMCO had no explicit special powers, but this is, in part, due to the fact that Korean legal infrastructure is more developed than those of other Asian countries. In fact, even without special powers, KAMCO effectively forced companies into receivership and, consequently, signaled its resolve in bank and corporate restructuring.

In terms of asset selection, the Asian AMCs had varied strategies. IBRA had little choice but to take over a huge swath of banking assets without preselection. This was a result of its multiple mandates, which included the administration of the government's blanket guarantee program, recovery of the liquidity support granted to banks early during the Asian crisis, bank restructuring, asset disposal, and management of shareholder settlement by former bank owners.[3] The acquired assets were, moreover, obtained at practically zero value but with the government shouldering the bank losses. KAMCO had no prespecified criteria on assets to be acquired but it offered to buy assets at huge discounts.[4] Danaharta and TAMC, by contrast, limited their purchase to NPLs with minimum book value of RM 5 million and Bt 5 million, respectively.[5] Furthermore, for these two AMCs, prices were based on market values but with profit-loss arrangement with the originating financial institutions.[6]

Finally, the four AMCs varied in their disposal strategies. KAMCO, unhesitatingly, tapped the help of foreign partners in asset management and disposition through joint ventures. Danaharta used special partners or administrators with the necessary expertise to manage specific types of assets, following the strategy of Securum, Sweden's AMC in the early 1990s. IBRA and TAMC were, in contrast, wary of foreign participation. TAMC gave priority to Thai entities in outsourcing the management of certain assets, while IBRA relied mostly on local banks to help it collect and manage commercial loans.

B. Macroeconomic Impact

Given varying structures, management, acquisition and disposition strategies, how effective had the Asian AMCs been? From a macro standpoint, have they helped achieve greater stability

[3] The shareholder settlement was a result of bank violation of government prudential regulations.

[4] KAMCO's average discount on assets acquired, as of November 2003, is approximately 64 percent. Specifically, it offered ordinary NPLs a price equivalent to 40 percent of appraised value of collateral; 3 percent of face value, if loans were unsecured; while special NPLs were priced using the net present value of projected cash flows.

[5] TAMC limited the value of NPLs from private banks but those from public banks could range from small- to large- valued loans as long as more than two creditors are involved. Danaharta, too, had to take on, regardless of the value, assets of banks, which had been recapitalized by Danamodal.

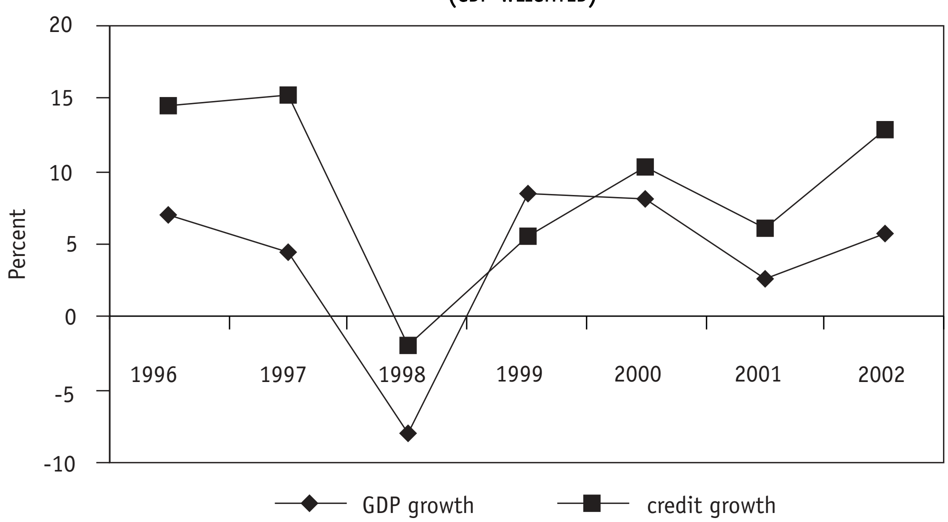
[6] For Danaharta, the excess recovery values over and above Danaharta's cost of acquisition plus directly attributable costs are shared at 80:20 basis, with 80 percent going to the selling financial institutions. In the event of a gain, TAMC and the bank share the first 20 percent of the gains relative to the transfer price, with the remainder accruing to the bank, but without exceeding the transfer value. Both also share in the loss, but banks' loss is capped at 30 percent of the transfer price.

in the banking systems, or solve debt overhang in the financial system, or arrested a potential free fall in asset prices?

In theory, by removing NPLs from banks and transferring them to AMCs, banks regain the capacity to intermediate funds in the economy. The improvement in financial intermediation should be apparent in the uptrend in domestic credit growth to the private sector. Similarly, by improving the quality of their asset portfolio through NPL transfer, banks should, likewise, improve their profitability. Because banks provide the oil for corporate financing, AMCs indirectly also aid the recovery of corporate profitability. We thus chose these three indicators—credit growth, corporate profitability, and bank profitability—to assess the macroeconomic impact of AMCs in Asia.

Figure 1 shows that, as far as financial intermediation is concerned, bank credit growth regained its momentum in 1999, even as the three Asian AMCs were established in the same year. The GDP-weighted credit growth in the four crisis-countries dipped by –2 percent in 1998, but afterwards posted positive growth in subsequent years. In the case of Thailand, credit growth continued to

FIGURE 1
GDP AND CREDIT GROWTH IN FOUR CRISIS- AFFECTED COUNTRIES
(GDP-WEIGHTED)



Source of basic data: Central Banks of crisis-affected countries.

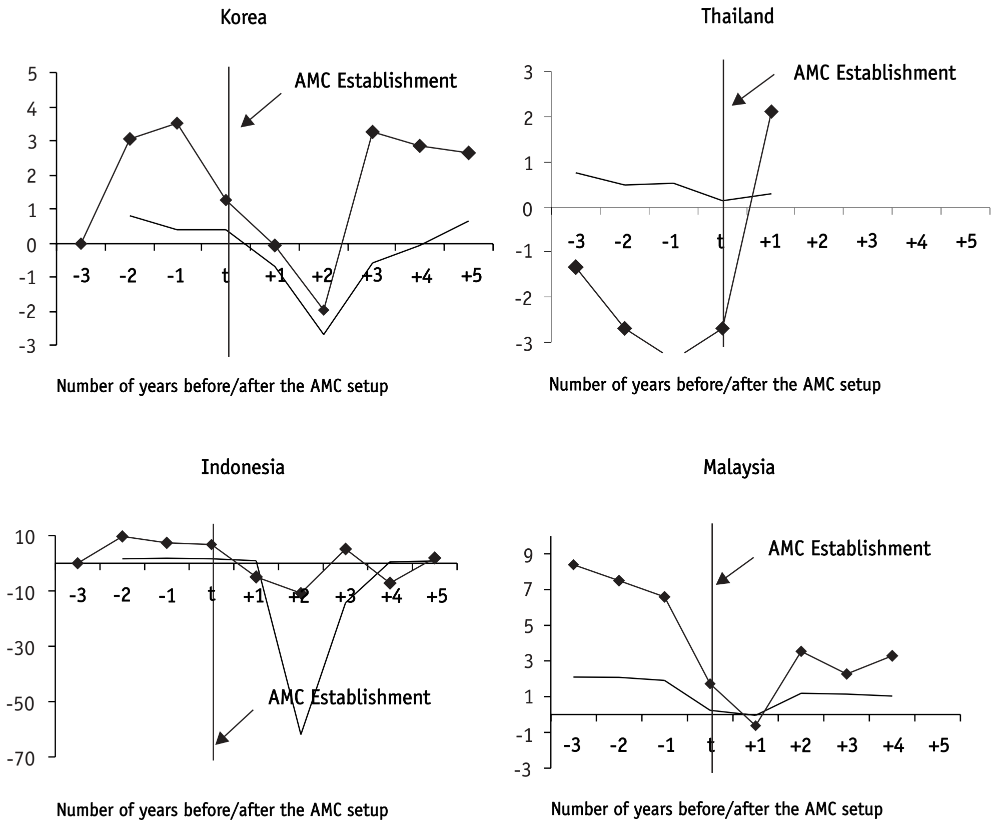
grow at negative rates from 1998-2001, before growing at 6 percent in 2002; TAMC was established in 2001.[7]

Figure 2 shows bank (solid line) and corporate profitability (solid line with square). The vertical axis indicates the year AMCs were set up (and varies by country).[8] Profitabilities were computed as Pretax Profit/Total Assets (expressed as a percentage) for listed firms in the local stock markets.

[7] Whether the uptrend in bank loans after the establishment of AMCs in these countries was coincidence or not, the figure appears to support the claim that AMCs help avert debt overhang in the financial system because the uptrend started one year after the AMCs were established.

[8] Indonesia, Korea, and Malaysia established centralized AMCs in 1999, and Thailand in 2001.

FIGURE 2
CORPORATE AND BANKING SECTORS PROFITABILITY



Legend: smooth line—bank profitability; line with boxes—corporate profitability.
Source: DataStream, Thomson Financial

The figure suggests that profitability of the banking and corporate sectors continue to decline for the first two years after the establishment of the AMCs in Indonesia and Korea. This perhaps reflects the fact that not all NPLs are immediately transferred and that the ones that are removed from banks first are the better quality and easily marketable bad loans. Banks, therefore, remain saddled with a large quantity of NPLs, those that are harder to resolve, during the initial stages of assumption by the asset management companies. The figure shows that profitability stops declining after about two years and then recovery starts.

The figure also shows that Malaysia and Thailand experienced relatively faster recovery than Indonesia and Korea. For Thailand, the reason could be that TAMC was established in 2001 when the country was already on track toward recovery. In the case of Malaysia, its banking crisis was not as severe as that of the other three countries in the first place, thus possibly explaining its relatively rapid recovery. Moreover, Danaharta's experience is considered to be quite a successful one, because of appropriate institution design and special powers that were properly wielded.

Of course, it is hard to isolate the trend in profitability and credit growth from the overall economic cycle. It is probable that the U-shaped credit growth and profitability curves would have taken place just the same, with or without the AMCs being established. After all, once the panic has subsided, it is normal to expect banks to start lending again. Further, banks could, indeed, regain profitability given a better economic environment. Indeed, the shape of the weighted average of GDP of the four countries shows a trough in 1998, with a subsequent upward cycle, which can imply that when the economy improved, the profitability of banks and corporations subsequently followed. The paucity of data points, however, precludes a more thorough analysis of the role of AMCs in the macro economy.[9]

The AMCs' role in asset prices is harder to assess for lack of data on how low NPLs' prices would have fallen had the AMCs not been established. In Thailand's case, for instance, the FRA could declare a failed bidding if the offer price for the assets were not acceptable, reauction those assets at a later date, or sell to the government-owned asset management company. Hence, prices lower than the price at which the AMCorp bought the bad assets are unobserved. But the fact that the AMCorp[10] took over some of the FRA assets after a failed bidding leads to conjecture that the FRA might have disposed of the bad assets at much lower prices than it did had the AMC not existed.

C. AMC Performance

While AMCs help unburden banks of their NPLs, are they efficient in the management of transferred assets? Using a cross-section of country-experiences of AMCs, Klingebiel (2000) concluded that AMCs are generally better as quick disposal agencies than as restructuring ones. Furthermore, a number of conditions are necessary for the effectiveness of AMCs, such as political independence, sufficient funds, developed legal framework, and human resource base. From the experience of the four Asian AMCs, these same factors have also proved important.

In the first place, the Asian AMCs have a mixed record of success. The chosen indicators for assessing AMC performance are cash recovery and disposal rate (see Table 3). The disposal rate is the ratio of assets disposed over the book value of acquired assets. The higher this ratio, the more efficient the AMC is thought to be, because nondisposed assets imply higher carrying cost and thus higher operating cost for the AMC and the government. Cash recovery is the ratio of recovered cash either over book value of acquired assets, or over the value of disposed assets. Again, the higher the recovery ratio, the better the quality of the AMC's disposition strategy.

In the case of the Asian AMCs, while the disposal rates are relatively similar across the four, there are significant differences in the quality of restructuring and disposition that is partly reflected in the different cash recovery ratios. Disposal rates range between 60 to 100 percent, as of the latest data available, but this relatively respectable disposal rate is largely due to the fact that the AMCs are nearing the end of their mandated life, and hence have little choice really but to do something with the assets that can be disposed. Whether, in the process, the asset values have been maximized or not remains to be seen, and in large part, depends on actual cash recovered from the disposed assets.

[9] Suffice it to say that, at least, the indicators do not contradict the possibly important role of AMCs even though a more definitive assessment is not possible.

[10] The AMC is a distinct institution from TAMC. It is likewise a centrally-funded AMC but with very limited mandate of being the bidder of last resort for the FRA and of restructuring the bad assets only of the state bank, Krung Thai Bank.

TABLE 3
PERFORMANCE COMPARISON OF ASIAN AMCS[a]

	ASSETS TRANSFERRED[a]	DISPOSAL RATE[a] (PERCENT OF ASSETS TRANSFERRED)	CASH RECOVERY[a] RATE (OVER FACE VALUE OF TRANSFERRED ASSETS)	CASH RECOVERY RATE[a] (OVER AMOUNT OF DISPOSED ASSETS)
IBRA	Rp 305.77 trillion	70.4	31.4	44.6
Danaharta	RM 52.44 billion	100	34.1	58.7
KAMCO	USD 91.75 billion	61.57	29.2	47.4
TAMC	Bt 784.378 billion	73.46	1.81	2.46

[a]As of the following dates: Korea, November 2003; Malaysia and Indonesia, September 2003; Thailand, June 2003.
Source: Country AMC's annual and monthly reports.

1. Disposition Strategy and Openness to Foreign Inputs

On the basis of cash recovery ratio, Korea's KAMCO and Malaysia's Danaharta are considered relatively successful, while Indonesia's IBRA less so. Of the four, TAMC has the least cash recovery ratio, in part due to the fact that it is the youngest, and in part due to its dependence on debt rescheduling strategy instead of sales of loans and assets as KAMCO and Danaharta have done. The other factor that accounts for the perceived successful restructuring by KAMCO and Danaharta is the innovative solutions they exploited to dispose the bad loans from their banking systems. KAMCO had a system of joint ventures with foreign and domestic counterparts to manage, restructure, or sell the assets. Danaharta, on the other hand, made use of special administrators to manage specific types of assets, using foreign expertise if need be. Indonesia and Thailand, in contrast, were wary about foreign help; Thailand allowed outsourcing of asset management but priority was given to Thai entities rather than foreign ones, which, presumably, would have better expertise at asset resolution.

2. Political Independence and Market Pricing

Another important factor for the varied AMC performance is the political independence allowed the institution. Under political independence, we include the AMC's ability to exercise ownership rights; restructure assets without political interference; and apply commercial, rather than political, criteria. In particular, with regard to the application of commercial criteria, appropriate pricing of acquired assets is important because it provides a clear signal that the government was not bailing the banks out.[11] In Klingebiel (2000), greater independence was found to be positively related to better performance.

Of the four Asian AMCs, KAMCO and Danaharta have largely acted with relative independence compared to IBRA or TAMC, even though all of them are overseen by relevant government agencies.

[11] Appropriate pricing also provides the proper benchmark with which to assess the performance of the asset management companies. For instance, recovery values may be deemed too low if compared to book values of assets, but not when compared to market values at the time of acquisition of purchased assets. During times of crisis, however, pricing assets properly is one of the major obstacles that have to be overcome. Some considerations in price determination could include the probability of recovery, appropriability of collateral, or cash flow projections from the loans.

KAMCO and Danaharta purchased bad bank assets at fair market prices and not at highly subsidized transfer price as IBRA (or the government) had done by assuming all the bank losses. Many IBRA assets were acquired because the government infused capital in banks, and the assets transferred in exchange were, by and large, based on book values. Thailand had a similar experience under the original AMC arrangements (prior to TAMC) used for recapitalizing the state banks.[12] Moreover, the AMCorp's purchase of unsold Thai FRA assets, as "bidder of last resort", likewise implied purchase of above market prices because, at that time, the current market prices for those assets happened to be very low. However, the new TAMC acquires assets based on collateral values and, hence, largely close to the loan market price.

3. Quality of Assets

Asset selection of acquired assets also explains the difference in the AMC performance. Danaharta limited its acquisition to big loans with a minimum of RM5 million as well as assets from banks with more than 10 percent ratio of NPL to total loans. Furthermore, the assets acquired were only loans that have potential value and mostly secured by property or shares. In total, its acquired assets are estimated to be only about 12.3 percent of gross domestic product (GDP). KAMCO's assets likewise amount to a small percentage of about 11 percent of GDP, while IBRA's assets constitute about 57 percent of GDP, which, by its sheer magnitude, indeed invited political interference. In addition, IBRA took the assets of frozen banks, many of which had dubious recoverability. In Thailand, FRA's advantage was that the assets it acquired from finance companies were easily liquefiable because they consisted primarily of real estate and land collaterals. Besides, unlike the other AMCs, value maximization was not a major concern in the FRA, hence the liquidation process was relatively fast. In Korea, majority of the loans purchased by KAMCO were secured loans (about 52.8 percent), while only 47 percent were unsecured, indicating a relatively higher quality of assets than those acquired by IBRA in Indonesia.

4. Focused Objectives

Inadequacies of an AMC can, at times, be traced to the objective for which it was established. In the case of Indonesia, as discussed above, not only did it have to restructure bad loans, it also had to manage the government blanket guarantees on deposits as well as the settlements of banks that violated the central bank's prudential norms. Multiple demands on the AMC spread its personnel too thin and lessened the institution's focus on disposal and recovery of bad assets. In the case of TAMC, it has an implicit aim of supporting "national recovery", which implies restructuring debts to the extent possible, preserving businesses as a going concern, and limited liquidation alternatives.[13] Danaharta and KAMCO, on the contrary, had a much more focused approach to bad

[12] For example, to recapitalize two state banks, Bangkok Metropolitan Bank and Siam City Bank, the Thai government decided to use accounting techniques by transferring their NPLs to a state-owned AMC, the Petchburi Asset Management Company, at inflated prices (Santiprabhob 2002).

[13] In the case of FRA, it suffered from severe limitation on operational restructuring of problem debtors because it was not established as an AMC but only as a rapid disposal agency. It did not acquire assets and manage them for

loan recovery and disposal, evident in the innovations they introduced in its various disposition schemes.

5. Skilled Personnel

The absence of political interference allows a more professional approach in the management of these AMCs. KAMCO's and Danaharta's stronger management did not hesitate to tap external expertise, either for auditing, asset valuation, repackaging for sale, or securitization. KAMCO made use of extensive foreign expertise to issue asset-backed securities, established joint ventures with foreign institutional investors for the disposition of assets, shared profits with its joint venture partners, etc. Because of the involvement of foreign consultants, the disposition process has been largely considered as transparent and efficient. Indeed, the knowledge spillovers of these outside consultants are such that now, KAMCO is able to market its own know-how in NPL management to other countries like PRC, India, and Viet Nam. Danaharta, likewise, tapped the expertise of foreign experts, particularly in the valuation of assets to be acquired. IBRA, in contrast, had a different chief executive almost every year and was, at some point, mired in political controversy. Thailand's FRA's management and employees were demoralized by persistent and severe criticisms and attacks (Chenvidyakarn 2000).

6. Legal Framework

The AMCs' ability to exercise ownership rights largely depends on the *legal framework* in these countries. Korea and Malaysia already had a more modern bankruptcy law and relatively efficient judicial system, unlike Indonesia, Philippines, and Thailand. These countries' legal systems have relatively stronger creditor rights and clearer foreclosure procedures compared to the other three. Still, the legal framework was not adequate for a rapid resolution of the bad loans that arose from the Asian crisis. Thus, Danaharta was vested with special powers that: (i) insulate it and subsequent purchasers from undisclosed claims made after Danaharta acquires the NPL from the selling bank; (ii) allow it to appoint special administrators that can dispose of assets without having to go to courts; and (iii) give it power to abrogate underlying contracts when it forecloses on a collateral (Ingves 2000). Because of these special powers, Danaharta was able to resolve and restructure loans in a significantly shorter time. In Indonesia and Thailand, in contrast, the legal framework has a strong bias toward debtors who are unable or flatly refuse to pay, thereby allowing long delays in restructuring and asset disposal. Not only was it difficult to dispose of bad loans because of uncertainty in the price determination of the collaterals, but the legal environment also made it uncertain whether and when the banks can seize the collaterals. To circumvent this weakness, IBRA was given extrajudicial powers to overcome debtor resistance but it has rarely used it, perhaps likely bowing to political pressure that protect well-connected debtors. In Thailand, the bankruptcy and foreclosure laws took a long time to be revised, and when revision was done, it was half-hearted, and done in fits and starts. As a result of the uncertainty, auction prices of Thai NPLs were highly discounted. In

sale in the future; rather it was only authorized to sell assets for liquidation through auctions with some limited debt workouts. For instance, it was not allowed to do haircuts of principal, or do a debt-equity swap, or grant new loans. What it was allowed to do were superficial financial restructuring like interest rate reduction or extension of maturity, besides debt sell-off and asset transfer through debt repayment.

contrast to FRA, TAMC is better armed with extraordinary executive powers, which it is starting to wield against noncooperative debtors.

7. Financing and Policy Coordination

Another very important factor in the success of the AMCs in Asia is the *adequacy of broader response* to banking problems. Danaharta had sufficient funding plus a relatively better coordinated restructuring strategy across different government institutions. For instance, to entice banks to sell their bad loans to Danaharta, the government set a ceiling on NPLs at 10 percent of total bank loans. It also created other incentives like allowing banks to amortize losses resulting from the sale of assets to Danaharta for a period up to five years and the opportunity of sharing up to 80 percent of profits earned from asset recovery.

In Thailand, on the other hand, the decentralized strategy of government affected the different institutions' effectiveness in dealing with the NPL problem. For one thing, FRA had a very narrow mandate of rapid disposition of assets. The Corporate Restructuring Advisory Committee established by the Bank of Thailand played a role in corporate restructuring without good coordination with FRA, for instance, on haircut policy. Commercial banks were forced to set up their own AMCs without adequate tax and other incentives. However, TAMC is now funded by guaranteed bonds of the Financial Institution Development Fund to purchase NPLs from both state-owned-banks and private banks.

IBRA was similarly faced by government officials' inconsistencies, particularly, when faced with debtors with strong political clout. Using its special legal powers as threat for the debtors to comply with restructuring agreements, IBRA, in more occasions than one, received calls from government higher-ups not to pursue any bankruptcy or liquidation procedures. Formally, the government supported IBRA, but in reality, they sided more with debtors. KAMCO, on the other hand, enjoyed not only a reliable justice system, but also a coherent policy framework, particularly when the supervision of the banking system was consolidated into one government agency, the Financial Supervisory Commission.

IV. THAILAND: EXAMINING AMCs AND MORAL HAZARD BEHAVIOR IN BANKS

While AMCs have been the major player in disposing NPLs in Asia, their possible adverse effects, such as moral hazard, have been rarely examined, partly because of paucity of data and partly because, in Asia particularly, the AMC phenomenon has been quite recent and their activities and contribution in the financial system are still a "work in progress." Existing literature on moral hazard issue and AMCs are also still evolving. For example, Wilson (2000) argues that AMCs can trigger new bank lending based on moral hazard consideration when their NPLs can easily be transferred to the AMCs with little penalties or inflated pricing of impaired assets. In this context, proper pricing is important and reduces moral hazard. Alternatively, Neyens (2000) points out that the introduction of moral hazard by AMCs can be avoided by restricting asset acquisition from banks and firms, which engage in genuine and timely debt restructuring. This is to say that being able to separate NPLs would trigger moral hazard behavior. Mako (2001) discusses the case of Indonesia focusing on ownership issue. He argues that the proposed restructuring deals in Indonesia would pose serious moral hazard issues:

> In several cases, if corporate debtors can repay the principal owed to the public asset management company within 12 years (including an 8-year grace period), the former controlling shareholders can regain 100 percent equity ownership, despite the large present-value cost to the public asset management company. Such deals, which could encourage other corporations to "go for broke" in borrowing funds to finance expansion, create moral hazard.

In sum, transfers of NPLs to AMCs would incur moral hazard behavior in indebted corporations and banks unless the transfers make sure there is no free ride. In this context, Thailand provides an interesting test case of the possible presence of moral hazard effects from the establishment of AMCs since different types of AMCs were tested. Moral hazard in the lending behavior of banks, as previously discussed, can come about because the removal of NPLs from banks' books, specially if they are done at little cost to banks, provides an incentive for financial institutions to continue on with the same behavior that led to the bad loans problem. That is, AMCs can, maybe inadvertently, perpetuate banks' reckless lending. In this section, we attempt to examine the institutional effects of AMCs and their impacts on NPL creation in the succeeding period.

A. Thai AMC Chronology

Following the Asian financial crisis, the Thai authorities have adopted a number of key restructuring measures based on both market-driven and state-led mandatory approaches. Resolution of NPLs and distressed assets also involved a number of crucial policy decisions. The authorities had to decide, for instance, (i) whether they should set up a central state-owned NPL resolution agency or play only supportive roles to facilitate decentralized market-driven efforts; (ii) how best to design appropriate reward and penalty mechanism; (iii) appropriate burden sharing between the government, lending and financial institutions, and debtors in NPL resolution; and (4) whether financial institutions should be encouraged to separate their good bank operations from bad bank operations by transferring NPLs into individual AMCs.

The Thai experiment on AMCs can be divided into two periods—decentralized approach and centralized efforts. Furthermore, the decentralized approach can be grouped into private bank AMCs and state-bank AMCs, which operated with different rationales and different susceptibility to moral hazard behavior, as will be discussed below (see Table 4). The decentralized approach—encouraging the establishment of individual bank-based AMCs—was taken in 1998 immediately following the financial crisis, while the centralized approach—the establishment of TAMC—took place only in 2001.

Two major factors need to be kept in mind in evaluating the decentralized and centralized approach. First, their operational preconditions—macroeconomic and corporate sector soundness—are obviously different because of the timing of the establishment. The macroeconomic condition in Thailand was severely affected by large negative impacts arising from the sudden stop of capital inflows followed by the currency depreciation. After the sharp decline in the economic activity, the Thai economy started to pick up around 2001. Figure 3 reveals that the corporate sector turned positive profit in 2002 after four years of negative profitability.

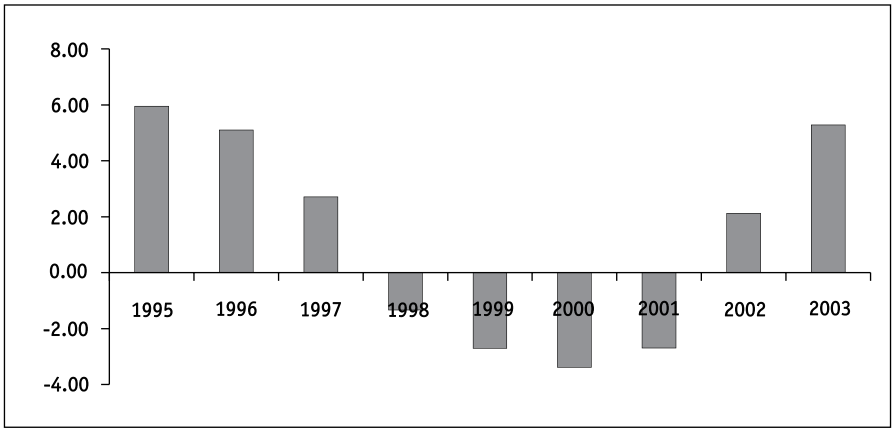
Secondly, the three AMC regimes—private bank AMC, public bank AMC, and TAMC—are distinct in their mandates, their relationship with the originating financial institutions, and terms and conditions of the asset transfers. Table 4 summarizes the three regimes.

TABLE 4
CHARACTERISTICS OF THE THREE AMC REGIMES

	DECENTRALIZED AND MARKET-DRIVEN	DECENTRALIZED AND STATE-LED	CENTRALIZED AND STATE-LED
Type of banks/	Private banks	State-owned banks	All banks
Period	August 1998 (No sunset clauses)	1998 (BBC), 1999 (UOBR), 2000 (KTB), and 2002 (BMB and SCIB)	Second half of 2001-present
Objective and Motivation of establishment	Insufficient skilled human resource in the authorities, and to avoid political interferences	Expedite NPL resolution and provide means to recapitalize the banks	Expedite NPL resolution by bypassing legal and court procedures
Number	12 AMCs in operation	Four AMCs for five state-owned banks (BAM, PAM, SAM, and Radhanasin AMC)	1, TAMC
Average Transfer Pricing (as percent of initial values or book values)	Average 53 percent	Based on political consideration. At 33 percent for BAM, and inflated price for SAM and PAM	Value of collateral used to secure the loans (33.2%)
Transferred NPLs (percent of total NPLs)	Very little	Substantial (e.g., 52 percent, KTB)	All assets in the substandard class and below. Bt 784.378 billion.
Asset Restructuring (percent of transferred NPLs)	Slow restructuring as restructuring not time-bound		73.46% as of June 2003
Incentives/Benefit for NPLs transfer	Not significant since transferring NPLs did not separate the NPLs from the banks' balance sheet. The banks had to maintain capital adequacy against both the NPLs and AMCs issued to purchase the NPLs, resulting in double counting of required assets	Significant since it allows them to meet recapitalization needs	Yes, in a sense that they can separate the bad assets from the balance sheet. Profit and loss sharing arrangement between TAMC and originating financial institution
Moral Hazard Factor	Not significant since there is little benefit for the banks, not much room to exercise moral hazard behavior	Significant since (i) AMCs are fully owned by the FIDF. (ii) Issued bonds are guaranteed by the FIDF to purchase NPLs from the state-owned banks. (iii) Asset selection criteria are generous based on the banks' recapitalization needs. (iv) Not required to publicly disclose information	Muted (?) since any gains from asset recovery will be shared by TAMC and financial institutions. Yes, only if financial institutions have inside information that the assets will eventually result in a loss since majority of the loss will be shouldered by TAMC.

Notes: BAM: Bangkok Commerce Asset Management Company; BBC: Bangkok Bank of Commerce; BMB: Bangkok Metropolitan Bank; FIDF: Financial Institution Development Fund; KTB: Krung Thai Bank; PAM: Petchburi Asset Management Company; SAM: Sukumvit Asset Management Company; SCIB: Siam City Bank; TAMC: Thai Asset Mangement Company; UOBR: United Overseas Bank.
Sources: Santiprabhob (2002) and Fung et al. (2004).

FIGURE 3
PROFITABILITY OF CORPORATE SECTOR IN THAILAND



Source: DataStream, Thomson Financial, authors' calculation.

B. Factors Affecting Moral Hazard—Terms and Conditions of Asset Transfer

As discussed, bank-lending activities of financial institutions are affected by the possibility of transferring bad assets to an asset management company. Moreover, it is affected by the terms and conditions of such a transfer. If financial institutions are able to unload their bad assets at minimal cost, it is possible that this can lead to moral hazard behavior. We discuss the different terms and conditions of asset transfer in the three AMC regimes. The last row of Table 4 suggests that moral hazard appears most significant with the decentralized approach for the public banks while it does not seem so significant in the two other regimes.

1. Private Bank-owned AMCs

As NPLs rose and bank credit contracted during the first half of 1998, the authorities were concerned that NPL restructuring would place a heavy burden on management of financial institutions and obstruct credit growth, deemed crucial for alleviating credit crunch and supporting economic recovery. In this context, the authorities believed that transferring NPLs out of financial institutions would improve effectiveness in NPL resolution and facilitate new credit expansion. From 1998 to 2001, 12 private AMCs were established. Ten of them were set up as subsidiaries for the purpose of purchasing NPLs only from their mother financial institutions, while two AMCs were established to manage NPLs purchased from other financial institutions. Yet, data show that most of the private banks did not transfer a large amount of their NPLs to the AMCs.[14] The reason is that the transferred NPLs remained reflected in the consolidated banks' balance sheet, hence the bank still needed to provide for possible losses. Even if the NPL or NPA had disappeared in the originating financial institutions' books, the bonds used to purchase the NPLs in exchange for the bad assets also had its own risks related to the subsidiaries' success or failure in the disposition of those bad assets.

[14] Only four of them purchased NPLs exceeding Bt 30,000.

Therefore, all things considered, private banks had little incentive to transfer, and, consequently, no moral hazard problems are considered to start as regards private bank AMCs.

2. State-led AMCs for Public Banks

During 1998-2002, four individual AMCs were set up to handle the NPLs of five state-owned banks, namely BAM, PAM, SAM, and Radhanasin AMC. The primary and sole objective of the asset transfer was to help recapitalize the state-owned banks, rather than maximize the recovery values of the nonperforming loans. The FIDF owned the state-owned AMCs and guaranteed the bonds used to purchase NPLs from the state-owned banks. The pricing decision and selection criteria of NPLs were not very restrictive,[15] but were rather largely based on the banks' recapitalization needs, and not on the quality of the assets. These factors suggest that the state-owned banks could get a free ride from the government-led AMC setup. It also implies that the transfer of NPLs to the state-led AMCs gave the SOBs no incentives to review and correct their lending behavior because no penalty was associated with the transfer. In addition, as the state-owned AMCs were not required to publicly disclose any balance sheet information, it was not possible to analyze the effectiveness of NPL resolution.

3. Thai Asset Management Company for All Banks

Around the end of 2000, systemwide NPLs remained high and the pace of debt restructuring slowed down. The political party that won the general election in January 2001 enacted the TAMC Emergency Decree in June 2001. Similar to the individual state-owned AMCs, the TAMC paid for the nonperforming assets by 10-year TAMC bonds guaranteed by the FIDF, but this time, the transfer pricing is more stringently based on the value of collateral used to secure the loans, rather than on capitalization needs by banks. The emergency decree also required that prices of loans transferred from private financial institutions and AMCs do not exceed the amount of loan outstanding net of required provisions. By design, possible moral hazard incentives from TAMC appear insignificant because of the loss and profit sharing arrangement. If it arises, moral hazard can come from the following scenarios. First, when financial institutions have inside information that the NPLs are sure to eventually result in a loss since most of the loss would be shouldered by TAMC while bank losses are capped at 30 percent of the transfer price. Second, when TAMC's restructuring strategy is lax and imposes little pain on borrowers, for instance, if the TAMC strategy focuses on debt rescheduling rather than on operational restructuring that seeks to turn business profitability around.[16]

Looking at these different degrees of moral hazard elements across the three regimes, public bank AMCs appear to have the highest moral hazard incentives, followed by TAMC, then private bank asset management companies. With this background in mind, the next section attempts to measure and compare the impact of moral hazard practice on NPL creation across the three AMC regimes.

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[15] In case of SAM, total loan outstanding worth less than Bt 5 million were left with the banks, since the banks' extensive network would be better able to deal with the collection and monitoring of these loans.

[16] Since the second type of moral hazard behavior can occur with individual and corporate borrowers, rather than with banks, the issue is not addressed in detail in this paper.

C. Measuring Moral Hazard—New Flows of NPLs

We argue that bank lending decision is made based not only on demand for credits and on cost of fund constraints, but also on other factors, such as moral hazard behavior of banks. Further, we claim that the loans made on moral hazard consideration are more likely to result in NPLs in the next period, hence new NPLs increase. Monthly new NPL data form the Central Bank of Thailand, covering 1999 to 2003, are used in this section to test this claim.

1. New NPLs in Thailand

Data on NPL that is typically examined is a stock concept, and is a sum of the stock of previous-period NPLs plus net of increase and disposal of NPLs in the current period, where the increase of NPL is the sum of reentry and new NPLs. That is,

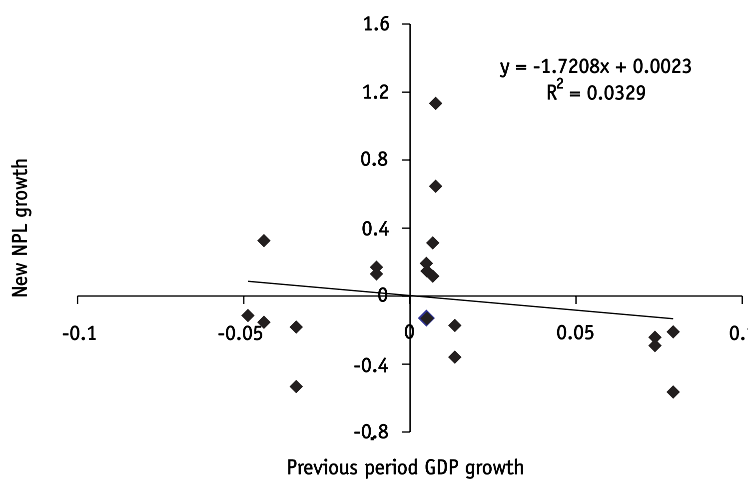
$$\text{Stock of NPLs}_t = \text{stock of NPLs}_{t-1} + \underbrace{(\text{New NPLs}_t + \text{Re-Entry NPLs}_t)}_{\text{Inflows of NPLs}} + \underbrace{(\text{Decrease of NPL}_t)}_{\text{Outflow of NPLs}} \quad (1)$$

The new NPLs reflect, to a large extent, the banks' lending performance—proxy for "moral hazard" behavior—while reentry NPLs reflect the failure/success of the corporate/debt restructuring.

2. Macro Factors and New NPLs

Generally, economic growth has a positive impact on NPL situation. A favorable economic environment facilitates NPL restructuring by creating demand for assets and can, thus, result in

FIGURE 4
GDP GROWTH AND NEW NPL RATIO (% OF TOTAL LOAN) GROWTH



Source: Central Bank of Thailand

less re-entry NPLs. As for the impact on new NPLs, the channel is primarily through a healthier corporate sector, which is likely to produce less nonperforming loans. In contrast, if we see that new NPLs are growing during economic expansions, when the economy is enjoying respectable GDP growth and/or private investment, we suspect that this may be a result of moral hazard behavior of banks in lending to nonviable firms or projects. Figure 4 plots new NPLs between 2000 and 2002 and associates them with quarter GDP growth. This simple scatter plot suggests that GDP growth, indeed, appears to reduce the speed of NPL creation.

Comparing the relationship across the three different AMC regimes in Thailand using pair wise correlation, we can find that the relationship is significantly negative except for the state-led public-bank AMC regime (Table 5). In other words, NPL creation in the public banks was accelerated even when the Thai economy was growing. This result is consistent with our prior finding that moral hazard may have been more severe with the public banks that enjoyed the benefits from the FIDF-funded AMCs, and that the public banks kept lending to nonviable projects, which eventually became new NPLs. Meanwhile, two other AMC regimes reveal negative relationship between new NPLs and GDP growth, which implies that NPL creation under the other two AMC regimes decelerated as the economy picked up.

TABLE 5
PAIRWISE CORRELATION BETWEEN NEW NPL GROWTH AND GDP GROWTH

AMC REGIME	CORRELATION COEFFICIENT	1/
Private AMCs	-0.10	*
State-led individual AMCs	0.83	*
TAMC	-0.27	*

1/ * indicates the correlation coefficient is significant at 5% level.
Source: Central Bank of Thailand and authors' calculation.

D. Regression Analysis

The analysis of the previous section presents some evidence on the likely moral hazard behavior of public banks. In this section, a more formal approach is taken to extract the moral hazard element, and examine its significance on the new NPLs. As discussed, loans are made based on macroeconomic considerations, individual firms/projects' viability, and other factors, including moral hazard behavior.[17] In this analysis, the moral hazard element is proxied by an increase in loan outstanding, which cannot be accounted for by the macroeconomic variables.[18] In other words, the moral hazard element can be extracted as a residual series of a regression estimation, in which annual growth of total loans is regressed on macroeconomic variables (see similar approach taken in Kaufman, Mehrez, and Schmukler 1999). We consider the following regression equation.

[17] See Suwanaporn (2003) for the determinants of the bank lending in Thailand.
[18] Although we cannot control directly for the firms' characteristics because of the data availability, we account for those factors by including aggregate macroeconomic variables. To the extent that the firms' activity mirrors macroeconomic condition, we believe this approach is feasible.

$$\text{Growth of Loans made by FIs}_{t,s} = f(\text{constant, manufacturing production}_t, \text{private investment}_t, \text{inflation rate}_t, \text{cost of fund}_t, \text{total NPL ratio}_t, \text{and Dummy variables for the different types of financial institutions}_s{}^{19}) + \in_{t,s}, \text{(recovered as a moral hazard factor)}^{20} \tag{2}$$

where the cost of fund is proxied by deposit rate

s denotes public banks, private banks, foreign banks, and finance companies

t spans from January 2000 to December 2002.[21]

The demand for new loans is accounted for by manufacturing production and private investment. Total NPL is included as percent of total loan because high NPL ratio in the institution can adversely affect the ability to direct new credits. Financial institutions' dummies are also included to account for different mandates that each institution may have. Public banks, for example, have mandates to direct lending to weaker and/or propriety sectors based on policy considerations.

We first estimate this equation with OLS, where moral hazard variable is not explicitly accounted, and is constructed as a residual series of the equation. Table 6 reports three regression estimation results. It reveals—not surprisingly—that the higher cost of fund or deposit rate, and higher stock of NPL would reduce the speed of total loan growth. We also find that higher inflation would lead to higher total loan growth in the following period, perhaps due to higher demand for credit. From this equation, we recover the moral hazard series[22] —the change in total loans that is not explained by macroeconomic movements and institutional mandates—and we use it to explain the change in new NPLs. Through this, we want to see if those "moral hazard loans" would help explain the growth in new NPLs.[23]

The recovered series for private and state-owned banks are plotted in Figure 5. Interestingly, the two series show contrasting developments around the time of TAMC establishment. Until the TAMC was set up, there were two AMC regimes—one for private banks and the other for state-owned banks. During this period, the moral hazard factor or institutional factor negatively (positively) affected the total loan growth for the private (public) banks. In other words, the moral hazard factor appeared to be at work for the public banks by acting to increase the total loan beyond what was warranted by macroeconomic considerations. On the other hand, the institutional or moral hazard factor was playing to reduce the total loan growth in the private banks. These relationships between the institutional factor and total loan growth then got reversed during the second half

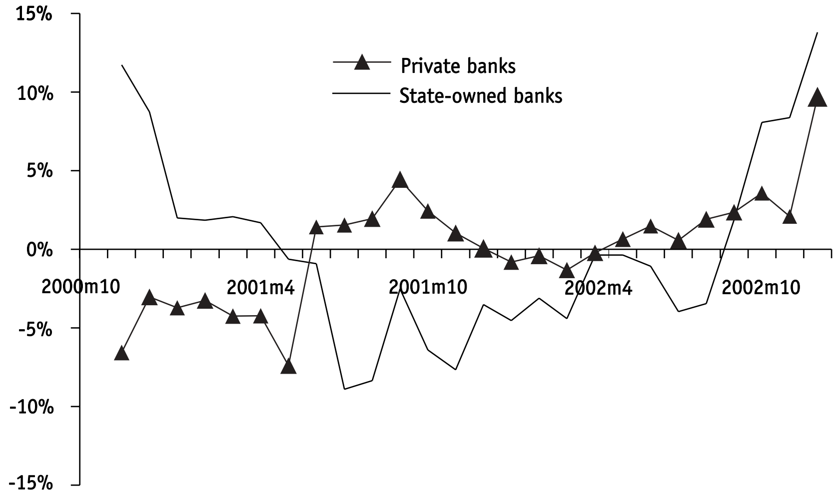
[19] Financial institution dummies are incorporated to account for their different characteristics affecting the lending behavior.
[20] Thai GDP data is not available at monthly frequency to be included in the equation. In order to test for the significance of the variable, we estimate the same equation at quarterly frequency with GDP. GDP is not found to be a significant variable while private investment is significant in both estimations. Therefore, we conduct our analysis at monthly frequency to have more degrees of freedom. Another factor, which appears important to be included, is a risk assessment of borrowers.
[21] From 2003, NPL data is reported at quarterly frequency, and no monthly data is available.
[22] We use the estimation result with the lagged variables to recover the moral hazard series given the highest adjusted R-squared.
[23] Admittedly, the residual series may also reflect other factors such as political consideration that may be particularly significant for the public banks.

Table 6
OLS Estimation Results-Extracting Moral Hazard Behavior Series
(dependent variable: growth rate of total loans)

Explanatory Variables	Coefficients (T-Statistic) Contemporaneous Variables	Lagged Variables	Contemporaneous and Lagged Variables
Growth of manufacturing production	0.01 (0.05)		0.00 (0.01)
Growth of private investment	-0.08 (-1.01)		-0.08 (-0.63)
Total NPL ratio	-0.45 (-3.21)***		0.22 (0.69)
Inflation	0.01 (1.05)		0.00 (-0.22)
Deposit rate	-0.05 (-1.87)*		-0.04 (-0.76)
Lagged growth of manufacturing production		-0.10 (-0.37)	-0.19 (-0.59)
Lagged growth of private investment		0.00 (0.03)	0.05 (0.42)
Lagged total NPL ratio		-0.66 (-4.56)***	-0.80 (-2.69)**
Lagged inflation		0.02 (1.88)*	0.02 (0.85)
Lagged deposit rate		-0.03 (-1.05)	-0.01 (-0.19)
Dummy: state banks	-0.08 (-4.28)***	-0.09 (-4.82)***	-0.08 (-4.52)***
Dummy: foreign banks	-0.10 (-4.26)***	-0.13 (-5.43)***	-0.12 (-4.93)***
Dummy: private banks	0.02 (0.94)	0.02 (1.01)	0.01 (0.83)
Constant	0.15 (2.17)**	0.12 (1.73)*	0.16 (1.86)*
No. of observations	108.00	104.00	104.00
Adjusted R-squared	0.34	0.39	0.37

*statistically significant at the 10 percent level
** statistically significant at the 5 percent level
*** statistically significant at the 1 percent level

FIGURE 5
RECOVERED MORAL HAZARD SERIES



Source: Authors' estimation.

of 2001 when TAMC operations began, which continued until late 2001. This point is interesting as it implies that, either the establishment of the TAMC has raised moral hazard in private banks because of the opportunity to remove bad loans from their books, or simply that, in general, the establishment of a centralized AMC help improve financial intermediation.[24,25]

We utilize these recovered series to estimate their impact on the new NPLs in the following period. The next regression analysis, therefore, can be expressed as follows. Notice that the moral hazard variable is lagged in the equation since there is a time lag for new loans to become nonperforming.

New NPLs ratio $_{t,s}$ = f (constant$_t$, growth of total loans$_t$, growth of private investment$_t$, inflation rate$_t$, cost of fund$_t$, total NPL$_t$, lagged moral hazard factor$_{t,s}$, and lagged moral hazard factor$_{t,s}$*Dummy for AMCregimes$_s$) + $\gamma_{t,s}$, (3)

Table 7 reports the estimation results using random effect GLS regression analysis.[26] Panel A presents the result to assess if the "moral hazard" variable that we recovered from the previous equation explains the creation of new nonperforming loans.[27] The result suggests that the residual

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[24] The increase in the moral hazard series in December 2002 reflects the change in NPL classification rule that was implemented in December. Under the new classification rule, the loss with full provisioning is also classified as NPLs while it was not included in the old rule.

[25] We estimate another equation by including a dummy variable for the change in classification rule. The estimation result is not significantly different from the one without, which we present in this paper.

[26] The random effects estimator fits cross-sectional time-series regression models using a GLS estimator. Breusch and Pagan and Lagrange Multiplier tests attest to the appropriate selection of the random effects estimator.

[27] We have performed the analysis with fixed effects regression, whose results are consistent with what we find with the random effect model. We are not reporting the results since the overall R-squared is higher with the Random effect model.

Table 7
Random Effects GLS Estimations—Moral Hazard Behavior Explaining New NPLs
(dependent variable: new NPL ratio)

Explanatory Variables	Coefficients (Z-Statistic) A	B	C
Growth of total loan	0.36 (0.96)	0.42 (1.09)	0.74 (1.85)*
Growth of private investment	-0.13 (-0.51)	-0.08 (-0.31)	-0.13 (-0.49)
Inflation	0.07 (1.95)*	0.08 (2.03)**	0.09 (2.30)**
Deposit rate	-0.05 (-0.47)	-0.01 (-0.07)	-0.09 (-0.78)
Lagged moral hazard	-1.29 (-2.73)***		
Lagged moral hazard * state		-1.31 (-1.50)	
Lagged moral hazard * private		-0.59 (-0.40)	
Lagged moral hazard * foreign		-2.75 (-1.95)**	-2.56 (-1.86)*
Lagged moral hazard * finance		-1.20 (-1.97)**	-1.48 (-2.49)**
Lagged moral hazard * private AMC			-1.66 (-0.93)
Lagged moral hazard * public AMC			2.62 (1.66)*
Lagged moral hazard * TAMC			-2.90 (-2.79)**
Constant	0.33 (1.30)	0.22 (0.80)	0.41 (1.47)
No. of observations	100.00	100.00	100.00
R-squared	0.14	0.15	0.22

*statistically significant at the 10 percent level
** statistically significant at the 5 percent level
*** statistically significant at the 1 percent level

elements significantly explain new NPL movements, but with a negative coefficient instead of a positive one, as we had hoped. That is, the "moral hazard" series works to reduce new NPL ratio, contrary to our expectation. One explanation is possibly due to institutional factors, such as better governance and risk management, which this residual element may also be capturing along with possible moral hazard influence.[28]

Could this effect vary depending on the type of banking institution? In order to gauge the differential effects of moral hazard across the financial institutions, Panel B reports the estimation result including the four interactive dummy variables for state-owned banks, private banks, foreign banks, and financial companies.[29] Interestingly, the moral hazard/institutional variable acts to decrease the new NPL ratio for foreign banks and finance companies, while its effect on new NPL ratio of state-owned banks and domestic private banks was insignificant. This result is consistent with the argument that foreign banks bring in better corporate governance to a country where they operate (see Montgomery 2003, for example). Finance companies, on the other hand, are generally considered weakly regulated where reckless lending easily takes place. However, our result may indicate an improved environment for the finance companies after it had gone through significant restructuring. Recall that some 50 unviable finance companies were closed during the early part of the Asian crisis; hence the surviving ones from 2000 onwards are presumably the better managed ones. The fact that the moral hazard factors of state-owned or private banks do not significantly explain the growth rate of new NPL, however, suggests a need for investigation across sample periods, i.e., across different AMC regimes.

In Panel C, we examine the differential effects of AMC regimes. We created new variables by interacting the moral hazard series with the AMC regime dummy variables to see if the moral hazard variable affects the new NPL ratio differently across the three AMC regimes. The AMC dummy variables were created so that private (public) banks AMC dummy takes the value one for private (public) banks during the period until June 2001, and zero otherwise. Since both public and private AMCs were required to transfer assets in the substandard class and below[30], we consider that these two regimes effectively ended their operation when TAMC was established.[31] The TAMC AMC dummy takes one for both private and public banks during the period after July 2001, and zero otherwise.[32]

The result shows that the residual element for foreign banks and finance companies, as captured by the interaction variables, continue to yield negative coefficients. Moreover, we find that the interaction variable of moral hazard series with AMC regimes have varied effects on the new NPL

[28] Note that we cannot control for bank-specific characteristics such as bank risk or efficiency because these info are not usually available on a monthly basis.

[29] The four financial institution dummies were interacted with the moral hazard variable.

[30] There are some exceptions for the transfer. For public financial institutions, for example, they are NPLs (i) that had already obtained a court ruling, (ii) that had already been put under temporary or permanent receivership, or (iii) whose rehabilitation plan had been endorsed by the Bankruptcy Court. Initially, the TAMC did not purchase eligible NPLs that had only one creditor and had loans outstanding less than Bt 50 million.

[31] Although the transfer was required at end-2000, the actual transfer took place gradually. So we set the beginning of TAMC operations to be second half of 2001.

[32] We continue to keep the two interactive variables for foreign banks and financial companies to control for their effects. These two types of financial institutions have not been included for the set up of AMCs, although finance companies had the FRA as a rapid disposal agency for their bad assets.

ratio. While the private AMC was not significant, the effects of the TAMC and the public AMC regimes contrast each other—while the former leads to less new NPLs, the latter increases new NPLs. In particular, in the case of public AMCs, a 1 percent increase of the loan would increase new the NPL ratio by 2.6 percent in the following period. The significant and positive coefficient of public AMC supports the argument that, of the three AMC regimes, the system adopted for the public AMC was most susceptible to moral hazard effects.

The TAMC, on the other hand, works to reduce new NPL ratio. This is consistent with our analysis that the TAMC has a better design, and is thereby less likely to contribute to new nonperforming loans. For the private AMC regime, the coefficient is not significant, perhaps due to the almost negligible amount of asset transfer from private banks to private asset management companies. Among the macroeconomic variables, inflation rate appears to be the only factor affecting the growth of new nonperforming loans.

V. CONCLUSIONS

This paper examines the performance of Asian AMCs. Analysis reveals that the AMCs vary significantly in their design and performance. Asset management companies can trigger moral hazard-induced bank lending when the NPL transfer to the AMC entails little cost to banks. Empirical examination of Thai AMCs reveals that the moral hazard-induced bank lending (or residual lending that are unexplained by our control variables) resulted in creating more new NPLs under the public AMC regime because, by design, the public AMCs allowed the transfer of bad assets from state-owned banks at inflated prices. In contrast, the Thai Asset Management Company regime works to decrease the new NPL ratio, presumably due to better control measures addressing potential moral hazard effects on banks.

In addition, we find that the same institutional consideration significantly decreases new NPL with foreign banks and finance companies. The reason is because foreign banks are generally considered better managed institutions, while the surviving finance companies in the sample are those that are relatively better run compared to the ones that were closed down by the government early on during the Asian crisis.

APPENDIX

VARIABLE	CONSTRUCTION	DATA SOURCE
New NPL by financial institutions		Central Bank of Thailand
Stock NPL by financial institutions		Central Bank of Thailand
Total loans by financial institutions		Central Bank of Thailand
New NPL ratio	New NPL by financial institutions/ Total loans by financial institutions	Central Bank of Thailand
Total NPL ratio	Stock NPL by financial institutions/ Total loans by financial institutions	Central Bank of Thailand
Growth of manufacturing production	Annual growth rate of manufacturing production	Central Bank of Thailand
Growth of private investment	Annual growth rate of private investment	Central Bank of Thailand
Inflation rate	Annual growth rate of consumer price index	International Financial Statistics
Deposit rate		International Financial Statistics

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