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**Experience of Crisis-Hit Asian Countries:  
Do Asset Management Companies  
Increase Moral Hazard?**

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*Akiko Terada-Hagiwara and Gloria Pasadilla*



**PHILIPPINE INSTITUTE FOR DEVELOPMENT STUDIES**  
Surian sa mga Pag-aaral Pangkaunlaran ng Pilipinas

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## **Abstract**

This paper examines the performances of Asian asset management companies (AMCs). Our analysis reveals that the AMCs vary significantly in their design and performances. We claim that AMCs can trigger moral hazard-inspired bank lending, especially when the mode of transfer of nonperforming loans (NPLs) from banks to AMCs entails little cost to banks. Empirical examination of the Thai experience of AMCs reveals that the moral hazard-inspired bank lending resulted in creating more new NPLs in the case of public AMCs. On the other hand, the new centralized AMC, the Thai Asset Management Company (TAMC), decreased the new NPL ratio, suggesting that TAMC provokes no adverse moral hazard effect on financial institutions. In addition, we find that the same institutional consideration significantly decreases new NPL in foreign banks and finance companies. The reason is because foreign companies are generally considered better managed, while the surviving finance companies in our sample are the institutions that survived the Asian crisis and therefore more viable and presumably better run than those companies that were closed down by the government during the crisis.

# 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 the resolution of the problem. In Asia, the four-crisis affected countries of Thailand, Korea, Malaysia, and Indonesia 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 of Central Asia like Mongolia, Kazakhstan, and Kyrgyz Republic when in the early 1990s, these countries experienced bank runs and financial instabilities. The more recent addition to the list of Asian countries that adopted the centralized AMC approach is the People's Republic of China, which established not just one but four AMCs to handle the bad loans of its four state-owned banks. Even developed economies like Sweden and the United States, and Latin American countries like Mexico used centralized AMCs for the purpose of solving their big and small financial crises.

Other countries adopt a decentralized approach, however, to the bad loans problem of their financial system. For instance, Poland, Norway, and Argentina have adopted private individual workout units instead of centralized AMCs but the motivation—that of unburdening banks and facilitating credit intermediation—is the same as that of centralized AMCs. Even in Asia, economies like India, Taipei, China, and the Philippines have not instituted centralized or government AMCs but have otherwise enacted laws, or provided fiscal incentives, for the establishment of private entities that can help unload the bad loans of 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 to enable them to remove the 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 a possible moral hazard effect on banks that



benefit from being freed from NPLs. In this connection, do AMC's really 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 AMC's, taking the case of Thailand in particular, a country that experienced severe shock in its financial system during the Asian crisis and where detailed NPL data are available.

The paper is organized as follows. The next section discusses the general characteristics of AMC's and their role in the financial system. Section 3 reviews the experience of four centralized AMC's 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 NPL's and re-entry NPL's, and the possible influence of the moral hazard behavior are examined in Section 4. Section 5 concludes.

## II

### AMCs and the Financial System

If banks are saddled with huge unpaid loans, their credit intermediation role is hampered because a huge portion of loanable funds have to be reserved as provisions for possible losses instead of being used productively for new loans and investments. AMCs 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. With the disposal or restructuring of the purchased bad loans for future sale, banks are assisted by AMCs to reinvigorate their lending activities. AMCs, especially centralized ones, thus allow banks to ‘turn a new leaf’ more rapidly and focus on their core business of financial intermediation instead of being bogged down with the 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 value 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 happenstance, which consequently lead to unreliable and often too low asset valuation<sup>1</sup>. The purchase by a well-funded AMC can help arrest the free fall of loan prices in a buyer’s 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.

In the selling side, centralized AMCs also help other sectors in the economy, particularly real estate, in ensuring price stability. For instance,

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<sup>1</sup> See Iannariello et al. (2003) for evidence.

the US Resolution Trust Corporation timed the future sale of its acquired real estate assets so as not to cause further deterioration of real estate prices.

### **AMC Models**

There are different models of AMCs. 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 institutional setup of AMCs 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 times when no one would be able to buy the loan assets, the centralized AMCs provide the demand for them. Also, when the legal infrastructure is weak, the centralized AMC can short-cut the legal process in disposing of the bad loans and thus may help expedite the cleaning up of the financial mess. Moreover, whenever the government purchases the bad loans through a centralized or government-funded AMC, the authorities can attach certain conditions of operational and financial restructuring for the banks. For instance, in exchange for the government purchase of NPLs, the authorities in the crisis-affected countries in Asia required the banks to increase their private capital or spin off their noncore businesses.

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

**Table 1. Different Models of Asset Management Companies**

	<b>Bank-Based</b>	<b>“Bad Bank” (independent outfit or subsidiary)</b>	<b>Government-Based</b>
<b>Item</b>	<b>Workout Unit</b>		<b>Centralized AMC</b>
<i>Consideration</i>			
Extent of industry problems	Limited	Concentrated	Systemic
Need for government funding	None	Limited	Significant
Need for legal reform	Low	Medium	High
<i>Potential Benefits and Issues</i>			
Synergies with originating bank	High	Moderate to High	Low
Debtor conflicts with originating bank	High	Moderate to High	Low
<i>Country Examples</i>			
	Poland – state banks’ workout units	ARCIL (India), TAMCO (Taiwan)	Securum (Sweden), USRTC, AMCs in crisis-affected countries

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

In contrast, because of fewer layers in the decisionmaking 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 the data relevant to the debt as well as to the debtors because of previous dealings. If the private AMCs, whether independent or subsidiaries, possess specialized skill mix and expertise in the 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 the real estate expertise of some AMCs to better preserve the foreclosed asset values. Hence, in general, private AMCs offer greater advantage over government AMCs, especially if the loans are not too complicated in nature (for instance, when they do not involve multiple and complicated creditor claims or when the bad loans problem is not systemic) and if the legal framework is fairly sound. However, if the legal environment is particularly biased in favor of the debtors, private AMCs could get stuck in protracted restructuring negotiations, which may increase their 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 them 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 could explain the Asian crisis-countries' reliance on centralized AMCs.

The other disadvantage of private AMCs, particularly if they are bank subsidiaries, is that they could be used by the parent banks to window dress their bad loan problems by transferring assets to the subsidiaries at artificially inflated prices. As a consequence, because a 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 that 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 procedure that is carried out only to presumably satisfy certain regulatory provisions on bad loans ratio but without really solving the banking sector's problem. If this practice is not properly monitored through a careful examination of consolidated accounting reports, bank managers could continue with their risky loan activities with exemption from any penalty or punishment. While the same moral hazard problem can happen if a centralized AMC buys a bank's bad assets at deliberately inflated price, 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.

Private AMCs could also be in the form of a separate workout unit within the banks and retaining the bad loans in the books of the banks. While this form does not provide as much incentive for window dressing as the AMC subsidiary arrangement, 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 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,<sup>2</sup> as well as in the efficiency of the legal framework.

### **Elements for Success**

A review of AMCs all over the world reveals a mixed record of AMCs' 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, the AMC operations transparent, and information and management systems fairly established, the centralized AMCs performed relatively better than in countries with weaker legal and regulatory regimes.

As for private AMCs, Dado and Klingebiel (2002) also underscored the elements that contribute to good performance, which include adequate capitalization and high loss absorption capacity by banks, right incentive framework that facilitates bank and corporate restructuring, and limited 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. The right incentive framework such as loss carryover or tax reductions for bad loan transfers likewise encourages banks to recognize and address their losses. Finally, severance of cross-ownership of banks and corporations was found to be 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.

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<sup>2</sup> In Poland's case, the bank managers and employees were given first priority in the purchase of bank shares when the bank is eventually privatized. Thus, they had a strong incentive to collect the bad loans to improve the banks' market value. The government also passed special, time-bound legislations to aid the debt restructuring efforts and to prevent dithering in the efforts to restructure, foreclose, or collect bad loans.

### 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, Malaysia, and Korea immediately established centralized AMC to help in the disposal, collection, and restructuring of their NPLs. Indonesia established the Indonesia Bank Restructuring Agency (IBRA); Malaysia, the Danaharta; and Korea, the Korea Asset Management Company (KAMCO). Thailand, because of concern over its fiscal situation, did not immediately institute a centralized AMC but left much of the restructuring on the banks themselves. It did, however, establish a rapid disposal agency, the Finance Restructuring Agency (FRA), to address the problems of financial companies. But in 2001, three years after Indonesia, Malaysia, and South Korea established their centralized AMCs, Thailand established the Thai Asset Management Company (TAMC).

### Features of Asian AMCs

All four Asian AMCs mentioned earlier are centrally organized and funded by the government. Their governments' choice of the centralized model over the bank-based model is actually dictated by the systemic character of the banking problem and the magnitude of the NPLs. 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 got bankrupt. In Indonesia, the government ended up owning 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 government's strong intervention was called for. In the case of all four countries, government intervention took the form, among others, of wholesale government purchase and

restructuring of the 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 governments of Indonesia and Thailand particularly undertook. 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 also relied upon because many banks did not have sufficient resources to restructure large amounts of nonperforming assets through the 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 establishing 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 below).

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.<sup>3</sup> A sunset clause is important so that the personnel assigned in the AMCs do not end up defending their employment and so that the asset disposition can be accelerated and thus, government cost can be limited.

Except for KAMCO, the AMCs also had special powers to short-cut legal procedures but these powers have been either reluctantly used (as in the case of IBRA) or effectively wielded as credible threat for defaulting creditors to cooperate (as in the case of Danaharta). For instance, Danaharta was authorized to dispose of transferred assets without seeking the permission of the original owners of the assets, while 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 the Korean legal infrastructure is more developed than

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<sup>3</sup> 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.



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 AMC's 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.<sup>4</sup> The acquired assets were also obtained at practically zero value but with the government shouldering the bank losses. On the other hand, KAMCO had no prespecified criteria on assets to be acquired but it offered to buy assets at huge discounts.<sup>5</sup> Danaharta and TAMC, in contrast, limited their purchase to NPLs with a minimum book value of RM 5 million and Bt 5 million, respectively.<sup>6</sup> Furthermore, for these two AMC's, prices were based on market values but with profit-loss arrangement with the originating financial institutions.<sup>7</sup>

Finally, the four AMC's 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

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<sup>4</sup> The shareholder settlement was a result of bank violation of government prudential regulations.

<sup>5</sup> 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 the appraised value of the collateral, 3 percent of the face value, if loans were unsecured, while special NPLs were priced using the net present value of projected cash flows.

<sup>6</sup> 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.

<sup>7</sup> For Danaharta, the excess recovery values over and above Danaharta's cost of acquisition plus directly attributable costs are shared at a 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 the bank's loss is capped at 30 percent of the transfer price.

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.

A summary of the features of the four Asian AMCs is given in Table 2.

**Table 2. Comparative Features of Asian AMCs**

	<b>IBRA</b>	<b>KAMCO</b>	<b>Danaharta</b>	<b>TAMC</b>
<b>Sunset</b>	2004	-	2005	2011
<b>Special Powers</b>	Yes	-	Yes	Yes
<b>Acquisition</b>	No preselection	No preselection but KAMCO had discretion on what assets to acquire	Loans worth more than RM 5 mn	Loans worth more than Bt 5 mn
<b>Pricing</b>	Zero value but government shouldered bank losses	Market value; with put and buy options	Market values; with profit sharing of 80:20 in favor of FIs	Market value with profit-loss sharing
<b>Disposition Strategy</b>	Corporate loans – through auctions, direct sale, asset-bond swap; Commercial loans – outsourced management and collection; Small loans – settlement; Divestment of banks shares	Extensive use of foreign partners through Joint Ventures: JV-AMC; JV – Corporate Restructuring Companies; JV-Corporate Restructuring Vehicles	Use of special administrators for different type of assets; Use of foreign expertise.	Auctions, direct sale, debt rescheduling, settlement; Outsourcing of management of assets to Thai entities.

Source: Annual reports of AMCs.

### **Macroeconomic Impact**

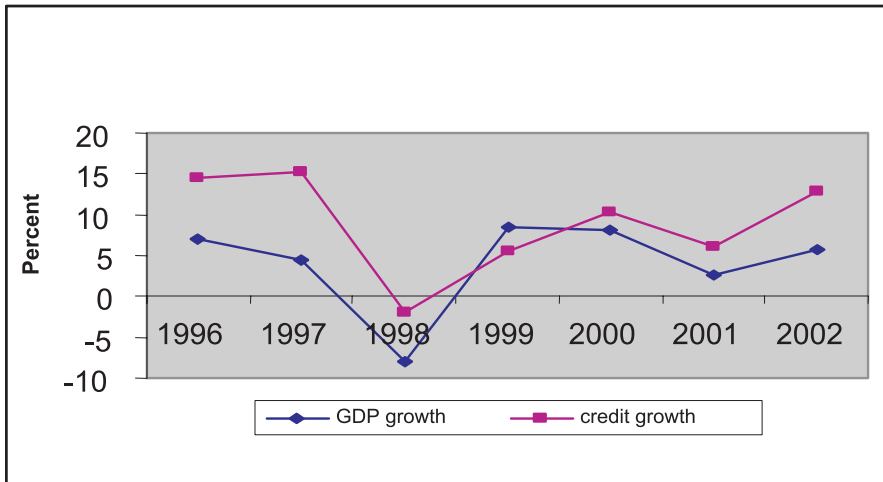
Given varying structures, management, acquisition, and disposition strategies, how effective had the Asian AMCs been? From a macro standpoint, have they helped achieve greater stability in the banking

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 AMC, banks regain the capacity to act as an intermediary of 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 be able to improve their profitability. Because banks provide the oil for corporate financing, AMCs indirectly also aid in the recovery of corporate profitability. We therefore chose 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-affected countries dipped by -2 percent in 1998 but posted positive growth in subsequent years. In the case of Thailand,

**Figure 1. GDP and Credit Growth in Four Crisis-Affected Countries (GDP-weighted)**



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

credit growth continued to grow at negative rates from 1998 to 2001 before growing at 6 percent in 2002. As earlier noted, TAMC was established in 2001.<sup>8</sup>

Figure 2 shows bank and corporate profitability, represented by solid line and solid line with square, respectively. The vertical axis indicates the year the AMCs were set up (and varies by country)<sup>9</sup>. Profitabilities were computed as percentage of pretax profit to the total assets for listed firms in the local stock markets. The figure suggests that profitability of the banking and corporate sectors continued to decline for the first two years after the establishment of the AMCs in Korea and Indonesia. This could mean that not all NPLs were immediately transferred and that the ones that were removed from the banks first were the better quality and easily marketable bad loans. Banks thus remained saddled with large quantity of NPLs that were harder to resolve during the initial stages of the AMCs. The figure also shows that profitability stopped declining after about two years and then recovery began afterwards.

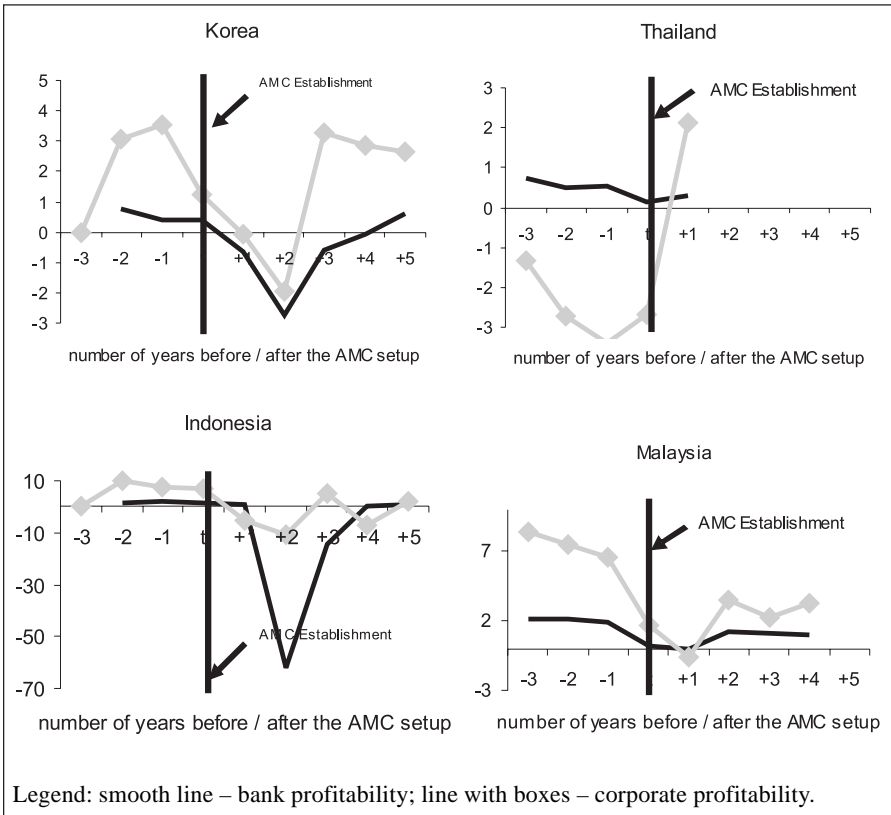
Additionally, it could be gleaned from the figure that Malaysia and Thailand experienced relatively faster recovery than Korea and Indonesia. For Thailand, this could be because TAMC was established in 2001 when the country was already on track toward recovery. In the case of Malaysia, meanwhile, its banking crisis was not as severe as that of the other three countries in the first place, which could possibly explain the relatively rapid recovery. Moreover, the experience of Danaharta, Malaysia's centralized AMC, is considered to be quite successful due to its appropriate institutional design and the special powers that it properly wielded.

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<sup>8</sup> 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 helped avert debt overhang in the financial system because the uptrend started one year after the AMCs were established.

<sup>9</sup> Korea, Indonesia, and Malaysia established their respective centralized AMCs in 1999.

**Figure 2. Profitability of Corporate and Banking Sectors**



Source: DataStream, Thomson Financial.

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, they could really regain profitability given better economic environment. Indeed, as the figure shows, the shape of the weighted average of GDP of the four countries shows a trough in 1998, with a subsequent upward cycle, which implies 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.<sup>10</sup>

In addition, the AMCs' role in asset prices is harder to assess because of limited 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, re-auction these assets at a later date, or sell these to the government-owned AMC. Hence, prices lower than the price at which the AMCorp bought the bad assets were not observed. But the fact that the AMCorp<sup>11</sup> took over some of the FRA assets after a failed bidding leads us to surmise that the FRA might have disposed of the bad assets at much lower prices than it did had the AMC not existed.

### **AMC Performance**

While AMCs help unburden banks of their NPLs, the next question is, 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 agencies. 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.

From this study's analysis, the Asian AMCs have a mixed record of success. The chosen indicators for assessing AMC performance are cash recovery and disposal rate (Table 3). The disposal rate is the ratio of assets disposed over the book value of acquired assets. The higher this ratio is, the more efficient the AMC is thought to be because nondisposed assets imply higher carrying cost and thus higher operating cost for the AMC

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<sup>10</sup> 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.

<sup>11</sup> The AMC is a distinct institution from the TAMC. It is also 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.

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.

**Table 3. Performance Comparison of Asian AMCs**

	Assets transferred <sup>a/</sup>	Disposal rate <sup>a/</sup> (percent of assets transferred)	Cash Recovery rate <sup>a/</sup> (over face value of transferred assets)	Cash Recovery rate <sup>a/</sup> (over amount of disposed assets)
<b>IBRA</b>	Rp 305.77 billion	70.4	31.4	44.6
<b>Danaharta</b>	RM 52.44 billion	100	34.1	58.7
<b>KAMCO</b>	USD 91.75 billion	61.57	29.2	47.4
<b>TAMC</b>	Bt 784.378 billion	73.46	1.81	2.46

Notes: <sup>a/</sup> as of the following dates: Korea, 11/03; Malaysia and Indonesia, 9/03; Thailand, 6/03

Source: Country AMC's annual and monthly reports.

For instance, as Table 3 shows, while the disposal rates are relatively similar across the four Asian AMCs, 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 and 100 percent but these relatively respectable figures could be largely due to the fact that the AMCs are nearing the end of their mandated life and so they have little choice really but to do something with the assets that can be disposed of. Whether in the process the asset values have been maximized or not remains to be seen and largely depends on the actual cash recovered from the disposed assets.

***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. This is in part due to the fact that TAMC is the youngest among the four and in part due to its dependence on a debt rescheduling strategy than on sales of loans and assets which KAMCO and Danaharta had done. The other factor that may account for the perceived successful restructuring by KAMCO

and Danaharta is the innovative solutions they exploited in the disposal of the bad loans from their banking system. 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 and used foreign expertise if there was a need to do so. Indonesia and Thailand, in contrast, were wary of foreign assistance. Thailand, for instance, allowed the outsourcing of asset management but priority was given to Thai entities rather than to foreign ones, which presumably would have better expertise in asset resolution.

### ***Political independence and market pricing***

Another important factor that may explain the varied AMC performance in the four crisis-affected countries is the political independence of the AMCs. The study analyzed the AMCs' ability to exercise ownership rights, to restructure assets without political interference, and their capacity to apply commercial, rather than political, criteria. In particular, with regards to the application of commercial criteria, appropriate pricing of acquired assets is important because it provides a clear signal that the government is not bailing the banks out.<sup>12</sup> 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 political independence compared to IBRA or TAMC despite the fact that all of them are overseen by relevant government agencies. KAMCO and Danaharta purchased bad bank assets at fair market prices and not at highly subsidized transfer prices as IBRA (or the government) had done by assuming all the bank losses. Many IBRA assets were

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<sup>12</sup> Appropriate pricing also provides the proper benchmark with which to assess the performance of the AMCs. 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, the appropriability of collateral, or cash flow projections from the loans.



acquired because the government infused capital on banks, and the assets transferred in exchange were generally based on book values. Thailand had a similar experience under the original AMC arrangements (prior to TAMC) used for recapitalizing the state banks.<sup>13</sup> Moreover, the AMCorp's purchase of unsold Thai FRA assets, as "bidder of last resort," likewise implied purchase of above market prices because the current market prices at that time for those assets happened to be very low. However, the new TAMC acquires assets based on collateral values and thus largely close to the loan market price.

### *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 GDP. KAMCO's assets likewise amount to a small percentage of about 11 percent of GDP. In contrast, 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%), while only 47 percent were unsecured, indicating a relatively higher quality of assets than those acquired by IBRA in Indonesia.

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<sup>13</sup> For example, to recapitalize two state banks—Bangkok Metropolitan Bank (BMB) and Siam City Bank (SCB)—the Thai government decided to use accounting techniques by transferring their NPLs to a state-owned AMC, the Petchburi Asset Management Company (PAM), at inflated prices (Santiprabhob 2002).

### ***Focused objectives***

The 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's blanket guarantees on deposits as well as the settlements of banks that violated the central bank's prudential norms. The multiple demands on an AMC can spread its personnel too thin and lessen the institution's focus on the disposal and recovery of bad assets. In the case of TAMC, it has an implicit aim of supporting "national recovery," which implies restructuring of debts to the maximum extent possible, preserving businesses as a going-concern, and the presence of limited liquidation alternatives.<sup>14</sup> Danaharta and KAMCO, in contrast, had a much more focused approach to bad loan recovery and disposal, which is evident in the innovations they introduced in its various disposition schemes.

### ***Skilled personnel***

The absence of political interference allows a more professional approach in the management of 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. Instead, KAMCO made use of extensive foreign expertise to issue asset backed securities (ABS). It likewise established joint ventures with foreign institutional investors for the disposition of assets, and shared profits with its joint venture partners. 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-

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<sup>14</sup> In the case of Thailand's FRA, it suffered from severe limitations on the operational restructuring of problem debtors because it was not established as an asset management company but only as a rapid disposal agency. It did not acquire assets and manage them for sale in the future; rather it was only authorized to sell assets for liquidation purpose 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 schemes like interest rate reduction or extension of maturity aside from debt sell-off and asset transfer through debt repayment.

how on NPL management to other countries like PRC, Vietnam, and India. Danaharta also 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, on the other hand, were demoralized by persistent and severe criticisms and attacks (Chenvidyakarn 2000).

### ***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 Thailand, Indonesia, and the Philippines. But although their legal systems have relatively stronger creditor rights and clearer foreclosure procedures compared to the other three, the legal framework of Korea and Malaysia was not adequate for a rapid resolution of the bad loans that arose from the Asian crisis. In response, Malaysia's Danaharta was vested with special powers that: (1) insulate it and the subsequent purchasers from undisclosed claims made after Danaharta acquires the NPL from the selling bank; (2) allow it to appoint special administrators that can dispose of assets without having to go to courts; and (3) give it power to abrogate underlying contracts when it forecloses on a collateral (Ingres 2000). Because of these special powers, Danaharta was able to resolve and restructure loans in significantly less amount of 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 although it has rarely used it, perhaps likely because of political pressures that protect well-connected debtors. In Thailand, revisions on the bankruptcy and foreclosure laws took a long time to be completed as these were done sporadically and halfheartedly. As a result of the

uncertainty, auction prices of Thai NPLs were highly discounted. However, in contrast to FRA, TAMC was better armed with extraordinary executive powers, which it exercised against noncooperative debtors.

***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 in addition to a relatively better coordinated restructuring strategy across different institutions of government. For instance, to entice banks to sell their bad loans to Danaharta, the government set a ceiling of 10 percent of total bank loans on NPLs. It also created other incentives like allowing banks to amortize losses resulting from the sale of assets to Danaharta for a period of 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 the 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 but without a good coordination with FRA on haircut policy. Commercial banks were forced to set up their own AMCs without adequate tax and other incentives. TAMC, however, is now funded by FIDF-guaranteed bonds to purchase NPLs from both state-owned banks and private banks.

IBRA was similarly beset by problems of government officials' inconsistent policies, particularly when faced with debtors with strong political clout. Using its special legal powers as threat for the debtors to comply with the restructuring agreements, IBRA received calls in many occasions from top government instructing it not to pursue any bankruptcy or liquidation procedures. Formally, the government supported IBRA, but in reality, it sided more with the debtors. KAMCO, on the other hand, enjoyed not only a reliable legal system but also a coherent policy framework, particularly when the supervision of the banking system was consolidated into a single government agency, the FSC.

## IV

### **Thailand Case: Examining AMCs and Moral Hazard Behavior in Banks**

While AMCs have been a major player in the disposal of NPLs in Asia, their possible adverse effects have been rarely examined. One reason is the paucity of data. Another reason, which applies to Asia in particular, is the fact that 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 the moral hazard issue and AMCs are also still evolving. For example, Wilson (1999) argues that proper pricing reduces moral hazard: Neyens (2000) points out that the introduction of moral hazard by AMCs can be avoided by restricting asset acquisition from banks and firms that engage in genuine and timely debt restructuring. Mako (2001) talks about the case of Indonesia. He argues that the proposed restructuring deals 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.”

The availability of systematic data on Thailand, however, provides us an interesting test case of the possible presence of the moral hazard effects from the establishment of AMCs. Moral hazard in the lending behavior of banks, as previously discussed, can come about because the removal of NPLs from the banks’ books, especially if this is done at little cost to banks, could induce financial institutions to continue the same practice of reckless lending that led to the bad loans problem in the first place. Hence, although not intended, AMCs could perpetuate banks’ reckless

lending. In this section, we attempt to examine the institutional effects of AMC's and their impacts on the creation of NPL's in the succeeding period.

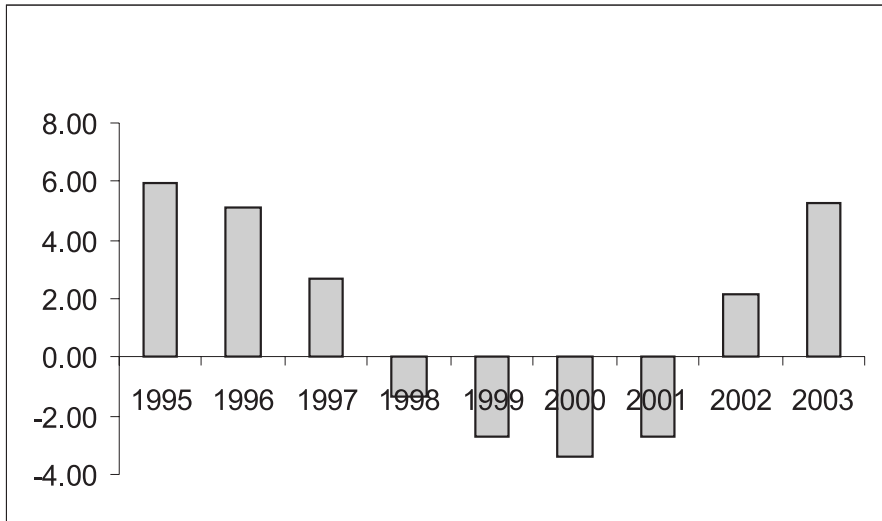
### **Thai AMC Chronology**

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 NPL's and distressed assets also involved a number of crucial policy decisions. The authorities had to decide, for instance, (1) whether they should set up a central state-owned NPL resolution agency or play only supportive roles to facilitate decentralized market-driven efforts, (2) how best to design appropriate reward and penalty mechanism, (3) how to appropriate burden sharing among the government, lending financial institutions (FIs), and debtors in NPL resolution, and (4) whether FIs should be encouraged to separate their good bank operations from bad bank operations by transferring NPL's to individual AMC's.

The Thai experiment on AMC's can be divided into two periods—decentralized approach and centralized efforts. Furthermore, the decentralized approach can be grouped into private bank AMC's and state-bank AMC's, 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 AMC's—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 pre-conditions—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's profits turned positive in 2002 after four years of negative profitability.

**Figure 3. Profitability of Corporate Sector in Thailand**



Source: DataStream, Thomson Financial, author's calculation

Secondly, the three AMC regimes—private bank AMC, public bank AMC, and TAMC—are distinct in their mandates, 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**

	<b>Decentralized market driven</b>	<b>Decentralized state-led</b>	<b>Centralized and state-led</b>
<b>Type of banks</b>	Private banks	State-owned banks	All banks
<b>Period</b>	August 1998 – (No sunset clauses)	1998 (BBC), 1999 (UOBR), 2000 (KTB), and 2002 (BMB and SCIB)	Second half of 2001 – Present
<b>Objective and motivation of establishment</b>	(1) Insufficient skilled human resource in the authorities and (2) to avoid political interferences.	(1) Expedite NPL resolution and (2) provide means to recapitalize the banks	(1) Expedite NPL resolution by bypassing legal and court procedures
<b>Number</b>	12 AMCs in operation	4 AMCS for 5 state-owned banks (BAM, PAM, SAM, and Radhasin AMC)	1, TAMC
<b>Average transfer pricing (as % of initial values or book values)</b>	Average 53%	Based on political consideration. 33% for BAM and inflated price for SAM and PAM.	Value of collateral used to secure the loans (33.2%)
<b>Transferred NPLs (% of total NPLs)</b>	Very little	Substantial (e.g., 52% (KTB))	All assets in the substandard class and below. Bt 784.378 billion.
<b>Asset restructuring (% of transferred NPLs)</b>	Slow restructuring because not time bound		73.46% as of June 2003.
<b>Incentives/Benefit for NPLs transfer</b>	<b>Not significant</b> since transferring the 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.	<b>Significant</b> since it allows them to meet recapitalization needs.	<b>Yes</b> , 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



<b>Moral hazard factor</b>	<b>Not significant</b> since there is little benefit for the banks so there is not much room to exercise moral hazard behavior.	<b>Significant</b> since (1) AMCs are fully owned by the FIDF. Issued bonds are guaranteed by the FIDF to purchase NPLs from the state-owned banks; (2) Asset selection criteria are generous based on the banks' recapitalization needs; and (3) Not required to publicly disclose information.	<b>Muted (?)</b> since any gains from the recovery will be shared by TAMC and FIs.  <b>YES</b> , only if FIs have inside information that the assets will eventually result in a loss since majority of the loss will be shouldered by the TAMC.
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Notes: BBC: Bangkok Bank of Commerce, BMB: Bangkok Metropolitan Bank, SCIB: Siam City Bank, UOBR: United Overseas Bank, BAM: Bangkok Commerce Asset Management Company, SAM: Sukumvit Asset Management Company, and PAM: Petchburi Asset Management Company.

Sources: Santiprabhob (2002); Fung et al. (2004).

### **Factors Affecting Moral Hazard — Terms and Conditions of the Asset Transfer**

As discussed, bank-lending activities of FIs are affected by the possibility of transferring bad assets to an AMC. They are also affected by the terms and conditions of the transfer. If FIs 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 the asset transfer in the three AMC regimes. The last row of Table 4 suggests that moral hazard factor appears most significant with the decentralized approach for the public banks while it does not seem so significant in the two other regimes.

#### ***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 the FIs' management and obstruct credit growth which was deemed crucial for alleviating credit crunch and for supporting economic recovery. In this context, the authorities believed that transferring NPLs out of the FIs would improve the effectiveness in NPL resolution and facilitate the expansion of new credit. 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 FIs, while two AMCs were established to manage NPLs purchased from other FIs. However, data show that most of the private banks did not transfer a large amount of their NPLs to the AMCs<sup>15</sup>. The reason is that the transferred NPLs remained reflected in the consolidated banks' balance sheet, hence the bank still needed to provision for possible losses. Even if the NPL or NPA had disappeared in the originating FIs' 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. Therefore, all things considered, private banks had little incentives to transfer and thus, we consider no moral hazard problems to start with as regards to private bank AMCs.

#### ***State-led AMCs for the 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 the maximization of the recovery values of the NPLs. The FIDF owned the state-owned AMCs and guaranteed the bonds used to purchase NPLs from the state-owned banks (SOBs). The pricing decision and selection criteria of NPLs were not very restrictive<sup>16</sup> but were rather largely based on the banks' recapitalization needs and not on the quality of the assets. These factors suggest that the SOBs 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.

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<sup>15</sup> Only four of them purchased NPLs exceeding 30,000 baht.

<sup>16</sup> In case of SAM, total loan outstanding worth less than five million baht were left with the banks, since the banks' extensive network would be better able to deal with the collection and monitoring of these loans.

### ***TAMC for all banks***

Around the end of 2000, system-wide 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 issuing 10-year TAMC bonds guaranteed by the FIDF. This time, however, the transfer pricing is more stringently based on the value of the collateral used to secure the loans rather than on the capitalization needs of banks. The emergency decree also required that the prices of loans transferred from private FIs 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, the moral hazard can come from the following scenarios: (1) if the FIs 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 and (2) if TAMC's restructuring strategy is lax and impose little pain on borrowers (for instance, if TAMC strategy focuses on debt rescheduling rather than on operational restructuring that seeks to turn business profitability around).<sup>17</sup>

To sum up, we discussed the different degrees of moral hazard elements across the three regimes. The public bank AMCs appear to have the highest moral hazard incentives, followed by TAMC, and least of all, the private bank AMCs. With this background in mind, the next section attempts to measure and compare the impact of moral hazard practice on the NPL creation across the three AMC regimes.

### **Measuring Moral Hazard—New Flows of NPLs**

We argue that bank lending decision is made not only on the basis of the demand for credit and the cost of fund constraints but also on the basis of other factors such as the moral hazard behavior of banks. Further,

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<sup>17</sup> Since the second type of moral hazard behavior can occur on individual and corporate borrowers rather than on banks, the issue is not extensively addressed in this paper.

we claim that loans that are made on moral hazard consideration are more likely to result in NPLs in the next period, hence the increase of new NPLs. To test this claim, we utilize new monthly NPL data from 1999 to 2003 from the Central Bank of Thailand.

### ***New NPLs in Thailand***

NPL information 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 at current period, where the increase of NPL is the sum of re-entry and new NPLs. That is,

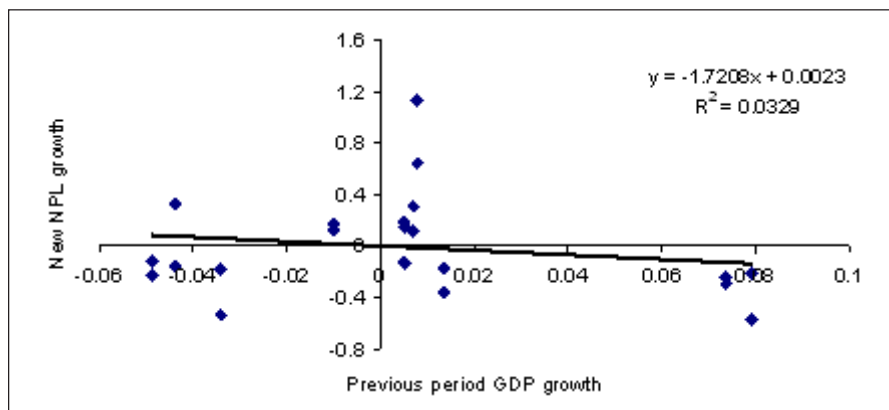
$$(1) \text{ Stock of NPLs}_t = \text{stock of NPLs}_{t-1} + \underbrace{(\text{New NPLs}_t + \text{Re-Entry NPLs}_t)}_{\text{Inflows of NPLs}} + \underbrace{(\text{Decrease of NPL}_t)}_{\text{Outflow of NPLs}}$$

The new NPLs reflect, to a large extent, the banks' lending performance—proxy for 'Moral Hazard' behavior—while the re-entry NPLs reflect the failure/success of the corporate/debt restructuring.

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

**Figure 4. GDP Growth and New NPL Ratio (% of Total Loan) Growth**



Source: Central Bank of Thailand.

Comparing the relationship across the three different AMC regimes in Thailand using pairwise correlation, a significant negative relationship can be found 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 claim 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, the two other AMC regimes reveal negative relationship between new NPLs and GDP growth, which implies that NPL creation under the two other AMC regimes decelerated as the economy picked up.

**Table 5. Pairwise Correlation between New NPL Growth and GDP Growth**

AMC regime	Correlation coefficient	I/
Private AMCs	-0.10	*
State-led individual AMCs	0.83	*
TAMC	-0.27	*

I/ \* indicates the correlation coefficient is significant at 5% level.

Source: Central Bank of Thailand and authors' calculation.

### **Regression Analysis**

The analysis of the previous section presents some evidence on the likely moral hazard behavior of public banks. In this section, we take a more formal approach 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.<sup>18</sup> In our analysis, the moral hazard element is proxied by an increase in loan outstanding, which cannot be accounted for by the macroeconomic variables.<sup>19</sup> 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.<sup>20</sup> We consider the following regression equation.

(2) Growth of Loans made by FIs<sub>ts</sub> = f (constant, manufacturing production, private investment, inflation rate, cost of fund, total NPL ratio, and dummy variables for the different types of financial institutions<sup>21</sup>) +  $\varepsilon_{ts}$ , (recovered as a moral hazard factor)<sup>22</sup>

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.<sup>23</sup>

We first estimate this equation with ordinary least squares, where moral hazard variable is not explicitly accounted and is constructed as a

<sup>18</sup> See Suwanaporn (2003) for the determinants of the bank lending in Thailand.

<sup>19</sup> Although we cannot control directly for the firms' characteristics because of the nonavailability of data, we account for those factors instead by including aggregate macroeconomic variables. To the extent that the firms' activity mirrors macroeconomic condition, we believe this approach is feasible.

<sup>20</sup> See similar approach taken in Kaufman et al. (1999).

<sup>21</sup> Financial institution dummies are incorporated to account for their different characteristics affecting the lending behavior.

<sup>22</sup> Thai GDP data are 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 the risk assessment of borrowers.

<sup>23</sup> From 2003, NPL data are reported at quarterly frequency, and no monthly data are available.

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 the higher stock of NPLs 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<sup>24</sup>—the change in total loans that is not explained by macroeconomic movements—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.<sup>25</sup>

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 the SOBs. 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 of 2001 when TAMC began operating, 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 has helped improve financial intermediation<sup>26,27</sup>.

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<sup>24</sup> We use the estimation result with the lagged variables to recover the moral hazard series given the highest adjusted R-squared.

<sup>25</sup> Admittedly, the residual series may also reflect other factors such as political consideration that may be particularly significant for the public banks.

<sup>26</sup> 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.

<sup>27</sup> 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.

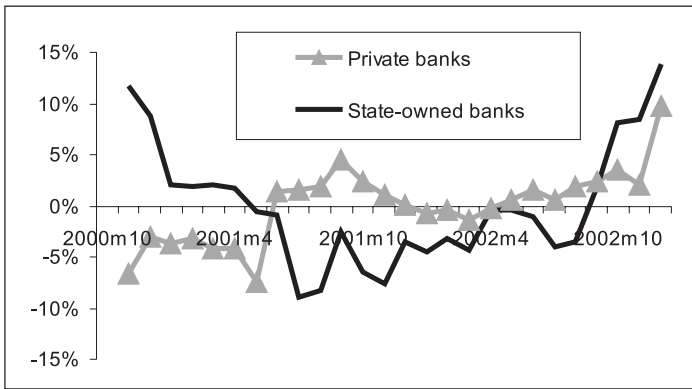
**Table 6. OLS Estimation Results-Extracting Moral Hazard Behavior Series**

Explanatory Variables	Dependent Variable: Growth rate of total loans		
	Coefficients (t-statistics)		
	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, and \*\*\* statistically significant at the 1-percent level



**Figure 5. Recovered Moral Hazard Series**



Source: Authors' estimation.

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.

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

Table 7 reports the estimation results using random effect GLS regression analysis.<sup>28</sup> Panel A presents the result to assess if the ‘moral hazard’ variable that we recovered from the previous equation explains the creation of new NPLs.<sup>29</sup> The result suggests that the residual elements significantly explain new NPL movements but with a negative coefficient

<sup>28</sup> 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.

<sup>29</sup> 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**

Explanatory Variables	Coefficients (z-statistics)		
	A	B	C
	Dependent Variable: New NPL ratio		
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, and \*\*\* statistically significant at the 1-percent level

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.<sup>30</sup>

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.<sup>31</sup> Interestingly, the moral hazard/institutional variable acts to decrease the new NPLs ratio for foreign banks and finance companies, while its effect on new NPL ratio of SOBs 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 and where reckless lending easily takes place. However, our result may indicate an improved environment for the finance companies after they 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 year 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 period, that is, across different AMC regimes.

In the last column, 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 one for private (public) banks during the period until June 2001, and zero otherwise. Since both public and private AMCs were

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<sup>30</sup> Note that we cannot control for bank specific characteristic such as bank risk or efficiency because these pieces of information are not usually available on a monthly basis.

<sup>31</sup> The four financial institution dummies were interacted with the moral hazard variable.

required to transfer assets in the substandard class and below<sup>32</sup>, we consider that these two regimes effectively ended their operation when TAMC was established<sup>33</sup>. TAMC AMC dummy takes one for both private and public banks during the period after July 2001, and zero otherwise<sup>34</sup>.

The result shows that the residual element for foreign banks and finance companies, as captured by the interaction variables, continues 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 ratio. While the coefficient for the private AMC was not significant, those for the TAMC and the public AMC regimes were, but yielded contrasting signs and thus signified differing effects—while the former leads to less new NPLs, the latter increases new NPLs. In particular, in the case of public AMC, a 1 percent increase in the loan would increase new 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, meanwhile, works to reduce new NPL ratio, which is consistent with our analysis that the TAMC has a better design and so is less likely to contribute to new NPLs. For the private AMC regime, the coefficient is not significant, which is perhaps due to the almost negligible amount of asset transfer from private banks to private AMCs. Among the macroeconomic variables, inflation rate appears to be the only factor affecting the growth of new NPLs.

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<sup>32</sup> There are some exceptions for the transfer. For public FIs, for example, they include the following: ( 1) NPLs that had already obtained a court ruling; 2) NPLs that had already been put under temporary or permanent receivership; and 3) NPLs 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 loan outstanding less than 50 million baht.

<sup>33</sup> Although the transfer was required by the end of 2000, the actual transfer took place gradually. So we set the beginning of the TAMC operation to be the second half of 2001.

<sup>34</sup> 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 Financial Restructuring Authority (FRA) as a rapid disposal agency for their bad assets.

## V

### **Conclusion**

This paper attempts to examine the performances of Asian AMCs. Our analysis reveals that AMCs vary significantly in their design and performance. We claim that AMCs can trigger moral hazard-inspired bank lending when the NPL transfer to the AMCs entails little cost to banks. Empirical examination of Thai AMCs reveals that the moral hazard-inspired 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 TAMC regime works to decrease the new NPL ratio, presumably due to better control measures that address the 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 our sample are those that are relatively better run compared to the ones that were closed down by the government early during the Asian crisis.

## Appendix

Variable	Construction	Data source
New NPL by FIs		Central Bank of Thailand
Stock NPL by FIs		Central Bank of Thailand
Total Loan by FIs		Central Bank of Thailand
New NPL ratio	New NPL by FIs/ Total Loan by FIs	Central Bank of Thailand
Total NPL ratio	Stock NPL by FIs/ Total Loan by FIs	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 CPI	International Financial Statistics
Deposit rate		International Financial Statistics

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