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Can "Moral Hazard" Explain the Asian Crises?

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ADB INSTITUTE RESEARCH PAPER 29

Can "Moral Hazard" Explain the Asian Crises?

Luiz A. Pereira da Silva and Masaru Yoshitomi

December 2001

The authors question the significance of the role of moral hazard in the international financial dimension of the Asian crises. They propose an alternative explanation using a testable model and based on results from a qualitative questionnaire of banks.

It is more likely that herd behavior and imprudent competition for market shares by foreign financial institutions explains most of the overinvestment and accumulation of short-term liabilities in the East Asian financial bubbles, particularly when the effects of the G-7 business cycles are added.

That would suggest international lending in global financial markets requires more policy coordination and data disclosure among institutions and recipient and emission countries, coupled with stronger surveillance of capital flows.

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Can "Moral Hazard" Explain the Asian Crises?

Luiz A. Pereira da Silva and Masaru Yoshitomi

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PREFACE

The ADB Institute aims to explore the most appropriate development paradigms for Asia composed of well-balanced combinations of the roles of markets, institutions, and governments in the post-crisis period.

Under this broad research project on development paradigms, the ADB Institute Research Paper Series will contribute to disseminating works-in-progress as a building block of the project and will invite comments and questions.

I trust that this series will provoke constructive discussions among policymakers as well as researchers about where Asian economies should go from the last crisis and recovery.

Masaru Yoshitomi
Dean
ADB Institute

ABSTRACT

This paper challenges Krugman's [1998] and Corsetti, Pesenti and Roubini's [1998] claim that "moral hazard" (MH) played a major role in the international financial dimension of the Asian crises, explaining both the overinvestment and the accumulation of short-term external liabilities that led to the crises. First, the paper proposes a definition of MH applied to international lending (particularly to loans from Japanese banks to Indonesia, the Republic of Korea [henceforth, Korea], Malaysia and Thailand). Using that definition, it analyzes the relevant financial flows between these countries. Then, the paper discusses and compares the two stylized stories for the Asian crises (with and without MH). And we propose an alternative stylized story without MH and a corresponding testable model. In our alternative story, competition between financial institutions—between financial "outsiders" and "insiders"—compounded by "herd behavior" (HB) by banks can explain most of the East Asian financial bubbles, particularly when the effects of G-7 business and financial cycles are added. The paper proceeds by comparing (through time-series and panel econometric estimations) the relative robustness of the two stylized stories. Results show that it is possible to explain quite well *without* using an MH hypothesis the oversupply of loans by foreign banks. Finally, the paper uses a qualitative questionnaire addressed to Japanese banks. Returned results confirm that the idea of government-backed "implicit guarantees" offered to international creditors (the backbone of the MH hypothesis) are not perceived by responding banks to have played a significant role in their lending decisions to East Asia. Conversely, fierce competition with other banks and HB did. Policy implications are less controversial: international lending in global financial markets requires more policy coordination and data disclosure between international financial institutions (IFIs) and recipient and emission countries, and stronger international surveillance of capital flows.

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Can "Moral Hazard" Explain the Asian Crises?

Luiz A. Pereira da Silva and Masaru Yoshitomi[1,2]

1. Introduction

1.1. Motivation of the Paper: Is a "Moral Hazard" Hypothesis Useful to Explain the Asian Crises?

Following an insightful paper by Krugman [1998], the concept of "moral hazard" (MH) has been used extensively[3] to explain "excessive" risk-taking behavior by borrowers and creditors prior to the outbreak of the Asian 1997-1998 currency and banking crises. It produced quite a compelling stylized story. However, when one compares the *stricto sensu* definition of MH in Box 1 with its interpretations in Box 2, the conclusion is that the usage of the term has been quite loose.

In a nutshell, in the presence of insurance when efforts to prevent accidents are unobservable, the behavior of insured parties may be imprudent because they will not bear the full cost of their actions. The losses resulting from the accident would be more than offset by the net benefits from the insurance. MH situations are pervasive in the economy. As a consequence, the notion has been applied to a variety of cases. Last, it was used to explain financial crises, linking them to the "imprudent" behavior of borrowers, creditors, depositors, investors, corporations, banks, etc. These agents' behavior arguably had been affected by the presence of "insurers" such as governments and even IFIs, including the International Monetary Fund (IMF), as an international "lender of last resort" (LLR).

Hence, MH became part of the argument explaining the formation of large financial bubbles in emerging markets, particularly in East Asia. It was naturally important, first, to recognize that because of the presence of very large capital flows, the new 21st century "capital account" crises were different from the old debt crises involving mainly "current account" transactions (e.g., commodity-price shocks, interest-rate shocks, etc.). Soon, it became clear that one needed to understand the behavior of these private capital flows, including bank lending that were a major element of the Asian boom and of its crises as well. For that, it was necessary to ascertain what was contributing to the buildup of the "financial vulnerabilities" creating fragile and overleveraged banking sectors in East Asia (see IMF [1998] and World Bank [1998]).

---

[1] Respectively Visiting Scholar, Ministry of Finance of Japan, Institute for Fiscal and Monetary Policy (IFMP), seconded from the World Bank; and Dean, Asian Development Bank Institute (ADB Institute).

[2] The opinions expressed here are those of the authors only. The authors would like to thank the Institute for International Monetary Affairs (IIMA) of the Bank of Tokyo Mitsubishi for its support.

[3] There were several hundred references for MH in 1999 in the JEL, NBER and *Financial Times* web sites with different meanings. Moreno [2000] provides an account of how the Asian Crises can be explained by MH. Earlier, Dooley [1997] explained the buildup of financial fragility in emerging market crises. The best support for the MH view can be found in Corsetti, Pesenti and Roubini [1998] and [1999], who identify MH as the main source of financial fragility for Asia. Krugman [1998] had earlier linked MH with overinvestment in East Asia. We discuss the MH view below.

Box 1. The Basic Analytics of Moral Hazard

The analytics of MH can be found in Arnott and Stiglitz [1988]. But the first insights came from discussions of Arrow's 1965 analysis of the theory of risk-bearing, mostly related to medical insurance coverage. For example, Pauly [1965] argued that full coverage is nonoptimal because it can lead to MH even when individuals insured are risk-averse. In the standard (Arrow-Debreu) competitive treatment of risk, insurance systems provide lump-sum transfers across states of nature (for example, in the event of an accident). Insured parties pay an insurance premium regardless of the state of nature. These states of nature occur with exogenous probabilities. They are observable to both the insured and the insurer and, hence, there is no incentive for "cheating". MH arises when neither the states of nature nor the actions of the insured are fully observable. In such cases, the insurer cannot monitor the effort by the insured to prevent accidents from occurring. Hence, the provision of insurance could affect the incentives to take the necessary precautions to avoid accidents.

MH strictly speaking arises when "the provision of insurance affects the probabilities of the insured-against events". Beyond the standard case described above, MH occurs in many circumstances when there are risks, insurers and insured parties that are risk-averse, and efforts to prevent accidents are costly to monitor. Arnott and Stiglitz examine the relationship between the insurance premium paid and the benefits received in the event of an accident, focusing on the indifference curves and the set of insurance contracts that at least break even. They show that even when both the insured party's utility function and the relationship between its prevention effort and accident probability are well-behaved, the indifference curves are not.

The puzzle was that the main agents behind these new crises were private sector banks and firms instead of governments or the public sector. Why would private sector firms take excessive risks? The answer is: because of MH. MH "explains" why there was "overborrowing" and "overlending" by the private sector during the years that preceded the Asian crises, and why it became a determinant factor in the buildup of financial vulnerabilities.

Unfortunately, the MH argument was also used for ideological purposes when it became a part of the political debate. Indeed, and ironically, the Asian crises can be interpreted as a byproduct of a technically successful but politically naïve "Washington-consensus" financial liberalization agenda.[4] Lobbied by many, including international banks, emerging markets' politicians quite logically delivered a "badly sequenced" liberalization. Weak domestic bank supervision seldom prevented premature financial opening up. True, prudent behavior of a "risk-conscious" private sector was expected to save the day. But instead, private lenders and borrowers alike, domestic and foreign,

[4] "Politically naïve" in the sense that experienced and seasoned economists should have paid more attention to the role that political economy variables would inevitably play in financial sector reforms at the domestic and international levels. The (implicit) assumption that all participants would agree on a Pareto optimal pace and content for such reforms without trying to favor their own vested interest in the process was (at best) illusory. Moreover, this characteristic behavior of special interest groups had been recognized by the "new political economy" literature (see, e.g. Nelson [1990] and also Drazen [2000]).

illustrated what "irrational exuberance" was all about. In Asia, as elsewhere, the euphoria resulted in the usual credit and stock exchange bubble that eventually burst.

For proponents of rapid financial liberalization,[5] it became an issue to find a scapegoat. The purpose was to show that, despite the absence of its "direct" borrowings (as in the Mexican 1994 crisis), the public sector as an "insurer" was nevertheless behind the excessive borrowing of the otherwise prudent private sector. The MH argument was used as a convenient line to shift (part of) the blame away from badly-sequenced and unregulated financial liberalization to insurers, either national governments, international institutions, or both.

Moreover, the MH argument also opens a debate about what should be done to prevent new similar crises, particularly since these crises are so difficult to detect.[6] An extreme consequence of the MH argument, for example, would be a strong case for dissolving any institution, domestic or international, and/or any mechanism that creates insurance, including international institutions functioning as quasi-lenders of last resort (e.g., the IMF). Opponents to that, on the other hand, would argue that the tremendous social cost of a systemic financial collapse requires institutions to regulate private agents. Local deposit insurance schemes, local supervision and monitoring of risks through strong central banks need to be strengthened. Therefore, this paper is inevitably also dragged into discussing the policy aspect of MH in the emergence of "bubbles", both of the credit[7] and asset type. Understanding the microeconomic determinants explaining the formation of a credit bubble is important to design preventive policies, perhaps as much as getting macro policies right. And crisis prevention might be even more important than crisis management.

---

[5] There is an extensive literature on the pace and sequencing of financial liberalization (see for example Caprio, Atiyas and Hanson [1994]). The literature supports the view that trade liberalization should precede financial liberalization, that domestic deregulation should precede international and external liberalization and that direct investment liberalization should be achieved before full capital account convertibility, which liberalizes portfolio flows and international banking loans. Even when a country is ready for full capital account convertibility, the adequate institutions to monitor risk-taking in and by the financial sector have to be firmly in place. (For recent and more critical work on how financial liberalization contributed to the creation of credit bubbles, see, for example, Demetriades [1999].)

[6] It is known that these new types of crisis are not necessarily announced by old early-warning signals like weaker fundamentals (e.g., inflation, depletion of the level of international reserves or rising fiscal imbalances). Rather they are preceded by asset-price bubbles (e.g., booming local stock exchanges and overlending to speculative areas of the economy) that are easy to observe but more difficult to stop (political economy).

[7] We are interested particularly in credit bubbles, because we worked on correcting the damaging effect of their bursting (usually a "credit crunch", because of the asymmetric information problems in most financial markets). We believe that once a credit bubble has been created, it is almost impossible to avoid a burst (we still believe, though, that when there is a currency crisis due to the bursting of a credit bubble, the standard contractionary medicine—high interest rates, tight budget, tight money—is not effective (as explained in Ito and Pereira da Silva [1999]). Whatever the type of policy framework, or the type of exchange rate regime, a credit bubble is likely to produce increasing fragility in the financial sector.

Box 2. Description of the Variety of Situations where "Moral Hazard" was Invoked in Relation to the Behavior that Led to Financial Fragility Prior or During the Asian Crises (1997-1998)

Effect on: Caused by:	Domestic Lenders	International Lenders	Borrowers (Investors, Banks, Corporations)
Local Bankruptcy Legislation			Borrowers borrow in excess if local bankruptcy legislation is unclear, soft on debtors and/or not enforced
Local Prudential Financial Regulations	Banks extend credit in excess if prudential guidelines are loose, soft on capital adequacy ratios (CARs) and/or not enforced	Same problem in country of origin of inflows (emission country)	
Local Government Deposit Insurance Scheme	Banks extend credit in excess if part of the cost of their liabilities (deposits) is covered by a DIC or a guarantee	Usually, only foreign banks that were fully-licensed and locally registered ones were covered by the local DIC	
Local Government Formal Guarantee on Private Loans	Banks extend credit in excess if part of the cost of their liabilities is covered by a guarantee offered by the government	This type of formal guarantee is usually not contemplated for foreigners. Only public loans can benefit from these mechanisms	
Local Government "Informal" Guarantee on Private Loans ("Cronyism")	However, there was a sense that "informally" part of the banks' liabilities was covered by a "political-economy" guarantee or a TBTF argument	Foreigners complained against this "informal guarantee" to local vested interests and labeled it "cronyism". They tried to circumvent it or use it to their own advantage	Borrowers would also benefit from "cronyism" and in order to create a TBTF situation, they would take excessive borrowing risks
Local Central Bank Implicit Guarantee against Systemic Collapse of the Local Financial System	Banks extend credit in excess if the central bank is perceived to follow a policy of rescuing banks if the problem is *large* and *systemic*		

(cont.)

Local Central Bank Liquidity Assistance to Specific Financial Institutions or to Specific "Large" Borrowers (Debt Rescheduling, etc.)	Same as above if the problem is *small* and *temporary* (in liquidity crisis) but mixed with "cronyism" while rules for liquidity assistance are not transparent		Borrowers would take excessive risks if central bank is perceived coming to their rescue when they are well-connected and TBTF
Local Government Commitment to a Fixed Exchange Rate		Foreign banks extend credit in foreign currency to local borrowers based on their perception of a central bank's or government's fixed and stable exchange rate regime	Borrowers (local banks and corporations) would not hedge their exposure to foreign liabilities
Foreign Government Guarantee		Foreign banks extend credit in excess to emerging markets if there is a formal or informal guarantee by their own government	
Foreign (Home Country for Lenders) Private Guarantee on Loans		Foreign banks extend credit in excess if there is a formal or informal guarantee by a large private company of their own country	Local investors participate in riskier operations when part of their liabilities is guaranteed by a large foreign private company
Foreign (Home Country) or International Prudential Regulations		Foreign banks extend credit to local borrowers in excess if prudential guidelines in home country regarding foreign exposure are loose, soft and/or not enforced	
Foreign (Home) Central Bank Implicit Guarantee, or Existence of International LLR (e.g., IMF)		Foreign banks extend credit in excess if there is a formal or informal guarantee by an international LLR	

1.2. A Working Definition of Moral Hazard (MH)

Due to a multiple and confusing usage of the term "moral hazard", the first step is to establish a more accurate taxonomy of what this paper will call "moral hazard in financial and credit markets". We propose the set of conventions below to start our discussion.[8] The objective is to ascertain whether MH did play a significant role in the international financial dimension of the Asian crises of 1997-1998. We will focus on a limited number of cases only.

MH involves ***three types of agents***. Creditors, borrowers and an "insurer":

- *Creditors* are financial institutions.
- *Borrowers* are either financial institutions or corporations.
- The "*insurer*" is involved in providing insurance or a signal about risk that affects the cost of private creditors' and borrowers' actions. Insurers can be of the following type: *governments* or public sector agencies (e.g., ranging from deposit insurance corporations with a strictly defined mandate, insurance mechanisms of ministries, up to central banks acting as LLRs), who provide insurance when they guarantee against risks or reduce the cost of potential losses of private agents engaging in market transactions. *Market* (private) *regulators* could also mitigate private risk when they agree upon rules for a "coordinated or a collectively funded bail-out" against "systemic collapse" of a specific market and/or its transactions. *IFIs* can finally (as international LLRs) comfort the impression that a bail-out of debtors and creditors will come to rescue private agents irrespective of their financial soundness and past compliance with prudential rules.

There are two different dimensions (domestic/international) related to the Asian crises where MH is used to explain excessive short-term external liabilities:

- *Domestic Borrowing/Lending*: financial vulnerabilities arise as the result of excessive domestic (private) credit. Corporations and banks manage to bypass or circumvent local government policies, and prudent borrowing guidelines. The country's apparent macro stability functions as "implicit insurance" and lures borrowers into mispricing risks. Heavy domestic borrowing is justified by the perception of an "implicit" government support for the continuity of the existing macro-policies of high growth with easy money. Sometimes MH is associated with a "too big to fail" (TBTF) argument (e.g., large domestic corporations, regardless of the risk represented by rising debt-equity ratios, would have access to an infinite supply of credit because they are perceived as key to the country's economy and are politically well-connected).

[8] Corsetti et al. (op. cit) [1999] define three dimensions of MH: at a *corporate* level (public guarantees that apply to private projects aiming at maintaining high levels of economic activity); at a *financial* level (excessive borrowing by domestic financial intermediaries to sustain excessively high investment rates); and at the *international* level (excessive lending by international banks based on the "presumption that short-term interbank cross-border liabilities would be effectively guaranteed by either direct government intervention in favor of the financial debtors, or by an indirect bail-out through IMF support programs") (op. cit., pp. 130-131).

- *Foreign Lending/Borrowing:* financial vulnerabilities arise as the result of excessive foreign (private) credit. Rational foreign lenders interpret local pegged exchange rate regimes as representing an "implicit" government commitment to bail out local borrowers. Lower foreign interest rates induce borrowing in foreign currency while pegged exchange rate regimes are viewed as an "implicit" government guarantee (hence the central bank becomes an "insurer"). Lenders have an incentive to overlend beyond their Bank for International Settlements (BIS) prudential guidelines. MH arises because there is a "perception" that lenders would be bailed out and/or that part of their liabilities are "insured" by the local (recipient) government.[9]

Two types of "insurance" mechanisms (explicit or implicit, formal or informal) are associated with a MH situation.

- *Explicit defined rules in formal institutions*, for example, deposit-insurance schemes (DICs),[10] change the lending behavior of financial institutions because they affect the cost of bankruptcy. A portion of their liabilities is covered by government.
- *Guarantees by governments to investors or borrowers* can also produce MH. Governments can establish guidelines and/or policies that target and/or "guarantee" the stability of specific prices, *including the exchange rate*. Private agents might consider that commitment is strong enough to be the equivalent to "insurance". Governments can also give the impression that some private agents are *TBTF*, i.e., when there is an "understanding" that very large banks or firms will not be allowed to fall into bankruptcy. Private lenders would therefore continue to extend loans to these TBTF entities regardless of their financial strength.[11]

MH-induced changes in the behavior of agents arise in two types of situations (before/after a crisis):

- *Before a crisis, during booms and upswings of the economy*, in most cases, borrowers and lenders could take excessive risks because market participants believe that the cost of the financial crash (the "accident") will not be borne entirely by them. That behavior, in turn, can contribute to the emergence of a financial bubble.
- *During or rather after crises*, there could be a "socialization of the cost of the financial crisis" (e.g., a "bail-out" by a LLR). New rules, new institutions and new practices are established learning the lessons of the crisis. If the crisis

[9] In both cases, the crisis is triggered when lenders realize the borrowers' risks (their "excessive" exposure) and stop extending or rolling over credit. The crisis can be compounded by HB and financial panic (see Ito and Pereira da Silva [1999]) and usually ends in severe local credit crunches.

[10] The canonical case is examined by Merton [1977]. It is the analytic derivation of the cost of deposit insurance (and loan guarantees) as equivalent to a common-stock put option.

[11] Evidence of the TBTF argument would be nontransparent rescue mechanisms (e.g., linked to the country's political economy) for well-connected borrowers or creditors through, for example, access to central banks' liquidity assistance over and above a reasonable level.

resulted in a large bail-out of private agents, that event can reshape the "expectations" of private agents leading to the conclusion that such a rescue could happen again. International financial institutions can (unwillingly) play such a role. Therefore, by rescuing private banks and firms that are negotiating with private creditors, IFIs create the *equivalent of an exit option* whose price is paid, in part, by the "insurer", in part by the government but not by the private sector.

Thus, this paper proposes a somehow more restrictive definition of MH to be tested against empirical evidence. We propose a necessary and a sufficient condition for a MH situation to happen in the specific (credit) market sense that the paper is examining. MH can occur when economic agents are insured[12] against bearing the entire cost of their economic actions in the event of an "accident" or a "crisis". For MH situations to happen, at least one "insurer", etc., is required (someone or some institution that bears part of the cost of the "accident"). It is also required that the states of nature are costly to observe and monitor, i.e., that the efforts by the insured party to prevent accidents cannot be clearly monitored. And it is required that agents (the insured party or "beneficiary") change their behavior as a result of the existing insurance (and that this change is observable). Therefore, we narrow the MH definition to:

A Necessary Condition: MH requires an institutional (insurance) mechanism and the existence of an insurer that provides insurance or a guarantee to lenders (financial institutions), and/or borrowers (corporations or banks) in the local or international credit markets.

A Sufficient Condition: MH requires showing evidence of oversupply of loans by financial institutions and/or an overborrowing by banks and corporations. This evidence would suggest that the existence of "insurance" has contributed to changing the behavior of private insured parties.

1.3. Objective and Methodology of the Paper

The paper will not cover the entire domain discussed so far. *We do not dispute the claim that MH played a role in the buildup of financial vulnerabilities prior to the Asian crises. What we dispute is that MH is the "main" reason behind overlending and overborrowing.* Our paper limits its scope to the *international financial dimension* of the MH discussion (i.e., foreign loans and international capital markets). Moreover, our approach has (we shall see why below) narrowed its research to international loans from

[12] The need for an explicit insurance mechanism is important because if we include "implicit" insurance schemes, it is an excessively "broad" and above all *nontestable* definition. For example, can MH occur when agents simply "believe" that they will be bailed-out? Krugman [1998] in particular, suggests that rational agents even in the absence of a "formal" guarantee will indeed assume that the cost of inaction for governments and regulators will be excessive. Hence, costs that are large enough will trigger a bail-out or a rescue, even when there is a public denial of this possibility prior to the crisis itself. A weaker version of MH would consist of identifying (through interviews of insured parties) and confirming that (policy) commitments by policymakers functioned as an "implicit" or quasi-insurance.

Japan to East Asia. We begin (in Section 2) with an analysis of the data, looking at capital flows between Japan and the East Asian countries. That section identifies empirical evidence of overlending. The papers then discuss the two stylized stories (with and without MH) to explain international (here Japanese) lending to East Asia. Then, in Section 3, the paper uses econometric tests to determine which of the two stylized stories provide the best fit with the available data. Finally, in Section 4, the paper looks at the necessary conditions for MH, using the results of a specially designed bank survey. In the last section, policy conclusions are discussed.

2. Was there "Overlending" from Japan to East Asia? Two Stylized Stories Explaining Japanese Capital Flows

This section examines data to find evidence of "excessive" growth of capital flows from Japan to East Asia during the 1990s. First we look at the evidence of "overlending" by Japanese banks, by examining debt flows. Then, the two different stylized stories that explain the "overlending" syndrome are compared. Can the "overlending" be explained primarily by the MH hypothesis? Or, alternatively, can another stylized story (without MH) explain this lending behavior?

2.1. The Data[13]: Rapid Growth of Japanese Loans to East Asia

Foreign commercial bank lending became during the 1980s and 1990s a major source of financing for East Asian banks and corporations. Chart 1 shows the rapid acceleration in foreign liabilities (debt and securities) of Indonesia, Korea, Malaysia and Thailand after 1993. During the 1990-1996 period, foreign loans to these countries on average annually increased by 16%, 21%, 24% and 34%, respectively. Japanese banks compounded this trend and accounted for large chunks of the overall flows of bank loans to East Asia. During the 1990-1996 period, Japanese loans to Indonesia, Korea, Malaysia and Thailand increased on average annually by 9%, 11%, 19% and 32%, respectively.

There was a significant growth of the "international activities" of Japanese banks linked to Japan's financial condition during its bubble period[14] (during the 1980s until it burst at the end of 1989). As a percentage of total loans of city banks and long-term credit banks (LTCBs), international lending reached almost 30% in 1990. After that, there was a sharp decline for all types of banks until the end of 1994. Another boom started then, which peaked with the beginning of the Asian crises in the middle of 1997. A major contraction of Japanese banks' international assets took place then (Chart 2).

To see how, in the Asian context, Japanese bank lending was paramount, one should look at Table 1. Bank loans accounted for more than 50% (sometimes as much as 70%) of East Asian countries' external liabilities. On average, Japanese banks provided about half of all bank loans to East Asia in the early 1990s. Nevertheless, for reasons that are explained below, the share of Japanese bank loans declined to about 36-37% of total bank loans in 1997-1998. In other words, while total bank loans (reported

[13] See Appendix A for a detailed account of the data sources and major components of Japanese capital flows into East Asian countries.

[14] See Appendix B for a description of the changes in Japan's financial sector institutional framework.

by the BIS) to East Asian countries was growing rapidly (see Chart 3), the share of Japan remained flat or declined (Chart 4).

Nevertheless, there is evidence of excessive growth of foreign credit (from Japan and elsewhere) to these countries during the 1990s. A first intuitive way to identify the formation of a foreign credit bubble is to look at the growth rates of foreign lending into a recipient country and compare them to other local macro and financial variables (see Table 2). The idea is that an "excessively high" growth rate of credit above that of real activity should be an indication of a possible overlending and a "bubble". When we look at Chart 6, we are struck by the following characteristics.

Table 1: Bank Financing (in Particular Japanese Banks) in East Asian Countries

US$ Million (Stocks) % when indicated	1990-92	1993-96	1997	1998
Thailand				
Total Bank Loans (consolidated)	37,022	107,242	113,325	91,850
Percent of Total External Financing	57.8%	55.3%	51.6%	44.8%
Percent of Short-Term / Total Bank Loans	57.9%	50.1%	49.7%	46.5%
Japanese Bank Loans	11,681	34,446	33,180	22,437
Percent of Total Bank Loans	54.5%	57.5%	56.7%	54.5%
Indonesia				
Total Bank Loans (consolidated)	78,939	113,120	129,101	129,089
Percent of Total External Financing	35.6%	39.5%	45.0%	34.9%
Percent of Short-Term / Total Bank Loans	45.7%	55.6%	54.6%	45.3%
Japanese Bank Loans	16,616	20,719	22,018	16,402
Percent of Total Bank Loans	59.8%	46.7%	37.9%	36.4%
Malaysia				
Total Bank Loans (consolidated)	18,533	34,476	47,800	41,923
Percent of Total External Financing	50.6%	50.6%	57.2%	49.9%
Percent of Short-Term / Total Bank Loans	34.9%	43.6%	49.7%	39.7%
Japanese Bank Loans	4,458	7,128	8,551	6,623
Percent of Total Bank Loans	52.5%	41.2%	31.3%	31.7%
Korea				
Total Bank Loans (consolidated)	52,513	122,592	178,510	162,626
Percent of Total External Financing	69.2%	63.7%	52.5%	40.3%
Percent of Short-Term / Total Bank Loans	63.5%	64.3%	56.4%	40.4%
Japanese Bank Loans	10,727	21,368	20,278	16,925
Percent of Total Bank Loans	30.0%	27.5%	21.6%	25.8%
Asia 4 crisis hit countries				
Total Bank Loans (consolidated)	187,007	377,430	468,736	425,488
Percent of Total External Financing	53.3%	52.3%	51.6%	42.5%
Percent of Short-Term / Total Bank Loans	50.5%	53.4%	52.6%	43.0%
Japanese Bank Loans	43,481	83,660	84,027	62,387
Percent of Total Bank Loans	49.2%	43.2%	36.9%	37.1%

Sources:
OECD-IMF-World Bank-BIS joint debt reporting-Consolidated Cross-Border Claims of Reporting Banks
Japan-Ministry of Finance and Bank of Japan

Table 2: Indicators of Credit Bubbles in East Asia

	Indonesia			Korea			Malaysia			Thailand			Japan		
Nominal YOY Growth Rates(%)	1990-96	97	98	1990-96	97	98	1990-96	97	98	1990-96	97	98	1990-96	97	98
Exchange Rate (increase is depreciation)	4.1%	37.0%	213.3%	2.8%	25.5%	34.1%	-1.0%	19.2%	31.3%	-0.2%	39.5%	22.2%	-2.7%	10.6%	7.2%
Insert Rate (lending rate),bp	-30.7	325.5	1,122.5	-15.6	235.0	225.5	28.6	66.0	54.0	14.9	54.0	-4.5	-39.1	-20.5	-12.5
Stock Exchange,index	16.1%	-7.4%	-19.7%	-0.8%	-25.5%	-5.3%	16.0%	-28.6%	-29.5%	10.5%	-56.5%	-26.9%	-4.5%	-14.9%	-16.2% (*)
Total Foreign Loans	15.6%	11.8%	-20.0%	24.0%	6.1%	-30.6%	21.2%	33.1%	-22.2%	34.3%	-8.3%	-31.3%	-0.5%	-5.6	-26.6
Japanease Loans(**)	8.9%	3.5%	-21.7%	18.9%	-5.6%	-18.4%	11.2%	16.6%	-23.6%	32.4%	-5.5%	-31.6%			
Japanease DFI(**)	6.4%	8.7%	4.5%	5.0%	5.4%	3.9%	13.6%	8.6%	6.1%	15.7%	16.9%	12.1%			
Domestic GFCF(**)	24.2%	12.5%	13.6%	12.5%	10.7%	9.7%	21.6%	13.8%	13.3%	32.7%	16.5%	12.3%	2.9%	-4.2%	-10.5%
Domestic Credit(**)	24.8%	16.1%	27.5%	19.4%	14.4%	19.9%	17.2%	18.7%	23.8%	26.8%	15.6%	-2.6%	6.0%	-11.0%	-11.5%

Sources: IMF-IFS, BIS and author's calculation

(*) Total Japanese Loans reported under "International activity of Japanese Banks"

(**) Measured in US$ terms

- The international activities of Japanese banks grew strongly during the Japanese boom (year-on-year [YOY] growth rates sometimes reaching almost 40%, higher than domestic lending, which was itself growing fast during the boom period in Japan). An inspection of Charts 3 and 6 reveals the acceleration in lending that took place between East Asia and Japan during the 1990-1996 period. For example, looking at Chart 5, Japanese loans to Thailand increased YOY by 32% on average during the same period.
- After the bursting of the Japanese bubble, there is a general slowdown in Japanese lending (both domestic and international). But after a while, there seems to be a substitution between domestic growth and international activity and even inside international lending. For example, the growth rates of Japanese loans to East Asia are higher than those of Japanese loans to the rest of the world (the international activity of Japanese banks in general). The long-term time trend of loans to all emerging markets in Asia such as Indonesia, Korea, Malaysia and Thailand is lower than the actual growth of loans. The first difference between actual lending for each country and the time trend can be "interpreted" as an indication of overlending by Japanese banks.
- Another angle is to consider the *average* overall growth of "international activities" of Japanese banks as the "normal" growth rate for international loans and look at the difference between that and the growth of the East Asia portfolio, which grew much faster. A quick calculation illustrating that idea for loans to Asia would yield a stock of $25 billion of "excessive" loans to East Asia.
- The growth rate of Japanese loans to each East Asian country is compared with the growth rates of real sectors (investment growth) and the growth rates of domestic credit in these recipient economies. Measured in US dollar terms, and taking into account the overvaluation of the local currencies during the boom period (1990-1996), the growth of foreign and Japanese loans is higher than that of local investment, Japanese direct foreign investment (DFI) and domestic credit, suggesting the possibility of foreign credit "bubbles".

2.2. *The MH Stylized Story about Overlending (and Overinvestment)*

Krugman [1998] provided an insightful interpretation of the role of MH in the new capital account crises. After acknowledging that neither the "first generation" nor the "second generation" currency crisis models[15] could fully explain the Asian crises,

[15] The initial model of a collapse of a fixed exchange rate regime (ERR) (Krugman [1979] and Flood and Garber [1984]) had as a departure point the seminal intuition that "excessive credit expansion" (linked to fiscal deficit financing) would, at some point, trigger a pre-emptive "speculative attack" from holders of domestic currency and assets that will (try to) convert their wealth into foreign currency and assets (thus triggering a "run" on the currency). The key behavioral equation of these "first generation" models of currency crisis is a portfolio decision by holders of the "weak" (domestic) currency, assuming that there is full convertibility and no transaction costs in the foreign exchange market. These first generation models, however, left little "defensive" role and assumed quite passive and mechanical behavior for central banks. That shortcoming was corrected in subsequent developments of the literature, which emphasized that central banks could defend fixed or pegged ERR depending on a cost-benefit assessment of

Krugman and others after him quickly pointed out that the Asian problems began actually with financial intermediaries and not with foreign exchange markets. These institutions had "liabilities that were perceived as having an implicit Government guarantee, (…) were essentially unregulated and therefore subject to severe moral hazard problems".

Their MH stylized story runs as follows. Despite the absence of formal guarantees like deposit insurance schemes, Krugman suggests that "informal" or "implicit" guarantees can play an identical role. The local political economy gives way to this informal protection from risk that came eventually to be associated with "crony capitalism". Overinvestment in such a context derives from the distorted incentives that financial intermediaries provide to investors when part of their liabilities is "guaranteed". The accompanying boom in asset prices can be also explained in a similar way. Facing two investment possibilities with high or moderate expected returns associated with high or moderate losses (risk) in case of a "bad" outcome, an investor would choose the highest return if he/she can walk out without (significant) losses in case of the "bad" outcome. A "guarantee" (particularly from governments) is precisely the factor that creates this possibility of a "win-win" situation for reckless investors: "(…) a game of heads I win, tails the taxpayer loses".

Krugman's stylized story simplifies somehow the picture (by mixing industrialists and bankers) but tells a convincing story about how financial intermediaries create MH and how it then translates into lending bubbles. Assuming financial intermediaries are (also) the owners of the capital stock, the fraction of "guaranteed" liabilities in their balance sheets lower their cost of funds. That, in turn, allows investment to be pushed beyond the "normal" level (e.g., the level where the capital stock's marginal product equals the cost of funding new investment *in the absence* of any insurance or guarantee). Hence, the MH story convincingly explains also the overinvestment part of the Asian boom.

Although Krugman's MH argument does not make an explicit distinction between foreign and domestic lending, his paper points out that access to new sources of (external) financing can aggravate overinvestment by offering new financing to a typical excess (and risky) local investment demand. Corsetti et al. use MH to explain

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the defense and/or that policymakers can simply choose to abandon a peg, even in the absence of macro imbalances. "Second generation" models making an explicit use of policymakers' preferences emerge (Obstfeld [1986] and [1994], Davies and Vines [1995], Agenor [1996] and Agenor, Bandhari and Flood [1996]). This new class of explanation brought the possibility of "multiple equilibria" depending on agents' expectations (of a forthcoming devaluation) and their assessment of the credibility and reputation of policymakers (Masson [1995], Agenor and Masson [1995]). The models involved using a "loss function" for policymakers and assessing their "credibility", i.e., their capacity to stick to preannounced policies (like a peg). Private agents would essentially evaluate, based on a continuous updating of their information, the probability of policymakers sticking to the previous policy stance. The key behavioral equation in these second generation models is the markets' probability function of policymakers' reaction to exogenous shocks. An accompanying but more controversial development was that, in such cases, one had to admit that currency crises could affect any currency (weak or strong) and be self-fulfilling even in the absence of any reason calling for an exchange rate adjustment. If foreign exchange markets are imperfect, HB by traders could trigger a massive outflow of capital simply because of a shift in "sentiment" or "expectations". Many commentators of the Asian crises (looking also at previous episodes of speculative attacks affecting European currencies in 1992-1993) felt that (given Asia's good macroeconomic fundamentals) there was no reason for Asian currencies to be attacked, thus confirming empirically models admitting "self-fulfilling" crises (Obstfeld [1996]).

why financial vulnerabilities were magnified during the Asian crises. The overly risk-averse behavior of international banks is interpreted as driven by the impression of a possible bail-out.

Chinn and Kletzer [1999] provide an explicit model of a financial crisis in emerging markets based on the role of MH in *international* lending. The authors extend Krugman's MH argument to "implicit guarantees of *foreign* loans by sovereign governments". Their paper, following Calvo [1998], argues that sovereign governments have an incentive to subsidize foreign capital inflows. The form by which this happens is through the commitment to keep a fixed or a pegged exchange rate regime. Previously, Mishkin [1996] had also argued that a government's choice for a pegged exchange rate regime seems to be driven by the need to offer some insurance to foreign investors. Chinn and Kletzer suggest that the behavior of creditors changes when they work under pegged exchange rate regimes and their investment in risky projects is somehow seen to be protected by implicit government guarantees. In their view, currency and banking crises are linked because governments provided this implicit insurance to contract foreign currency debt. Their paper is an extreme version of the new academic view suggesting that any exchange rate regime (such as a pegged-administered exchange rate) deviating from the two-corner solution (e.g., either the fixed regime of a currency board or a pure float), constitutes an "incentive" for "irresponsible" external borrowing.

Another interpretation explaining the perception of an "insurance" to foreign investors comes from what seemed an incredible "success story" in East Asia. For a while, East Asian emerging markets managed to make a paradoxical framework work well (see Fischer and Reisen [1992]). East Asian countries were able to successfully reconcile an open capital account (free capital mobility) with exchange rate stability (a pegged currency and/or administered float) at competitive levels and some degree of monetary autonomy.[16] The success in managing financial liberalization and macro stability might have contributed to the overborrowing syndrome in East Asia described by McKinnon and Phil [1998]. Banks and corporations did believe that these policy stances were "credible" and stable. Consequently, they increased their investment (and borrowing) in anticipation of further growth. Financial markets failed to break the inflows that started financing even risky projects. That, in turn, inflated banks' balance sheets with potentially nonperforming assets (NPAs). McKinnon and Phil also suggest that the existence of (implicit or explicit) guarantees[17] on banks' liabilities (in particular

[16] This policy framework was considered by textbooks to be the "impossible trinity". Standard economics suggests that opening the capital account makes monetary policy ineffective under a regime of fixed (or even pegged) exchange rate. With perfectly substitutable assets, free capital mobility forces the central bank to compensate any movement of domestic assets (domestic credit expansion, etc.) with its foreign exchange reserves. The experience in Argentina, Chile and Uruguay with financial liberalization during the 1970s and 1980s was much less successful than East Asia. Financial liberalization in the Southern Cone rapidly produced exchange rate appreciation that followed massive capital inflows, a crisis in the export sector and a severe deterioration of the domestic banking sector. It took several years before these happened in Asia. But perhaps the 1997-1998 crises in Asia is just the "revenge" of the Southern Cone syndrome?

[17] Evidence from several quarters suggests that, in Asia, the "guarantee" was implicit and given by head offices to subsidiaries. This form of "insurance" is linked to what we describe as the privileged relationship between banks, firms and governments that characterized the Japan Inc. model. Contrary to extreme forms of the MH assumption, emerging markets' governments never gave a formal or even informal "guarantee" to *private* foreign creditors, insuring the borrowings by local private banks and corporations.

deposits) exacerbate the trend. However, as we shall see below, MH cannot necessarily explain a gross miscalculation by the private sector.

2.3. An Alternative Stylized Story without an MH Assumption: Institutional Characteristics, Political Economy and Herd Behavior (HB)

The MH story looks like a convincing explanation. We agree that it explains perhaps 10% to 20% of banks' lending behavior.[18] However, our view is that 80% to 90% of the explanation lies somewhere else. Our alternative stylized story of the buildup of financial vulnerabilities in East Asia explains the behavior of financial intermediaries by institutional characteristics of financial markets in Asia ("Japan Inc." model[19]) combined with private commercial banks' HB.

It is now accepted that the much praised "Japan Inc." model (of which Japan provided the canonical example) contains several incentive problems. But these problems have little to do with MH as defined above. In particular, international lending by Japanese banks cannot be totally explained by MH as we shall see below. The ties between banks, firms and politicians that contributed to the model's high performance cannot be put under the general label of MH. At best, it is a variety of an "implicit contract" type of arrangement. But there was no "insurance", insured parties, or an insurer. For example, it took Japan almost 10 years after the bursting of its financial bubble in 1989 to set up a formal mechanism to begin injecting public funds into ailing private commercial banks (see Appendix B). But the model surely led to a typical structure of financing, which eventually resulted in crisis.

Our proposed alternative story goes like this. The excessive growth of foreign loans to recipient countries results from unregulated competition between private commercial banks. First comes, say, from Japan (the dominant regional economy), a wave of DFI accompanied by traditional Japanese bank credit.[20] This wave boosts exports and ignites an increasingly buoyant local business cycle. This cycle constitutes part of the observed "East Asian Miracle" that is export-oriented and combines high growth with sound fundamentals (including foreign loans by traditional banks to sound borrowers like local exporters). But a side effect is that the local boom whets the appetites of competing foreign banks and funds from the United States, Europe and also Japan. Local financial markets are protected, banking licenses rationed. The "newcomers" are "outsiders" to the existing relationship between traditional lenders and

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[18] 11% is the percentage of commercial banks that were declared to be "strongly influenced" by implicit guarantees in their lending to East Asia (see Section 4 below)

[19] Briefly, the Japan Inc. model refers to a triangular relationship of ties and support between private and public policies, institutions and financial flows involving the real, financial sectors of a typical country and its government. The World Bank [1994] "East Asian Miracle" report provided a positive account of how "institutional" factors behind Asia's growth performance could bring useful insights to the findings of the traditional (neoclassical) growth (and growth accounting) literature. A vast body of research, for example, Ito [1992], Tachi [1993] or Nakamura [1981] describe Japan's "growth-oriented" councils and institutions. For the East Asian experience, Ito and Krueger (ed.) [1995] provide an overview of the Asian growth experiences, how they fit the current growth theories (in particular "endogenous growth" models) and an examination of individual country experiences.

[20] There has been for decades a special relationship between each Japanese corporation and its main Japanese bank. A similar "local" relationship exists between affiliates, joint ventures of leading Japanese corporations and the local branch of its own Japanese main bank.

borrowers. They want to enter the local credit market. Hence, they lobby governments to accelerate financial sector liberalization. They also offer attractive (low) interest rates (in their own foreign currency, usually US dollar rates that are below local interest rates). To get full bank licenses, they try to aggressively expand their market shares and they increase their loans and exposure. Inevitably, they end up financing riskier businesses and directly or indirectly (through local financial intermediaries) feeding the real estate bubble.

Understandably, the typical behavior of private commercial banks competing for market shares is to accept returns that could be *below* their funding cost initially, knowing that eventually their presence in a fast-growing market more than compensates for their initial loss. Hence, in our stylized story and contrary to Krugman's, there is no change in the funding cost of financial intermediaries due to an "implicit guarantee". There is a willingness to accept an initial higher risk (and pay an entry cost) because of the expected reward based on current observation of market trends. And what drives the model is the need for other banks to enter a promising market. So, more than MH and "bad policies", unregulated competition between experienced financial institutions, "outsiders" and "insiders", can explain much of the East Asian financial bubbles, together with the business and financial cycles in the US, Europe and Japan. There are other related factors that we now describe below.

2.3.1. The Externalities Generated by the "Japan Inc." Model

The Japan Inc. model may be understood as an institutional setup that *reduces uncertainty* of economic agents over economic decisions. Hence, even with identical returns on investment, an expectations-augmented investment function would result in higher levels of capital stocks. The model worked extremely well as it allowed rapid growth of the real sector in Asian economies, particularly the manufacturing and export sectors. Economic success came from the capacity to mobilize several conditions for rapid and sustained growth in the production of (initially) labor-intensive manufactured tradable goods. Flexible labor markets, nonrepressed (but sometimes "directed") credit markets, stable foreign exchange markets, institutions and policies were all put in place to favor a strategy of continuous skills upgrading, stimulated by export competition, fostered by the acquisition of adequate technology, etc. All that resulted in increasing regional integration and the production of more sophisticated goods.

Major actors in the Asian economic "miracle" were public sector entities. Private companies followed public sector planning directives and prospered too, founded (and sometimes still controlled) by a renowned family even after their listing on the local stock market. The close cooperation between public and private corporations, their governments and banks was reinforced by oligopolistic decision-making structures with sometimes a direct partial ownership by segments of the government. These links explain partially that financial support was provided to these large private groups through the financial system. Accommodating regulations for the assessment of risk, for the banks' capital adequacy and for the provision of new credit allowed the accumulation of financial assets with minimum supervision and control.

The success of the "Asia Inc." model is undisputed, the numbers for Japan itself and its periphery are in record territory.[21] Asian corporations under this framework grew to become global players in the world market. Naturally, at some point their capital needs exceeded even the high level of savings available in Asian domestic markets. But then, the ownership structure of the Asian industrial model (i.e., the reluctance by families, governments to lose control) explains how, once more financing became necessary for further growth, these needs were preferred to be filled by debt instead of equity. To facilitate debt financing, governments sometimes offered significant indirect support (guarantees) to domestic borrowers, while keeping themselves away from direct borrowing.

2.3.2. The Political Economy Factor: Debt Financing versus Equity Financing

Asian banks and corporations preferred debt (bank loans) to other financing sources (equity) for fear of diluting or losing ownership control. This preference for private debt flows in East Asia resulted in the typical structure for the stock of external debt that is shown in Table 3. The data confirms (a) the importance of bank flows (loans in Asian emerging markets' external liability structure represent about 70%, compared to about half or 35-36% for Latin American countries where debt securities account for about 29%); (b) the maturity structure (leaning toward the short term) of bank loans; and (c) the larger share of private bank and corporate borrowing in Asia (where private sector banks represent about 45% and private corporations 48% of the stock of liabilities) compared to Latin America (where the public sector accounts for about 20% of liabilities alone). Therefore, East Asia's new debt structure was suggesting that if any, a debt crisis would rather be a private sector liquidity crisis with no significant involvement of the sovereign. Last, it should be noted that Japanese banks accounted (Table 1) for a large share of total bank financing. In the four crisis-hit Asian countries, Japanese bank lending represented about 43% of total bank loans. Besides the above-mentioned corporate governance issue, Japan's overall international asset structure (its breakdown between equity investment, bank and nonbank loans, portfolio investment, etc.) is biased toward bank lending. This is a reflection of the high degree of financial intermediation (indirect financing) in Japan and Asia in general. The dominant role of banks in the financing of firms extends beyond loans because of a spillover effect into other sectors.

[21] In the 10 years between 1987 and 1996, the eight Asian emerging markets (PRC, India, Indonesia, Korea, Malaysia, Pakistan, Philippines and Thailand) experienced real gross domestic product (GDP) growth averaging about 8% per year, compared to less than 3% for Latin America. Their combined nominal GDP, total exports and total imports in US dollar terms grew, respectively, from $924 billion to $2,320 billion, from $150 billion to $523 billion and from $147 billion to $541 billion. By comparison, in 1996 total exports and imports in the 10 Latin American emerging markets reached $230 billion and $220 billion, respectively.

Table 3: Structure of External Liabilities (Stocks) of Major Emerging Markets in Asia and Latin America

US$ Million and %	Argentina e/		Asia f/		Brazil e/		Indonesia c/		Korea c/		Latin America g/		Maxico d/		Thailand d/	
Total cross border claims of BIS reporting banks a/	61.517	100.0	232,256	100.0	73,313	100.0	58,733	100.0	104,418	100.0	134,830	100.0	60,672	100.0	69,375	100.0
BY maturity:																
Up to and including one year	33,741	54.8	151,125	65.1	41,038	56.0	34,667	59.0	70,897	68.1	74,779	55.5	28,404	46.8	45,561	65.7
Over one year up to two years	4,380	7.1	12,273	5.3	6,684	9.1	3,542	6.0	4,139	4.0	11,064	8.2	2,919	4.8	4,592	6.6
Over two years	17,048	27.7	49,864	21.5	18,751	25.6	17,008	29.0	16,366	15.7	35,799	26.6	25,258	41.6	16,490	23.8
Unallocated	6,348	10.3	18,994	8.2	6,840	9.3	3,516	6.0	12,746	12.2	13,188	9.8	4,091	6.7	2,732	3.9
Total of all maturities	61,517	100.0	232,256	100.0	73,313	100.0	58,733	100.0	104,148	100.0	134,830	100.0	60,672	100.0	69,375	100.0
By borrower:																
Banks	10,699	17.4	106,479	45.8	21,363	29.1	12,400	21.1	68,007	65.3	32,062	23.8	16,084	26.5	26,072	37.6
Public Sector	12,819	20.8	12,863	5.5	14,672	20.0	6,506	11.1	4,389	4.2	27,491	20.4	22,088	36.4	1,968	2.8
Nonbank private sector	38,000	61.8	112,674	48.5	37,162	50.7	39,742	67.7	31,680	30.4	75,162	55.7	22,227	36.6	41,252	59.5
Unallocated	(1)	(0.0)	240	0.1	116	0.2	85	0.1	72	0.1	115	0.1	273	0.4	83	0.1
Joint BIS-IMF-OECD-World Bank External Debt b/	61,517	100.0	232,256	100.0	73,313	100.0	58,733	100.0	104,148	100.0	134,830	100.0	60,672	100.0	69,375	100.0
A Bank loans	37,377	27.3	258,897	70.9	85,512	43.5	59,074	64.0	103,106	67.3	122,889	36.9			96,717	81.0
B Debt securities issued abroad	54,770	40.0	64,519	17.7	41,714	21.2	7,080	7.7	46,052	30.0	96,484	28.9			11,387	9.5
C Brady Bonds	17,949	13.1		-	35,996	18.3		-		-	53,945	16.2				-
D Nonbank trade credits	4,784	3.5	20,117	5.5	8,031	4.1	9,625	10.4	1,968	1.3	12,815	3.8			8,524	7.1
E Multilateral claims	18,610	13.6	21,409	5.9	17,542	8.9	16,507	17.9	2,134	1.4	36,152	10.8			2,768	2.3
F Official bilateral loans (DAC creditors)	3,438	2.5		-	7,722	3.9		-		-	11,160	3.3				-
Total A to F	136,928	100.0	364,942	100.0	196,517	100.0	92,286	100.0	153,260	100.0	333,445	100.0			119,396	100.0
G Liabilities to banks-due within a year	33,741	83.5	151,143	90.6	41,040	83.1	34,667	90.0	70,915	90.0	74,781	83.3			45,561	92.0
H Debt securities issued abroad-due within a year	5,324	13.2	8,040	4.8	6,117	12.4	1,078	2.8	6,476	8.2	11,441	12.7			486	1.0
I Nonbank trade credits-due within a year	1,344	3.3	7,669	4.6	2,202	4.5	2,779	7.2	1,398	1.8	3,546	4.0			3,492	7.0
Total Short-Term Liabilities(G to I)	40,409	100.0	166,852	10.0	49,359	100.0	38,524	100.0	78,789	100.0	89,768	100.0			49,539	100.0
															99,499	
J Total liabilities to banks (locational)	46,433		279,437		98,195		61,934		118,004		144,638				69,375	
K Total liabilities to banks (consolidated)	61,533		232,325		73,318		58,733		104,217		134,851				11,103	
L Total trade credits	8,275		32,725		12,491		17,954		3,668		20,766				8,711	
M Total claims on banks	36,297		55,569		59,533		11,122		35,736		95,830					
N International reserve assets (excluding gold) h/	24,752	61.3	85,767	51.4	42,850	86.3	20,336	52.8	34,070	43.2	67,332	75.0			31,361	63.3

a/ Source BIS - Consolidated Cross-Border Claims of Reporting Banks

b/ Source, joint data base of BIS-IMF-OECD-World Bank

c/ June 1997

d/ June 1994

e/ December 1998

f/ Sum of Korea, Indonesia and Thailand

g/ Sum of Brazil and Argentina

h/ Percentage refers to % of Short-Term Liabilities

2.3.3. Traditional Banking and Internationalization of the Japanese Economy

It is difficult, however, to understand the growth of Japanese banks' loans to emerging Asia without considering their relationship to Japanese corporations' direct investment into emerging Asia. The typical relationship is that of the "main or principal" bank in the Japanese system which extended or internationalized to East Asia the Japan Inc. model (government-bank-corporation). There are both specific dynamics and a sequencing of different types of capital flows from Japan into East Asia that we are going to describe now.

First, Japanese lending behavior to East Asia is consistent with the supposed idea that "geographical and/or cultural proximity" gives rise to a perception of "better information" about borrowers and so influences positively lending decisions. But in addition, the increase in bank loans to East Asia was motivated by a combination of several supply and demand factors (see Takayasu [1994] and [1995]). For example, official flows (official development assistance [ODA], etc.) supported the lending strategy of private banks. The Japanese Government through several of its agencies like the Ministry of Trade and Industry (MITI) and its insurance schemes, the Export-Import Bank of Japan (JEXIM), the Overseas Economic Cooperation Fund (OECF), etc., offered support and explicit or implicit guarantees to Japanese direct foreign investors. But these public sector schemes were related to DFI—not to the growth of loans to speculative sectors.

Indeed, the Japanese economy's structural transformations during the 1970s and 1980s prompted its internationalization. The nominal appreciation of the yen (and of the real exchange rate), itself the result of the Plaza Accords (1985) together with real wage increases in Japan *a la* Balassa-Samuelson, made East Asian assets cheaper and triggered an increase of Japanese DFI into the immediate periphery of Japan. This movement of decentralization of production centers also prolonged the "flying-of-the-geese pattern", i.e., the shift of industrial locations from Japan to East Asia, concomitant with the decline of business opportunities in Japan and of lower profits after the collapse of Japan's own financial bubble in 1989. The need for higher yields and new markets after the peak of the Japanese business and stock exchange cycle became also a motivation behind the increase in international activities of Japanese investors and firms.

The first wave of flows to go to East Asia from Japan were DFI in nature and usually into the industrial (manufacturing) export sector. They took the form of equity and joint-ventures (JVs) and date back to the early and mid-1980s. These JVs were generally sound borrowers. Their purpose was either to re-export (Hong Kong, China; Malaysia, Singapore) or to feed buoyant but solvent local markets (Korea, Thailand). The JVs' borrowing was sometimes guaranteed by their Japanese head office, and working capital loans were usually provided by the local branch of their head office's main bank in Tokyo.[22] (So far so good!) This first wave of DFI was the backbone of the

[22] For decades Japanese corporations relied on a "main Japanese bank" for the bulk of its financing. The traditional main bank of large Japanese manufacturing firms usually had an "old" full-bank representation in East Asia. That allowed the special relationship observed in Japan to be decentralized into a similar link between affiliates, joint-ventures of leading Japanese corporations and the local branch of their own Japanese main bank. In the 1980s and

acclaimed high growth or "miracle" period in East Asia. However, the profitability of these JVs' accounts also enticed the appetite of other investors and banks. The JVs' success launched a local strong business cycle. The direct foreign investment in specific industries (labor-intensive export products) triggered equity investment into surrounding businesses. The industrial base of recipient countries became stronger. Some countries then started to diversify their export base, trying to gain access to more capital intensive industries (like automobile and technology intensive sectors). Intensive debt financing of such endeavors then started. Higher current account deficits emerged, given the higher level of required imports of intermediate and capital goods. Around or after the Mexican crisis (1993-1995), some countries began to rely increasingly on commercial bank financing. Others developed offshore financial markets to attract more capital[23] (see Aoki, Bushimata and Sudo [1997]).

Several institutional features in Japan affected Japanese bank lending in East Asia (see Appendix B). For example, earlier in the 1980s, the liberalization of international transactions (a Japanese-only regulatory decision) allowed large blue-chip corporations to issue their own paper in international capital markets, removing them from the dependency on traditional bank-financing in the Japanese market. That prompted banks to seek new businesses, sometimes outside Japan. Later, in the 1990s, Japanese banks were facing pressure to clean up their balance sheets and improve their capital ratios. Many chose to withdraw from all international activities but remained active in the fast growing East Asian financial markets.

2.3.4. Herd Behavior by Foreign Private Lenders

But clearly the Asian high growth and high debt model in emerging Asia eventually caught the attention of other nonbank investors including Japanese brokerage houses that were also looking for yields higher than the ones prevailing in their own mature markets.[24] The long Asian bull market turned into a buyer's market or rather a

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1990s, these special relations were a key factor behind the very high level of capital inflows (DFI accompanied by bank lending) into East Asia from Japan.

[23] In some cases, local governments indirectly encouraged bank lending in foreign exchange to domestic corporations and banks, through offshore banking centers. For example, the Thai Government established the Bangkok International Banking Facilities (BIBF) in March 1993. It is the best (and most successful) illustration of a trend that started with the Manila offshore market in 1976, and the Malaysian Labuan offshore facility in 1990. The key feature of the BIBF was its Out-In transactions, which allowed Thai firms to directly access dollar-denominated loans at interest rates that were much lower than those charged on baht loans in the domestic market. Around the end of 1996, dollar rates were about 6-7% compared to the Minimum Loan Rate of 13% charged by Thai commercial banks. Even when swap costs were taken into account, funding was cheaper in the BIBF Out-In window. From March 1993 till August 1996, the stock of dollar loans grew from $1.4 billion to $30 billion, at annual growth rates of about 50%.

[24] Similarly, US portfolio investment flows into emerging Asia were most likely influenced by changes in tax legislation affecting US pension funds like 401(k) in the early 1990s. Named for the section of the tax code that defines it, a 401(k) is an employer-sponsored retirement savings plan that allows employees to contribute money from their salaries before it is taxed. Any earnings on investments are also tax deferred—that is, earnings are not taxed until they are withdrawn. These plans are also referred to as defined contribution plans, tax-deferred savings plans or qualified plans. These changes in pension plan design free employers from obligation of a minimum yield. That increased competition to attract customers and may have pushed private pension fund managers into looking for more attractive yields (e.g., the US stock exchange, junk bonds and emerging markets) even if it implied incurring higher risks. A Japanese-equivalent of 401(k) is under way.

borrower's market. Yield-hungry investors dismissed prudent behavior and acted as if every Asian firm issuing securities was part of the successful model. They lowered the return demanded on their investment, bought assets that were not world class and offered financing at progressively lower rates. Such terms were difficult to turn down by local companies which, at the same time, were facing higher interest rates in their own domestic markets. External capital flows to East Asia exceeded the financing requirements of current account deficits by far. However, in many cases, the local East Asian market was protected or closed, in particular banking licenses were rationed and/or controlled. Hence, there is pressure from potential "newcomers" (e.g., large and influential foreign banks,[25] from the US, Japan and the EU) for accelerating the financial sector liberalization and opening up (e.g., the granting of full banking licenses for others than the well-established, old "insiders"). To lobby for this outcome, "newcomers" (banks, funds) usually behave aggressively and expand their assets. Newcomers (with limited bank licenses) will seek new businesses and inevitably riskier projects of local companies and banks will get loans. A supply-driven lending momentum starts leading eventually to a financial bubble.

Take for instance the Thai case. It is a useful example because the story is similar in other East Asian countries. Chart 5 shows the evolution of Japanese DFI (in white and gray columns) into Thailand, broken down by sector of destination (white columns for DFI in industry and mining, vs. gray columns for DFI in nonindustrial sectors). The picture also shows the concomitant growth in Japanese banks cross-border claims (straight line, from the BIS data base). The picture rebases all the data, which is in nominal terms, to equal 1 at the end of 1990 (the burst of Japan's stock exchange bubble and the beginning of the collapse of the Nikkei index). The picture shows that DFI is more or less divided evenly between industrial and nonindustrial sectors. There is no overinvestment by Japanese banks into nonproductive service sectors, for example. And the lending from Japan (external borrowing by Thailand from Japanese banks) accompanies the DFI in a relatively fixed proportion (i.e., about the same growth rate).

Things start to change after 1993-1994, particularly in countries where there is a booming domestic market (Korea and Thailand). Lending (and borrowing, of course) accelerates significantly. There is a "bubble" of loans provided by Japanese banks to Thailand that jumps well above the growth rates of Japanese DFI. That lending corresponds, in our view, to the effect of unregulated competition. The banks that are "overlending" are *not* the traditional "main" banks of the safe and sound JVs in Thailand. Rather, they are the ones who adopted an aggressive behavior, trying to maximize market share irrespective of risk. And it is not only the "outsiders-newcomers" Japanese banks that behaved in such a way—US and European banks compounded the trend. But perhaps the observed credit bubble can be explained by the effect of other countries' DFI that also attract bank credit? The bulleted line above the change in Japanese bank loans, shows that overall bank claims (e.g., external borrowing

[25] That pressure could come sometimes from other rival Japanese banks competing for market share. Hence, capital inflows are not necessarily explained by a standard "carry-trade" story, where interest-rate differentials determine financial flows and concur to the formation of financial bubbles in East Asia. It is rather the competition for larger asset-exposure in fast growing, profitable Asian markets that can explain the "euphoria" experienced by many financial institutions (for a more formal discussion, see Section 3 below).

from other sources than Japan) increases even more dramatically than Japanese bank loans. And this is not related to the overall DFI inflows into Thailand (the black columns), which remain quite stable during the high growth cycle.

In addition to the link between Japanese main banks and Japanese DFI, institutional changes in Japan's banking sector plus the business cycle in Japan had both an important effect on the international activities of Japanese banks in general, and in particular on their lending policies toward East Asia. When one looks at Chart 6, in the light of an "institutional perspective", it is striking to see the collapse of Japanese bank lending after the burst of the bubble. Faced with a difficult choice in the early 1990s, some Japanese banks preferred to cut lending and their international activities. For others, as we shall see below, the financial liberalization in East Asian countries in the early 1990s provided the right incentives for increasing their lending.

Last, local macroeconomic policies also contributed to create a local credit boom. Demitriades [1999] shows that financial deregulation in East Asian countries produced rapid growth of financial services and credit-assets bubbles. Restrictions to foreign banks in local financial markets played a role in exacerbating competition among foreigners for full-banking licenses in East Asia. While Japanese banks were seeking salvation and new profitable markets, there was an acceleration of financial liberalization in East Asia (see OECD-Asian Development Bank, [1999]).

The very important lesson here was that, despite government preference for a gradual approach to financial liberalization, Asian countries opened up their capital accounts (through the suppression of capital controls on residents) relatively early, before building institutional capacity to monitor the borrowing behavior of domestic banks and firms. In parallel, bank licensing was liberalized, with interest rates deregulated. Newly created institutions increased lending and used external borrowing to strengthen market shares even at the cost of higher risk.

3. Empirical Testing of the Two Stylized Stories

In this section, we test econometrically the two stylized stories of Section 2. We compare the MH story vis-à-vis the alternative account of the Asian crisis. We want to be able to explain a significant part of the overlending to East Asia *without* the need of the MH hypothesis (i.e., a "guarantee" variable that lowers "risk" in the supply-side of loans).

Our idea consists of testing the relative strength of two classes of models that can explain Japanese lending to East Asia. First we test the MH assumption through a "supply-side" function. If the MH assumption holds, the Japanese lending to each of the emerging markets in East Asia should be strongly influenced by relative risk factors, i.e., relative (Japan vis-à-vis recipient country) macro financial variables (exchange-rate corrected real yield). Then, we test a "demand-side" function cum "institutional" factors. In this case, lending is influenced by Japanese DFI and credit growth. Last, the statistical quality of the two approaches is compared. Individual country time-series and panel estimations are performed in the two classes of models (the A subscript denotes the local emerging recipient economy, the H subscript denotes the home country—Japan—that emits the capital flows—loans).

3.1. The Two Models: Lending functions from Japan to emerging East Asia

$$L = L^A.(1 + r^A) + L^H.(1 + r^H)$$

The general format of the two models[26] that we test considers an agent that has to allocate its wealth (through his total lending L) between a home asset (lending in Japan) and a foreign asset (lending to country A). Return (r) and risks (σ) are specific to each location (A or H). The agent's maximization problem is to allocate total L in order to maximize return subject to risk and variance of return. It will yield an expression of the portfolio composition of total lending L, which will be "diversified" between the two locations. It is expected that the share of loans to a foreign country will increase with the yield differential between the two countries and decrease with the relative risk differential. Thus agents maximize return in the expression above of total lending L.

3.1.1. Japanese Lending Influenced by MH

In a supply-driven L^S specification we assume that the share of (BIS-reported) Japanese bank loans to an individual East Asian country vis-à-vis Japan's total bank loans is a function of:

(1) The expected net relative yen yield on the loan, r: i.e., (a) the local currency lending rate minus (b) the transfer risk premium associated with the change in the local currency/dollar exchange rate minus (c) the dollar-Libor (London inter-bank offered rate)-related funding cost for Japanese banks, including Japan's premium; minus (d) the transfer risk premium associated with the variation of the yen/dollar exchange rate accounting for banks' risk for borrowing in dollars; and minus (e) the yen lending rates in the domestic (Japanese) market.
(2) A term σ accounting for relative market risk is represented by the relative difference between the sovereign borrowing rate (e.g., government bond rate) and that of regular customers (e.g., a prime lending rate).[27]
(3) A term ρ accounting for other business opportunities, i.e., the local stock market index SE, vis-à-vis the stock market in Japan, measured as a difference with the date t^* of the peak of the stock market in Japan.

The role of "implicit" guarantees is to mitigate transfer risks (on exchange rates) and the market risk factor. The MH assumption, therefore, suggests that this variable should play a "most prominent" role in lending boom periods.

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[26] See Collier, Hoeffler and Padillo [1999] and Sheets [1995]. Their paper looks at capital flight as a portfolio choice. Here we are, however, concerned with capital investment and bank lending, i.e., an inflow rather than an outflow.

[27] Using the prime rate gives a "conservative" estimate of risk. Tests using the risk ratings of the *Institutional Investor* survey of bankers could be also attempted. Tests using nonperforming loans (NPLs) in the recipient country and Japan could also prove interesting. NPLs would be included to account for the willingness to lend at a given risk level. NPLs, in turn, depend on and could be proxied by relative market conditions (i.e., the relative growth of GDP). But there are no reliable long time-series of NPLs for our sample of countries.

$$L^S = f\left(r^S, \sigma^S, \rho^S\right)$$

$$L^S = \left[\frac{L_t^A}{L_t^H}\right]$$

$$r^S = \left[i_t^{L,A} - \left(E\left(\dot{e}_t^{A/\$}\right)\right) - (i_t^{B,\$} + jprem_t^{B,\$}) - \left(E\left(\dot{e}_t^{JPY/\$}\right)\right)\right] - i_t^{L,H}, \quad \text{Equations[1]and[1a,b,c,d]}$$

$$\sigma^S = \sigma\left(\frac{i_t^{G,A} - i_t^{L,A}}{i_t^{G,H} - i_t^{L,H}}\right)$$

$$\rho^S = \left(\frac{SE_t^A / SE_{t*}^A}{SE_t^H / S_{t*}^H}\right)$$

3.1.2. Japanese Lending as a Function of Institutional Factors and Herd Behavior

The alternative view, however, is to consider that the "portfolio" choice (the allocation of lending between home *H* and country *A*) depends rather on the *institutional* considerations that we discussed above. Japanese banks allocate loans between *H* and *A* because of the existing flows of DFI between Japan and the recipient country plus the growth of local credit markets that are important components of their lending decision. Here, what matters is the need to accompany the bank's client that invests in a foreign country. In addition, Japanese banks (and others) want also to conquer market shares in Asian emerging markets. This is the core argument of the HB assumption. Bank lending might also be restricted by market size (i.e., banks will respect some sense of proportion, like country total exposure). Hence, we test a *demand-driven* L^D *specification* where the share of Japanese bank loans to each East Asian country vis-à-vis Japan's total bank loans is a function of:

(4) The ratio of (a) the Japanese direct foreign investment, DFI^A in each East Asian country in need of working capital financing vis-a-vis (b) gross fixed capital formation in the Japanese market captured by investment ($GFCF^H$) in Japan.
(5) A term representing other demand factors embodied in the stock of domestic credit to the private sector (*CRED*). Credit to the private sector is also measured relative to the same variable in Japan.

Here, there is little role for a risk mitigation mechanism that increases the expected return on loans. Krugman's hypothesis (overlending and overinvestment because of a "lower" than "normal" cost of funding for financial intermediaries) is replaced by a *willingness to lend at a loss because of the need to increase the banks' share of the credit market.* The expected return r^D can even be constant for a while.

$$L^D = g\left(r^D, CRED^D, INV^D\right)$$

$$L^D = \left[\frac{L_t^A}{L_t^H}\right]$$

$$r^D = \overline{r}$$

$$CRED^D = \left(\frac{CRED_t^A}{CRED_t^H}\right)$$

Equations [2] and [2a,b,c,d]

$$INV^D = \left(\frac{\overset{+}{DFI_t^A}}{GFCF_t^H}\right)$$

Naturally, a specification combining both the portfolio choice and the Japanese business cycle models, supply and demand variables, is also tested. This will allow the measuring of the relative importance of supply (*MH*-related) versus demand (non-*MH*-related) variables. Time series models for each country plus time series cross-country *panel* models are tested due to the scarcity of observations (four countries—Indonesia, Korea, Malaysia, Thailand—semi-annual observations—from mid-1989 until mid-1999).

3.2. Results of the Models: The Credit Bubble in Asia Can be Explained without an MH Hypothesis

The two models result in good fits using the available data (see for example Chart 7 for Thailand). The coefficients obtained in the estimated equations and the relevant statistical tests suggest the following:

- Supply-side variables (e.g., yield, stock exchange returns, funding cost and country risk) seem to play a weaker role than demand-side factors (credit and investment), hence weakening also the case for the MH assumption.
- Demand specifications seem to be more robust than supply specifications. The role of the institutional factors that we mentioned earlier seems (at least for Japanese lending) more important than the MH assumptions.

Therefore, the results suggest that our sufficient condition defined earlier ("overlending") can be fulfilled by simply relying on demand variables. Our results also indicate that the oversupply of funds during the boom period and the overborrowing tendency by local firms and banks can be explained without recourse to the MH assumption.

Box 3. Data Sources for the Empirical Econometric Work (periodicity is semi-annual, from end-1989 or mid-1990 till mid-1999):

- Loans to each East Asian country from Japan are in US dollars from the BIS-reports and also the BoJ (Bank of Japan).
- Loans in Japan to the domestic market are restricted to loans of major banks (city, trust and LTCBs) accounting for 80% of loans but almost the entire BIS portfolio. The source is the BoJ publication of bank balance sheets. Stock of loans are converted into US dollars using the end-period yen/dollar exchange rate.
- DFIs to each East Asian country from Japan are in US dollars from the MoF (Japan Ministry of Finance) database.
- Japan premium is calculated from Bloomberg and the BoJ, using the Libor borrowing rate of the three-month US dollar for a large representative Japanese commercial city bank.
- The domestic funding costs for Japanese banks are from BoJ (deposit rates in Japan, bank rate)
- For each East Asian country and also Japan, domestic macro and financial variables (e.g., Credit, GDP, GFCF, etc.) are from the IMF's IFS.

3.2.1. Comparing the Results of the "Supply" and "Demand" Approaches using Time Series

We now compare the results of the "supply" versus the "demand" models (see Tables 4a and 4b). They confirm the importance of demand factors. Their ranking by statistical significance puts demand variables first by far. Relative (Japan versus recipient country) credit expansion and Japanese DFI have stronger effects on Japanese lending than yields or risk. Hence, the way MH would work in such circumstances becomes more dubious.

However, yields based on bank lending rates (e.g., interest rate differentials) are statistically significant and important. For example, *ceteris paribus*, a rise of 50 basis points (bp) in the interest rate differential between Korea (respectively Thailand) vis-à-vis Japan would increase the proportion of Japanese loans to these countries (vis-à-vis domestic loans) by about 3% and 7%, respectively. The effect for Indonesia and Malaysia would be 2% and 0.5%, respectively. Naturally, changes in interest rate differential are never mechanical and cannot be isolated from other changes in risk factors and funding costs, but the sign and magnitude of these coefficients indicate that bank loans had been heavily influenced by interest rate developments.

The relative yield in stock exchange markets (between Japan and emerging Asian markets) played a relatively minor role. A shift of 10% in the average semi-annual performance of Thailand's Stock of Exchange (SET) index for example (quite sizable for an *average* gain in a stock market) will increase the proportion of Japanese loans to Thailand only by 1%. The effect is similar for Korea but smaller (0.2% to 0.4%) for other Asian countries. That is quite understandable given the minor proportion of portfolio investment in the dependent variable (which captures essentially the stock of cross-border claims of Japanese banks reported to the BIS).

Table 4 (a) : "Portfolio" Model (Equation [1a] and [1b]), Time-Series Estimate

Time-Series Estimates, Semi-Annual data, Period 1990:06 to 1998.02, 18 observations for each country

Dependent Variable is: (h/)
Japanese Loans to Following Countries
over Total Japanese Loans (Japan), %

Independent Variables	Indonesia (1990:1 to 1997:1 period) LS Supply	LD Demand	LS&LD Combined	Korea LS Supply	LD Demand	LS&LD Combined	Malaysia LS Supply	LD Demand	LS&LD Combined	Thailand LS Supply	g/	LD Demand	g/	LS&LD Combined	g/
Lagged-Dependent		0.8905	0.6556		0.4015	0.4421	0.7221								
(t-statistic)		9.4	5.2		2.1	2.0	8.7								
Supply-Side independent Var.															
Yield (Interest Rate Differ.) a/	0.0377		0.0181	0.0545		0.1384	0.0107		0.0082	0.1452				0.0686	
(t-statistic)	16.6		4.1	8.0		1.5	2.6		1.6	10.6				3.8	
Yield (Stock Exchange return) b/	0.0004			0.0013 *			0.0002 +			0.0009 *				0.0008 *	
(t-statistic)	3.2			3.9			3.3			3.1				2.4	
Funding Cost for Lenders c/										-0.0767 +				-0.3137 +	
(t-statistic)										-3.71				-1.71	
Country Risk d/	-0.0771 =		-0.0571 =	-0.0143 x		-0.0266	-0.0244 x		-0.0453 =					-0.0269	
(t-statistic)	-3.4		-4.6	-2.0		-2.4	-2.1		-3.8					-2.2	
Constant Term										-0.0023					
(t-statistic)										-1.66					
Demand-Side Independent Var.															
Credit Expansion e/		0.0296	0.0611		0.0215	0.0383		0.0833	0.0641			0.1132		0.0750	
(t-statistic)		1.5	4.8		2.5	3.5		10.0	4.5			6.2		4.9	
Direct Foreign Investment f/		0.5090 +			6.6786			1.7560	1.9269			2.7360		1.6328	
(t-statistic)		1.2			1.8			3.1	3.5			2.7		1.1	
Country Risk d/		-0.0701 =						-0.0374 =							
(t-statistic)		-3.6						-3.2							
Constant Term					-0.0015	-0.0039		-0.0010	-0.0008			-0.3516		-0.3453	
(t-statistic)					-1.9	-2.5		-1.8	-1.6			-3.4		-4.4	
Adj. R2	0.67	0.86	0.94	0.80	0.93	0.93	0.86	0.87	0.88	0.90		0.92		0.97	
DW	1.50	1.58	1.92	1.40	1.48	1.54	2.56	1.55	1.69	1.70		1.99		1.57	
S.E.R.	4.58E-04	3.07E-04	2.04E-04	7.70E-04	4.65E-04	4.45E-04	2.60E-04	2.49E-04	2.36E-04	1.10E-03		1.02E-03		6.51E-04	

Sources: Author's estimate data sources are BIS, Japan's BoJ and MoF, IMF IMS and Bloomberg

Notes:

+ lagged once (t-1)

* lagged twice (t-2)

= Japan's country risk

x Local country risk

a/ Differential in prime lending rates between recipient country and Japan

b/ Ratio of stock exchange index of recipient country (normalized) and Japan's Nikkei average at its peak (December 1989)

c/ US three -month libor plus Japan's premium (spread of a major Japanese city bank over comparable borrowers in the London Inter-Bank market)

d/ Differential of prime lending rates and goverment LT bond rates, between recipient country and Japan

e/ Ratio of stock of domestic credit to the private sector (converted at the end period exchange rate) between the recipient country and Japan

f/ Ratio of stock of direct foreign investment (converted at the end period exchange rate) of Japan into the recipient country and Japan's stock of gross fixed investment (in Japan)

g/ see text for explanation about the specification used

h/ see text for explanation about the specification used, ratio of Japanese loans reported to BIS to the recipient country/ total Japanese loans in domestic credit market to its private sector

Table 4 (b) : "Portfolio" Model (Equation [1a] and [1b]), Panel Estimate

Panel Estimates, Semi-Annual data, Period 1990.06 to 1998.02, 18 observations for each country x 4 countries = 72 observ.

Dependent Variable is: (g/)
Japanese Loans to following countries
over Total Japanese Loans (Japan),%

Independent Variables	Supply Specification		Demand Specification		Combined Specification	
	Plain OLS	Fixed-Effect	Plain OLS	Fixed-Effect	Fixed-Effect	Fixed-Effect
Lagged-Dependent		0.9234	0.9627	0.7090	0.7884	0.7663
(t-statistic)		25.8	19.5	11.8	13.1	13.0
Supply-side Independent Var.						
Yield a/		0.0005 +			0.0005 +	0.0004 +
(t-statistic)		3.3			3.3	3.1
Yield (Stock Exchange Return) b/		0.0004 *	0.0003 *	0.0004 *	0.0004 *	0.0003 *
(t-statistic)		5.5	3.2	4.2	4.5	4.2
Funding Cost for Lenders c/						
(t-statistic)						
Country Risk d/		-0.0002 x			-0.0079 x	-0.0074 x
(t-statistic)		-1.1			-2.1	-2.0
Public Sector ODA h/						-0.1825
(t-statistic)						-2.1
Demand-Side Independent Var.						
Credit expansion e/			0.0002	0.0204	0.0168	0.0214
(t-statistic)			0.7	3.4	3.0	3.7
Direct Foreign Investment f/			0.1584	0.4252	0.2799	0.2839
(t-statistic)			0.5	1.3	1.0	1.0
Country Risk d/			-0.0033 *	-0.0094 *		
(t-statistic)			-0.9	-2.3		
Constant Term			-0.0005			
(t-statistic)			-1.4			
Adj. R2		0.97	0.95	0.97	0.97	0.97
DW		1.75	1.09	1.54	1.80	1.67
S.E.R.		5.22E-04	6.74E-04	5.37E-04	4.94E-04	4.79E-04

Sources: Author's estimate data sources are BIS, Japan's BoJ and MoF, IMF IMS and Bloomberg

Notes:

- \+ lagged once (t-1)
- * lagged twice (t-2)
- = Japan's country risk
- x Local country risk (normal depreciation of the local currency v-a-v the US$)

a/ Differential in expected yield (prime lending rates minus exchange rate depreciation minus US$ funding cost –including Japan premium-for Japanese banks) between recipient country and Japan

b/ Ratio of stock exchange index of recipient country (normalized) and Japan's Nikkei average at its peak (December 1989)

c/ US three-month Libor plus Japan's premium (spread of a major Japanese City Bank over comparable borrowers in the London Inter-Bank market)

d/ Differential of prime lending rates and government LT bond rates, between recipient country and Japan

e/ Ratio of stock of domestic credit to the private sector (converted at the end-period exchange rate) between the recipient country and Japan

f/ Ratio of stock of direct foreign investment (DFI) (converted at the end period exchange rate) of Japan into the recipient country and Japan's stock of gross fixed investment (in Japan)

g/ see text for explanation about the specification used, ratio of Japanese loans reported to BIS to the recipient country divided by the total Japanese loans in domestic credit market to its private sector.

h/ Stock of Japan DFI as a ratio of the stock of ODA (from the OECF) plus the stock of loans from the Export Import Bank of Japan.

Naturally, the growth of Japanese loans is also influenced by the recipient country risk and by the funding cost of Japanese banks. This provides some comfort to the MH assumption. But "external" (Japanese only) factors seem to play a more important role than "local" MH-related factors. For example in Thailand, *ceteris paribus*, a relative rise of 100 bp in the funding cost of Japanese banks[28] would decrease the proportion of Japanese loans to Thailand (vis-à-vis domestic Japanese loans) by about 7%. An increase of 1% in the recipient country's relative country risk (for Korea and Malaysia) deters Japanese loans by about 2% and 1%, respectively.

These results call for the following observation. In magnitude, in Korea and Thailand, country risk and funding cost coefficients are always *smaller* than those related to the expected profitability (lending rates) of loans (it is not the case, however, for Indonesia and Malaysia). These results suggest that banks would be more influenced by expected profitability (something associated with our alternative stylized story) rather than by risk-mitigating factors (the MH assumption). That also increases the probability of lending booms and overlending, even when central banks react to an emerging credit bubble by rising discount rates and/or when credit rating agencies downgrade countries. For example, when recipient countries tighten their monetary stances in order to reduce the likelihood of local credit bubbles, they might, in fact, be contributing to an increase in foreign bank loans. This is consistent with the observed difficulties experienced by countries trying to manage large capital inflows. Similarly, when recipient countries tighten policies and improve their "relative" country risk vis-à-vis a major emission country, the end-result paradoxically would be an increase in capital inflows, which eventually leads to a local credit bubble. Therefore, it is suggested below that policy coordination with emission countries would bring a superior outcome than purely local demand management policies. These results can also explain a lending boom without necessarily putting excessive weight on relative "risk" factors including those associated with the MH hypothesis.

Looking now at the "demand" specification, we find the following. "Demand" variables both local and related to the Japanese business cycle strongly influenced the behavior of Japanese banks in their lending to East Asian countries. Their role is statistically significant and more robust than that of the variables of the "supply" model, i.e., risk factors or interest rate differentials.

On average, the relative expansion of credit in the two countries, e.g., in the recipient country and in Japan is a significant factor explaining Japanese loans. If relative credit growth changes by 1%, the proportion of local to Japanese domestic credit (e.g., because of an acceleration of the growth of the local credit market, for instance) on average Japanese loans to Korea, Indonesia, Malaysia and Thailand will increase by 2%, 3%, 8% and 11%, respectively.

The impact of Japanese DFI on bank lending is also important. For example, in Thailand, the relation between Japanese DFI representing about Y190 billion or about $1.8 billion in 1997-1998 and Japanese GFCF was about 0.14% (in Japan, GFCF totaled about ¥120 trillion or about $1.1 trillion). An increase of about 10% in Japanese DFI to Thailand (*ceteris paribus* an increase of about $160 million) would increase the

[28] That increase could come from either a higher premium in international capital and inter-bank markets (Japan's premium) or a rise in Japan's BoJ rates. 100 bp is quite significant and is around the maximum level attained by Japan's premium.

ratio of DFI/domestic GFCF and thus that increase can trigger additional Japanese loans to Thailand of about $1 billion.

Last, when supply and demand variables are tested together in a combined model, the "demand" variables pertaining to the Japanese business cycle, like DFI and relative credit expansion, are statistically more significant and numerically stronger than the typical "supply" variables like interest rate (except for Korea). For example, for Indonesia and Malaysia, credit expansion is six times more important than loan profitability (yield). It is also more important for Thailand (1.2 times only, though).

The important conclusion here is that it seems that in all the East Asian countries, the empirical results lean toward the stylized story that explains lending booms without too much emphasis on a MH hypothesis. External bank loans from Japan were more influenced by "demand" factors pertaining to both Japan and the recipient country than by "supply" factors through which MH could play a role.

3.2.2. Comparing the Results of the "Supply" and "Demand" Approaches using Panel Estimation

Our initial results are strengthened, in particular, when time series panel regression is performed across the sample, with fixed-effects. Variables related to DFI and relative credit expansion have a much stronger and longer lasting effect on Japanese lending than the supply-side variables (see Table 4(b)).

In a fixed-effect specification, the statistical significance of the "demand" panel regressions is comparable to that of the "supply" regressions. But the long-term effect of risk factors (though which MH could play a role) is minimal (a quarter of a percentage point for a 100 bp change in relative country risk) in the "supply" specification. That can be compared to a 7% increase in Japanese loans in the event of an identical 1% change in the pace of relative credit expansion.

When we look at the combined specification using both "supply" and "demand" variables, the effect of "demand" factors is also stronger than that of "supply" factors. For example, a 1% increase in the pace of relative credit expansion can affect Japanese lending by 9%. This is more than the combination of changes induced by all the supply-side variables (0.2% for yield, 0.1% for the relative profitability of stock exchanges and –3% for relative country risk factors).

4. Analysis of the Necessary Conditions Related to the MH Assumption

This section looks at necessary conditions related to the MH assumption applied to international (here Japanese) loans to East Asian countries. As stated earlier, the validation of the MH hypothesis requires the presence of an institutional insurance mechanism of some sort linked to a specific institution (e.g., an insurer) that provides a guarantee to lenders (financial institutions), and/or to borrowers (corporations or banks) in the local or international credit markets. A weaker (and more problematic) version of MH would consist of identifying (for example through interviews of market participants) and confirming that "implicit" mechanisms guaranteeing parts of the liabilities of financial institutions did play a role in their decisions (lending and/or borrowing). Finally, this section will check whether there were lenders that got caught

in unresolved disputes with borrowers despite the (implicit) promises or perceptions that they would be bailed-out by governments.[29]

4.1. Guarantees, Formal and Informal, Exchange Rate Regimes and Deposit Insurance Corporations or Schemes in East Asian Countries[30]

No formal guarantees seem to have been provided to international creditors during the late 1980s and the early 1990s in East Asia (see Box 4 below). The existing institutional framework reports that there were no local formal DICs operating during the period preceding the Asian crises. The support to financial institutions appears to have been done sometimes on an ad hoc basis. Liquidity support was provided (in Malaysia and Thailand) in nontransparent ways. However, this was primarily done for local domestic lenders and not to international creditors. In any event, the ex post support was not based on any pre-existing formal guarantee mechanism. It was rather based on an "implicit" notion that some of the institutions that needed support were too important to fail, either for the local financial system (like the Thai finance companies) or for the local political economy (like the Malaysian Bumiputra Bank). Nevertheless, it would require stretching these events quite significantly to transform them into an "implicit" guarantee (or an "implicit" insurance) given to international creditors.

When one looks at the picture presented in Box 4, the impression is that the general "message" to foreign creditors during the end-1980s and early-1990s was that the East Asian financial markets would remain quite protected and that local financial institutions would have preferential treatment vis-à-vis foreigners. The realization of the high entry cost in these markets, in fact, can explain why there was an acceleration, i.e., HB in particular by some US and European banks, after the relative withdrawal of Japanese financial institutions from the region. Naturally, there were many examples of liberalization, of foreign exchange controls and of access to the local debt market. But, in a number of cases, there are also restrictions on FDI: Malaysia from time to time imposed conditions on short-term money market instruments; Korea restricts the access of its bond market to foreigners; profit repatriation (except in Indonesia) usually requires showing that a current account transaction took place. Last, central banks also imposed ceilings on local borrowing in foreign currency, particularly for financial institutions (Indonesia, Malaysia) but also sometimes for corporations. Hence, what comes out of this picture regarding foreign investment is not an overall impression where local governments had severe difficulties luring foreign investors and that they needed to offer "guarantees" to ensure the stability of foreign capital flows into their countries.

One caveat to the rejection of the MH assumption when it comes to foreign creditors is that perhaps the "implicit guarantee" could be coming not from the local government of recipient countries but from the government of emission countries (in this case, Japan

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[29] We take Indonesia as the best illustration of the "weak" MH assumption: close political connections with the ruling group around President Suharto could have been seen by some creditors as an "implicit guarantee" of repayment in case of borrowers' financial problems and/or an unforeseen crisis.

[30] W. Nakagami (from the Japan Bank for International Cooperation [JBIC]) provided excellent research assistance to this section.

itself). For instance, one could assume that excessive growth of Japanese loans to East Asia could be associated with some form of insurance in Japan. There has been, for example, a DIC in Japan since 1971. It is a special corporation established under the Deposit Insurance Law with capital from the MoF and BoJ, to protect depositors. Unlike its US equivalent, the FDIC, the Japanese DIC was limited (see Milhaupt [1999]) to collecting insurance premiums and paying off depositors of financial institutions that went bust. It was not envisioned to rescue any troubled financial institutions. As pointed out by Ueda [1994], the "most important safety-net system in [Japan] has not been the insurance system but the public's confidence in the MoF and the BoJ's ability to avoid a major instability in the financial system". However, would this reasoning extend to Japanese loans to foreign countries? It does not seem so, as we shall see below, even in the eyes of the Japanese banks themselves.

4.2. The Answers from the Qualitative Questionnaire Addressed to Banks[31]

In recent years, qualitative inquiries have been made to clarify the lending behavior of private commercial banks with significant international operations.

4.2.1. Answers from BIS Reporting Banks

The BIS [1998] has investigated the behavior of private commercial banks and interviewed about 50 international banks. The answers can help to test the validity of the MH hypothesis, which uses the stability of the foreign exchange regime as an indication of an "implicit guarantee" by local governments. This assumption is an extension of a standard case linking overlending to NH in *local* credit markets (the Krugman argument). Chinn and Kletzer [1999] argued that financial crises arise because local banks overlend when domestic governments provide implicit guarantees on loans to their private sector. Moreover, they continue suggesting that
currency and local financial crises are linked because governments—through their commitment to a pegged exchange rate—also provide an "implicit guarantee" to foreign creditors. That, in turn, makes foreign creditors extend also foreign loans in excess to domestic borrowers. This second part is hard to confirm from the banks' answers.

Many banks acknowledged that the Asian-crises made them revise their own definition and perception of country risk. *Before the Asian-crises, risk was typically associated with transfer risk: i.e. the risk of government actions involving restrictions on capital movements or currency convertibility. The crises have highlighted the need to enlarge this definition to include the credit risk associated with nonpayment by private sector institutions due to macroeconomic developments.*

Many banks also agreed that they underestimated risk by an overreliance on the past volatility of the Asian countries' foreign exchange markets, particularly in countries where there had been a history of intervention. Banks agree also that their *"monitoring systems had sometimes not given them sufficient warning to arrange for an exit from the country risk exposure".*

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[31] Excellent research assistance from A. Miura (from JBIC) has been very helpful in writing this section. In particular, Miura worked on the translation into Japanese of the Qualitative Questionnaire mentioned below.

Box 4. Institutional Setup Preceding the Asian Crises (mid-1990s)

Domain	Indonesia	Korea	Malaysia	Thailand
Deposit Insurance Scheme	No deposit guarantee scheme in place. During the Asian crisis (1997), due to bank runs, a Bank Indonesia (BI) Deposit Protection Scheme was introduced with initial selective coverage, then expanded to blanket guarantee	No formal guarantee prior to the Korea Deposit Insurance Corporation (KDIC) established only in June 1996. KDIC operates Deposit Insurance Fund	Malaysia does not have a Deposit Insurance Scheme. Blanket guarantee by Bank Negara Malaysia (BNM) on all deposits (including accrued interest rates) of licensed financial institutions (banks, finance companies, etc.)	No deposit guarantee scheme in place. During the Asian crisis (1997), due to bank runs, the Bank of Thailand (BOT) introduced selective protection of depositors, rapidly expanded to blanket guarantee
Support to Financial Institutions			Several bank runs occurred (1966, 1982, 1985-1986, 1987-1989). Most famous was the Carrian affair in 1983. Losses incurred wiped out capital of Bumiputra Bank, whose capital was held by a gov. company. The Ministry of Finance acted directly to save the bank using Petronas, the cash-rich national oil corporation. BNM oversaw only the restructuring and did not intervene	In 1985, the BOT Act was amended creating a Financial Institutions Development Fund (FIDF) to provide financial and managerial assistance to financial institutions. FIDF provides liquidity assistance in addition to that of the BOT, which is constrained by collateral requirements. FIDF financed by mandatory contributions from financial institutions
Bankruptcy and Foreclosure Laws	Court system criticized for being inefficient and corrupt. Process to enforce secured claims is cumbersome	Relatively efficient process. All parties (debtors, creditors, shareholders) can initiate procedure. Secured creditors can enforce claims efficiently through courts, secured claims retain priority	Process is said to be cumbersome and costly. Debtors must obtain majority consent of creditors before filing for bankruptcy. Creditors can petition for payment relief. Secured creditors retain priority in bankruptcy	Enforcement of secured claims has not been efficient. Special bankruptcy court created after crisis for loan work-outs
Foreign Exchange (FX) Regime	The Indonesia rupiah was managed against the US dollar until August 1997 with the daily intervention rates set by BI. Managed float with interventions after the 1997 crisis	Since 1992, the Korean won was in a managed float within intervention bands. Band was widened during Asian crisis (Nov. 1997). FX and securities markets being liberalized	The Malaysian ringgit has been freely convertible since 1975. Managed float with BNM interventions. After the 1997 crisis, a temporary peg to the US dollar was introduced in September 1998	The Thai baht was pegged to a basket of currencies since 1984. Managed float after July 1997. BOT has room for maneuver for FX market intervention
FX Exchange Controls	No on spot transactions. But some restrictions apply to nonresidents. Hedging by purchase of FX cover has to be supported by a trade or investment transaction. Foreigners can enter the forward FX market	Strict exchange controls regulated by Forex Control Act. Nonresidents require license to buy and sell won and only against underlying securities. Onshore FX forward market only open to residents (corporations and banks most active participants). Foreigners structure their forward contracts offshore in nondeliverable forwards (NDF)	No on spot transactions. Onshore forwards capped by BNM limits on net foreign liabilities of local banks. Foreigners can enter into forward FX market through deliverable forwards. Strict rules for nonfinancial local institutions. Only authorized dealers and tier-1 merchant banks can borrow FX freely from nonresidents	Controls were liberalized in 1991-1992. But some restrictions apply to nonresidents. FX purchase have to be linked to a trade or investment transaction. Foreigners can enter the forward FX market

(cont.)

Foreign Investment Regulations	Foreigners can invest without restriction in the local debt market. Other than limits on the FX forward transactions, there are no exchange controls on buying or selling rupiah or the repatriation of funds. However, foreigners are not allowed overdraft or credit facilities	Foreign investment opportunities regulated. Foreigners required to register. Direct investment into companies and funds limited. Only LT public bonds open to foreign direct investment with written authorization from authorities. Withholding tax applies to nonresidents	No restrictions on foreign investment in local securities, repatriation of capital, remittances, but Malaysia has imposed from time to time severe restrictions on short-term capital inflows, including prohibition of selling short-term money market instruments to foreign investors (1994). Nonresidents subject to withholding tax	No restrictions on foreign investment in either Gov. or corporate bonds. No official consent for remittances. Profit repatriation requires justification of transaction. Withholding tax applies to nonresidents but special treatment for Japanese and British
Bank Supervision	BI supervises commercial and rural banks. After 1995, MoF delegated to BI supervision of finance companies as well. Emphasis put on risk-management and early detection through CAMEL. Framework applied through audits and onsite examination Lending limits to single borrower apply as prudential rules	The Financial Supervisory Service (FSS), a special corporation with no capital, was established on January 2, 1999. The creation of the FSS brought together the four existing supervisory bodies: the Banking Supervisory Authority, Securities Supervisory Board, Insurance Supervisory Board and Nonbank Supervisory Authority under one roof. The FSS's major function involves the supervision, examination and enforcement of business activities of regulated financial institutions as well as matters delegated by the Financial Supervisory Commission (FSC) and the Securities and Futures Commission (SFC)	BNM (Banking Supervision Departs. 1 and 2) for all financial institutions. After the crises of the 1980s, which revealed the fragmentation of banking legislation, a series of regulations was issued to be part of a comprehensive legislative framework (Bank and Financial Institutions Act - BAFIA) in 1989. Emphasis put on risk-management and early detection through CAMEL framework applied in audits and onsite examination, leading to a two-tier regulatory system	BOT empowered to supervise all financial institutions to ensure compliance with prudential regulations. Moral suasion used toward credit growth and sectoral allocation of funds
Debt Issuance in FX	Corporations not monitored for external borrowing. Since December 1994, banks required to maintain open net position in FX liabilities of no more than 25% of the bank's capital		Banks and corporations restricted in their foreign borrowing. Nonbank residents have to request authorization from BNM to borrow in FX	Offshore window (BIBF) established in 1993. First, 46 licenses then another seven were granted allowing local and foreign banks to take deposits and lend in foreign currency. Specific incentives (tax exemptions) were given. Then after 1997 crisis, domestic banks were restricted in their outstanding exposure in FX liabilities

However, there is no mention of a reliance on or even an influence of a government "implicit guarantee" as an insurance policy against possible losses of their exposure to East Asian countries.

4.2.2. Answers from Japanese Banks

Last, our own research used a different empirical investigation of the determinants of Japanese lending, also using a qualitative questionnaire, specially designed for this purpose. We addressed a set of 13 qualitative questions to the major Japanese banks[32] in January-February 2000. Among the questions, there were two sets that aimed at shedding light on our topic.

We asked the banks to assess the motivations behind their lending during several critical periods (the 1980s, the period preceding the Asian crises —1990 to 1996—, the crisis period itself—1997 and 1998—and the postcrisis period). The same question was asked in different ways in order to check for the consistency of the answers. We wanted confirmation of what was driving their lending (e.g., local or Japanese determinants).

We were also seeking an indication of whether Japanese bank lending to East Asian countries was motivated by institutional (e.g., regulations, guarantees, etc.) or rather by macro and financial factors either domestic (Japanese) or foreign (East Asian). For example, did guarantees provided by the public sector and its direct lending play a role in the decision-making process of Japanese banks and corporations? Did they facilitate the extension of loans by providing "comfort" to lenders? Alternatively, did HB and fierce competition for market shares and bank licenses between foreign banks in East Asia play the most important role?

The answers from the questionnaire confirm several points about the motivations behind the growth of Japanese loans to East Asian countries:

- 78% of banks agree that there was an "*excessive*" growth of their exposure (Q1), particularly during the 1990-1996 period. This "risky" behavior, however, was not prompted by lack of information. Banks had a good "intuitive" perception of the mounting corporate and banking sector risks in the recipient countries (Q3), focusing on clients' or borrowers' risk and countries' liquidity and solvency in foreign exchange (Q4) and without any significant problem in terms of availability and quality of information (Q5).
- What really seems to be the determinant of their lending is "herd behavior" and the desire to increase their market shares (Q8). 100% of banks estimate that it is either "very true or true" that rapid growth in lending was caused by "the big upside potential of East Asia". 78% think it was caused by the "need to follow what competitors were doing". 90% estimate it was because of the need to "gain or retain" market shares.

[32] The questionnaire was sent to the two major public sector financial institutions, all nine city banks, one LTCB, all seven trust banks and 10 regional banks. We received answers from nine out of nine city banks, 1 LTCB, five trust banks and two regional banks.

- Supplementing that, it is also evident (Q6), that during the 1980s and the 1990-1996 period, 63% of the banks estimate that "implicit guarantees to creditors or borrowers" did *not* influence at all their lending decision (see Chart 9). The percentage drops to 50% during 1997 and 1998-1999. Hence, it is quite clear that the backbone of the MH argument seems to be absent from the responses of the large Japanese commercial banks.

Thus, it appears also from a different viewpoint and using a different methodology that Japanese lending to East Asia was driven by factors related rather to the Japanese business cycle and competition between Japanese banks themselves and also with foreign banks. The profitability of loans in East Asia was the main motivation for lending, rather than any other consideration. A summary of some of the answers to the questionnaire can be found in Tables 5(a) to 5(d).

4.3. Debt Resolution Problems for Foreigners in Indonesia

Finally, as the adage reminds us "the proof of the pudding is in the eating". Is there evidence of foreign banks that are caught in unforeseen debt liquidation processes despite their impression of being "guaranteed" by a government? We can look to the case of Indonesia where much of the overlending by international banks was explained by the "political connections" between borrowers and the Suharto regime that apparently gave creditors some "implicit insurance".

As of November 1999 (i.e., more than two years after the beginning of the crisis), there are many international banks from the EU, US and Japan that are still caught in problems of solving debt workouts with Indonesian borrowers that were prominent and well-connected corporations and banks. Although the individual creditor information is internal to BI, there is a total of $1.4 billion in loans that are frozen pending debt workouts with borrowers. Among the debtors, we can find prominent financial institutions from Indonesia, including one single borrower accounting for more than $750 million in frozen assets.

More interesting, among the creditors, there is a large concentration of European banks (particularly German banks' head offices) with frozen loans that were supposed to offer very attractive yields (on average Libor + 250 up to 350 bp) with maturities of one to five years. There are also Japanese banks and US banks caught in this procedure, although for smaller amounts.

Therefore, it appears that "implicit guarantees" to international creditors (as stated in the MH hypothesis) do not seem to be such an important motive behind the excessive growth of foreign loans to East Asia. It does not seem in particular to support the evidence for Japanese bank lending.

Table 5 (a): Questionnaire Answers

Question 6: What Influenced Your Institution's Overall Investment Decisions in East Asia?

Please mark the relevant cell with an (X)

During the following periods, please characterize how the following elements influenced your institution's investment decisions into East-Asia:	During the 1980s: Degree of Influence: None	Moderate	Strong	During 1990-96: Degree of Influence: None	Moderate	Strong	During 1997 Degree of Influence: None	Moderate	Strong	After the crisis (98-99) Degree of Influence: None	Moderate	Strong
The existence of guarantees offered by recipient country's Gov.												
Local Deposit Insurance Corporation (DIC)	67%	33%	0%	56%	33%	11%	56%	33%	11%	33%	44%	22%
Implicit guarantee by Government to depositors	67%	33%	0%	56%	33%	11%	56%	33%	11%	56%	33%	11%
Implicit guarantee by Government to creditors	67%	22%	11%	67%	22%	11%	56%	33%	11%	44%	33%	22%
Any other guarantee (please specify): _____												
The sound macroeconomic policies followed by East-Asian countries												
Sound public finance (low public deficits and low public debt)	11%	89%	0%	0%	78%	22%	0%	78%	22%	0%	44%	56%
Sound monetary policy (low real interest rate, easy credit)	22%	67%	11%	11%	56%	33%	11%	56%	33%	0%	33%	67%
Stable and high GDP growth	0%	33%	67%	0%	11%	89%	0%	44%	56%	0%	67%	33%
High level of international reserves	0%	56%	44%	0%	33%	67%	0%	22%	78%	0%	33%	67%
Commitment to a pegged exchange rate policy	13%	75%	13%	0%	63%	38%	13%	75%	13%	25%	63%	13%
The existence of an international mechanism of "lender of last resort" and high likelihood of support in case of a crisis												
Likelihood of support by the International Monetary Fund	0%	89%	11%	0%	89%	11%	0%	67%	33%	0%	44%	56%
Same by other multilateral institutions (World Bank, ADB)	11%	78%	11%	11%	78%	11%	0%	78%	22%	0%	56%	44%
Likelihood of official G-7 Govts. support in case of crisis	11%	78%	11%	11%	78%	11%	0%	67%	33%	0%	56%	44%
The existence of local mechanism of "lender of last resort" and high likelihood of support in case of a crisis												
Likelihood of support by the country's central bank to banks	11%	56%	33%	11%	56%	33%	11%	56%	33%	11%	44%	44%
Likelihood of local private banks helping each other	33%	67%	0%	22%	67%	11%	22%	67%	11%	22%	56%	22%
The local regulatory environment and prudential rules and high likelihood of its well-functioning in case of a crisis												
Adequate, sound local prudential rules	33%	67%	0%	22%	67%	11%	11%	56%	33%	11%	44%	44%
Adequate local regulatory and legal environment	22%	78%	0%	0%	89%	11%	0%	67%	33%	0%	56%	44%
Adequate local bankruptcy rules	33%	67%	0%	22%	67%	11%	11%	78%	11%	11%	56%	33%
Specific issues like												
Slow-growing home (G-7) markets for equity and credit	44%	44%	11%	33%	56%	11%	33%	44%	22%	44%	33%	22%
Need to gain market shares in international banking business	11%	33%	56%	11%	44%	44%	22%	56%	22%	33%	56%	11%
Guarantees by G-7 parent companies to their local joint-ventures	0%	22%	78%	0%	22%	78%	0%	56%	44%	0%	67%	33%
Guarantees by their own local suppliers	33%	44%	22%	33%	44%	22%	22%	56%	22%	22%	56%	22%
The information available about the recipient countries and their political and social environment												
Good economic and financial information	0%	78%	22%	0%	78%	22%	0%	67%	33%	0%	67%	33%
Political stability in recipient countries	0%	67%	33%	0%	67%	33%	0%	44%	56%	0%	44%	56%
Good relationship with local political leadership	22%	67%	11%	22%	67%	11%	22%	67%	11%	22%	67%	11%

Table 5 (b): Questionnaire Answers

Question 8: Your Views of the Causes of the Asian Crises ?

In a scale from (very true) to (false), please mark the following statements according to what you think represents best your institution's views

Please mark the relevant case with (X)

	Very True	True	Moderately True	False
The causes of the Asian Crises were essentially:				
The vicious circle of competitive devaluations of East-Asian currencies	11%	33%	56%	0%
The excessive lending during the early 1990s by domestic local East-Asian banks	10%	60%	30%	0%
The excessive lending during the early 1990s by foreign G-7 banks	40%	50%	10%	0%
The result of an expected slowdown in East-Asia's business cycle	11%	11%	44%	33%
The result of the volatility between the Japanese yen and the US dollar	11%	33%	22%	33%
The excessive lending to specific sectors (like real estate) that weakened banks	20%	70%	10%	0%
The result of inadequate macroeconomic policies during the 1990s	33%	22%	44%	0%
The devaluations of East-Asian currrencies were trigerred by:				
The devaluation of the renminbi	11%	33%	22%	33%
The devaluation of the Japanese yen vis-à-vis the US dollar during 1997	11%	33%	56%	0%
Panic among small depositors in East-Asia	0%	11%	78%	11%
Speculators and hedge funds	40%	60%	0%	0%
Selling by large local banks and corporations	11%	22%	33%	33%
Rapid growth of loans to many East-Asian corporations and banks was caused by:				
The track record of local Governments' commitment to sound macroeconomic fundamentals	0%	33%	44%	22%
The high level of international reserves capable of paying back all foreign short-term loans	0%	11%	78%	11%
Looking for new markets after a decline in their lending at head quarters	11%	33%	56%	0%
The lower yields of all alternative investments in G-7 markets	0%	78%	22%	0%
The big upside potential in emerging Asia economies	40%	60%	0%	0%
Their good political and financial relationship in East Asia.	0%	11%	67%	22%
The change in institutional regulations for pension and investment funds	11%	11%	67%	11%
The need to gain or retain market shares in East-Asia	20%	70%	10%	0%
The need to follow what competitors were doing in East-Asian markets	22%	56%	22%	0%
The stability of the local exchange rate regimes	20%	50%	30%	0%
Rapid growth of loans to specific sectors (e.g., real estate), specific corporations and banks was caused by the following:				
Our borrowers were usually our institution's own subsidiaries	0%	22%	44%	33%
Our borrowers were usually a well-known local corporation or bank	10%	70%	20%	0%
We perceived the exchange rate as essentially stable over the medium term	20%	20%	50%	10%
Our local borrowers were given an explicit or implicit bail-out guarantee by their own Governments.	0%	40%	10%	50%
A calculation of our exposure to one single sector or market segment was not available to our managers	0%	10%	10%	80%
We were not fully aware of the amount of foreign liabilities in our customers' balance sheets	0%	11%	22%	67%
We had long-term, well-established relationships with our customers in East-Asia	10%	20%	60%	10%
Our customers difficulties were perceived as temporary and manageable	0%	44%	56%	0%
Maintaining market shares against our competitors	11%	44%	22%	22%

Table 5 (c): Questionnaire Answers

Question 9. Your Views on the Developments of the Asian Crises?

In a scale from (very true) to (false), please mark the following statements according to what you think represents best your institution's views (DURING the crisis).

Please mark the relevant case with (X)

	Very True	True	Moderately True	False
The crisis in Asia started:				
Long before the Thai baht devaluation, around 1995-1996	11%	0%	56%	33%
On the day of the floating of the Thai baht July 2, 1997	40%	50%	10%	0%
When there were signs of severe contagion in East-Asia (end of 1997)	25%	13%	50%	13%
When Japan's economy went into officially declared recession	25%	0%	38%	38%
The dominant feeling mid-1997 was that:				
The Thai crisis was an isolated event.	10%	20%	10%	60%
The crisis would spread across East-Asia because many countries had similar problems.	33%	22%	33%	11%
The Asian crisis was the beginning of other crises in all emerging markets.	11%	33%	44%	11%
After the crisis spread, the predominant reaction in financial institutions operating in East-Asia was to:				
Rollover lines of credit	11%	0%	67%	22%
Call back loans, cut credit exposure	50%	30%	20%	0%
Liquidate their East-Asian assets at whatever price in local East-Asian markets.	10%	20%	60%	10%
Wait for better opportunities to liquidate their East-Asian assets	11%	33%	22%	33%
The determinant factor for suspending lines of credit during the crisis was:				
Determined exclusively by economic and financial considerations	22%	22%	56%	0%
Determined by the need to improve financial stength of your institution	50%	30%	20%	0%
Advice from the International Monetary Fund	0%	11%	44%	44%
Advice from headoffice of your institution	30%	50%	10%	10%
Bad relationship with borrowers	0%	11%	33%	56%
Advice from East-Asian Governments	0%	0%	0%	100%
Advice from your own Government (G-7)	0%	0%	11%	89%
Following peer institutions'behavior	0%	22%	44%	33%
The determinant factor behind maintaining lines of credit during the crisis was:				
Determined exclusively by economic and financial considerations	0%	44%	33%	22%
Determined by the need to improve financial stength of your institution	0%	11%	22%	67%
Advice from the International Monetary Fund	0%	20%	10%	70%
Advice from headoffice of your institution	30%	30%	20%	20%
Good relationship with borrowers	11%	11%	11%	67%
Advice from East-Asian Governments	11%	11%	0%	78%
Advice from your own Government (G-7)	11%	22%	11%	56%
Following peer institutions'behavior	0%	22%	44%	33%

Table 5 (d): Questionnaire Answers

Question 13: The Prospects for the Regional Economic Recovery in Asia ?

In a scale from (very true) to (false), please mark the following statements according to what you think represents best your institution's views about what types of problems banks and corporations (local and foreign) face in their future expansion in East-Asia:

	Please mark the relevant cell with (X) Very True	True	Modera-tely True	False	*Choosing from the SAME statements please rank below JUST the five most important problems that you are facing now (JUST 1, 2, 3, 4 and 5)*
A slow-growing economy in East-Asian countries	11%	56%	33%	0%	1.0
Lack of proper macroeconomic policies in East-Asian countries	11%	44%	33%	11%	5.0
Lack of East-Asian domestic investors' confidence	11%	67%	22%	0%	5.0
Lack of foreign (G-7) investors' confidence	30%	40%	30%	0%	3.0
Lack of adequate management in East-Asian countries	11%	33%	56%	0%	4.0
Shortage of skilled labor in East-Asian countries	0%	30%	70%	0%	
Uncertainty vis-à-vis export markets for East-Asian products	0%	44%	56%	0%	
Breakdown of suppliers' confidence	11%	44%	44%	0%	2.0
Tough competition from Japan, US and European firms	20%	40%	30%	10%	2.0
Lack of adequate level of capital in East-Asian firms	22%	56%	22%	0%	
Non competitive cost structure in East-Asian firms and banks	0%	78%	22%	0%	2.0
Excessive financial burden (interest rate payments and debt stocks) of East-Asian firms and banks	0%	89%	11%	0%	3.0
Exchange rate volatility in East-Asian countries	11%	56%	33%	0%	3.0
Lack of adequate regulatory environment in East-Asian countries	20%	60%	20%	0%	3.7
Weak financial sector in East-Asian countries	20%	60%	20%	0%	2.5
Political and social difficulties in East-Asian countries	10%	60%	30%	0%	3.3
Cost of funding in G-7 and international capital markets	0%	33%	44%	22%	2.0
Other problem please specify: _____					

4.4. MH and the Role of International Lending of Last Resort

Could MH arise if an international LLR like the IMF during the resolution of a crisis rescues private creditors in an indiscriminate and generous way? This type of MH particularly concerns the reform of architecture of the international financial system. The departure point, after the successive crises in Mexico (1994), Asia (1997), Russia (1998) and Brazil (1999) was to criticize the appropriateness, the size of and conditionality associated with, multilateral financial support to countries that were experiencing the effects of massive capital outflows. The key point about these "rescue packages" was that they were susceptible to generating MH, by enticing emerging markets and their creditors to take excessive risks. The existence of these "packages" was thus seen as one of the reasons why the new capital account crises happen. Hence, an extreme consequence of this view of the MH argument, for example, could be a plea for dissolving any institution, domestic or international, and/or any mechanism that creates insurance, including international institutions functioning as quasi-lenders of last resort (e.g., the IMF).

4.4.1. The MH (Direct and Indirect) Effect of International Lending of Last Resort (LLR)

MH from international (multilateral) financial support is considered a subset of MH arising from any public support. The reasoning is the following. The first (and simplistic) idea is that large international rescue packages give the impression that private creditors (banks and corporations) that took excessive risk (lending and borrowing) are bailed out with public money during a crisis from (at least) a portion of the losses that they would have otherwise incurred. That, in itself, is not *stricto sensu* a MH situation as we have defined it. Bail-outs can happen but it does not mean that the excessive risk-taking was caused by them. The second layer of the argument is more complex and gets closer to the point: large rescue package can create the "*expectations*" of future rescues and that possibility could function as an incentive to increase risk-taking in lending and borrowing.

Fernandez-Arias and Hausmann [1999] call this line of thought a "Theory of Too Much". This reasoning explains why there is an "excess" of capital flows into emerging markets. When investors expect to be repaid their lending from official financial resources, they will tend to increase their lending and their exposure even when there are risks of future returns not materializing. Mussa [1999] also examines the issue in some detail. He acknowledges that in some specific cases, MH related to international support explains lending behavior. For example, in the case of the Russian Federation, it is arguable that creditors during the first half of 1998 thought that the nuclear status of the country made it TBTF. But for Asia, it is more difficult to see that MH played a role before the crisis. Mussa argues that there must be many other motives behind the large inflows of capital into Asia. For example, capital flows into East Asia took a variety of forms (DFI, portfolio flows, bank lending). Only the last category (bank lending) could give some room for the MH explanation. But in any event, the "expected" protection that lenders could rely upon for these flows was linked to the "expected" stability of macroeconomic policies of governments, not from IFIs. If there were insurers that would eventually pick up the cost of these policies (in the event

of their collapse) that would have been the local taxpayers of the local recipient countries, not the IMF or the World Bank etc.

Another angle to reject the idea of MH associated with international lending of last resort is that there is a cost associated with that. Benefiting from LLR is not a subsidy. If the pricing of such instruments is right, if there is no subsidy component, if rescues are through repayable loans, not grants, then it is hard to demonstrate that the existence of such instruments influenced the behavior of lenders beyond reasonable risk-taking.

There is the argument that, even if there is a price to pay, these international rescue packages provide financial resources to countries at a discount. In other words the issue is not that LLR is done through loans that bear an interest rate. The real issue is that there is an implicit subsidy to provide LLR resources below the spread that countries would face in "temporary" circumstances preceding a crisis. The "spread" that countries would pay represents the market's appreciation (pricing) of the country's risk at that particular moment.

There are several answers to that. First, it could well be that, prior to a crisis, a market's perception of country risk could be mistaken and misleading, either positively or negatively. For example, Cline and Barnes [1997] show that there was an overoptimistic pricing of emerging markets spreads after the Mexican crisis. They note that spreads in lending to emerging markets fell persistently and substantially after the height of the Mexican crisis until the third quarter of 1997 (i.e., well after the beginning of the Asian currency crisis). The volatility, in any event, suggests that the exact level of risk is hardly captured by market spreads at that moment. Second, in the absence of a "benchmark" in the spread set by LLR packages, the real economy could be sent to a low level of equilibrium, dictated by financial panic, not fundamentals. Third and most important, these rescue packages are usually associated with conditions, sometimes very tough ones. Hence, the perception that there is an implicit subsidy in rates is attenuated by the presence of conditions. The functioning of these instruments is complex and not only a matter of the interest and maturity of the standby arrangement. The speed so far with which these packages have been repaid (Brazil, Korea, Mexico, Thailand and even the Russian Federation) tend to support the view that countries would prefer to live without them.

Last, there is a subtle way to argue that even if the international rescue packages were not responsible "directly" for creating MH, their presence as an option to government, as argued by Mussa et al. [1999], can induce governments to act in ways that create their own "domestic" MH (e.g., by extending blanket guarantees, by creating the impression that local banks will be rescued no matter what, etc.). The counterargument here is that this is not specific to any emerging market and certainly not caused by the existence of *international* LLR. Most if not all G-7 countries (the US, Japan, the EU) have deposit insurance schemes and domestic mechanisms to rescue their own banking systems. Such rescues have been observed in the past during many financial and banking crises and are not related to the existence of an international LLR. Rather, they seem to be linked to the domestic political economy.

4.4.2. Policy Implications

The discussion above leads to the conclusion that there seems to be only a weak (if any) relation between international LLR and MH. But playing the devil's advocate and assuming that there is MH arising from international LLR, could the reduction of the role of IFIs, the curtailing of these packages or their complete eradication really provide a better outcome?

First, eliminating LLR would have severe consequences for the real economy (as Mussa points out) of countries experiencing crises. It suffices to look at the size of the capital outflows during the recent crises (several percentage points of GDP) to measure the severe adjustments that these economies would have to undergo in the absence of LLR. Then, by not providing liquidity support, there is an increasing risk of local credit crunches, as pointed out by Ito and Pereira da Silva [1999]. Severe local recession, in addition to the local, regional, social and political consequences, could also trigger a general financial meltdown (recall during the worst moments of 1998, the fear that the spreading contagion from the Asian crises could lead to a global financial meltdown).

Second, eliminating LLR would increase the probability of the default of the sovereign, when eventually it becomes liable as local LLR and responsible for rescuing the local borrowers. The overall consequences of a series of sovereign defaults to global financial markets could be severe. Adjustments in spreads would go beyond fundamentals and trigger other rounds of instability.

Obviously, international LLR would work on a case-by-case basis here. As we discuss in the next section, it should be able to discern between pure liquidity problems (for which liquidity support as a LLR is the answer), the mixture of liquidity-cum-more-structural problems (for which support with conditions and strict monitoring is the answer) and situations where the sovereign seems incapable (or unwilling) to take the necessary corrective steps (for which any form of support even with conditions would not be an appropriate answer).

5. Conclusions and Policy Implications: Rejection of the MH Hypothesis for International Lending to East Asia

The main conclusion of this paper is that MH does not seem to be present and does not explain very well the international lending of Japanese banks to East Asia, which accounts for a large portion of foreign capital flows in that region. Our alternative story, i.e., the combination of fierce competition between banks compounded by HB fits better the empirical evidence and provides a more robust explanation of the financial vulnerabilities that led to the crises. We find only weak evidence that MH played a prominent role and that "implicit government guarantees" lured foreign bankers and investors. Most banks did not need that kind of incentive to increase their exposure.[33]

Our results suggest that unregulated competition between experienced financial institutions, "outsider" and "insider" banks, can explain most of the East Asian financial bubbles, particularly when bank behavior is combined with the G-7 financial and business cycles. However, as stated earlier, our analysis covers only the *international*

[33] In fact, the MH assumption looks more like an ex post internal argument for many fund and bank managers that had to justify their aggressive behavior during the "boom" period.

activities of foreign (here Japanese) banks. Our stylized story does not necessarily apply to the activities of other non-Japanese international banks. Moreover, it does not apply either to the domestic credit market or to the lending behavior of domestic commercial banks. There, it is acknowledged that testing the MH assumption would require more work, although the methodology that this paper uses for international banks could be adapted to that purpose.

Some interesting policy implications that can be derived from our findings are as follows.

[1] There seems to be more room for the choice of exchange rate regimes (ERR) in emerging markets.

"Excessive" international lending between Japan and East Asia does not seem to be driven by MH and its associated hypothesis. In particular, there seems to be only weak evidence of a causal relationship between pegged exchange rate regimes (ERR) viewed as an insurance and MH in international bank lending. That, in turn, calls for a reexamination of the current conventional wisdom regarding what is the appropriate ERR for emerging markets. In particular, the idea that the preferable ERR for emerging economies that are recipients of large capital inflows (and thus potentially at risk during reversals of flows) should be either a currency board with a fixed rate or a pure float could be possibly reassessed. Recall that one of the arguments for this so-called "two-corner" solution was that pegged ERRs offered an "implicit guarantee" to creditors that lead to MH and financial vulnerability. Our results cast doubts about a mechanical relationship between pegs and MH, and suggest that an appropriate ERR can be designed combining some degree of flexibility (e.g., a crawling peg with an adjustable central band) and stability (e.g., a credible policy stance) without creating MH.

[2] If MH is not the dominant factor explaining financial bubbles in East Asia, financial crisis prevention requires more policy coordination and more international monitoring, not less.

The rejection of MH as an explanation cannot per se solve the problem arising from "excessive" foreign lending into a given emerging market. The evidence is clear: there are financial bubbles that are related to international lending even if they are not caused by MH. The paper's stylized alternative story to MH leads to a logical policy implication. If financial bubbles in emerging markets can arise from unregulated competition between international banks and HB, then local regulators alone are unlikely to succeed in bubble prevention. Policy coordination is necessary between emission and recipient countries to improve the "quality", timing and composition of capital flows. To be more effective, domestic regulators require appropriate support from regulators in the US, Europe and Japan regarding the international activities of emission countries' banks and funds. Therefore, if (1) the dynamics of financial bubbles in emerging markets are (at least partially) driven by G-7 business cycles (in this case Japan's) and (2), if it is primarily competition for market shares in emerging markets that blinds creditors, then there is a very strong case for complementing the policy reforms (banking sector restructuring, bank supervision, etc.) in emerging markets with an improved surveillance of the international activities of lending banks

by the regulators in the emission centers (the US, the EU and Japan). This argument is reinforced by the observation that changes in key policy variables to avoid bubbles could represent a higher political cost in the recipient country than in the emission country.

Unfortunately, mainstream analysis is leaving to emerging markets the burden of crisis prevention.[34] It continues to suggest that crisis avoidance is primarily recipient-country business and that emerging markets should keep integrating fast with global financial markets. Naturally, only *after* completing key domestic reforms to (a) improve domestic bank supervision; (b) strengthen external debt monitoring; and (c) choose an exchange rate regime—either a currency board or a pure float. This cake is iced with the "friendly advice" that political reform toward more transparent regimes is "desirable" to eradicate "cronyism". We (see also Pereira da Silva [1999]) remain skeptical about the efficacy of this conventional analytical framework and of its policy recommendations. It is not wrong but quite "old": if it did not work after Mexico, why now? And it is one-sided: while emphasizing "demand" from recipient countries (i.e., please control your appetite for debt), it neglects the "supply" side.

But why is local macroeconomic demand management—as good as it could be—most likely insufficient? Above all, because even respected policymakers (like Chairman Greenspan) have little leverage to really tighten policies during booms. There are technical problems too. Practitioners know that meaningful financial sector reforms require time.

Meanwhile, can everyone please stop competing to attract "hot money"? In addition, take large balance sheets in emission countries: "minor" shifts can respect sound prudential guidelines there, but represent a destabilizing inflow for a small recipient country.[35] And standard local macro-management solutions to counter large capital inflows are complicated: sterilization, currency appreciation, fiscal and monetary restraint, have all their drawbacks. Hence, crisis prevention based on local macro-policies associated with ambitious agendas of financial sector reforms is, at best, optimistic.

But then, why should the large capital-supplying countries be at all concerned? First, because very often, it is their own business and financial cycles that produce recipient countries' booms and busts. Examples are plentiful, for Japan, Europe and the US. Second, because it is in their own interest that emerging markets should grow without recurrent crashes. But, it is important to understand why competition between them can produce "perverse" dynamics.

Emission countries can naturally consider that burden sharing is impractical or too costly. But inaction can make future crises even more expensive than Asia's and require unpopular recourse to larger and larger IMF packages, invariably with the taxpayers' participation from the closest, "regionally-involved", G-7 country. Inaction could also drive emerging markets into tougher policies, escalating from maturity-based taxation of capital inflows, to ineffective controls and perhaps isolation. Local

[34] The Asian crises have demonstrated, among other things, that countries that originate large flows (the US, Europe, Japan) are neither prepared to stabilize their exchange rate movements by coordinating their own business cycles nor to rein in their own capital flows.

[35] A 0.1% change in total assets of just *one* single global bank can represent amounts to the tune of half a billion US dollars.

oppositions and demonstrators will soon shift from purely emotional to more compelling arguments like: it is the absence of burden-sharing during busts that makes the benefits of globalization too volatile to be worth accepting. Stronger (for how long impractical?) cases for Tobin-like taxation of financial flows will be made.

Practical suggestions? To start with, at least the monitoring of capital outflows from supply-countries can be strengthened.[36] Beyond reporting banks, the BIS statistical apparatus could cover other financial institutions and funds. Country, counterpart and product-based statistics of financial flows could be complemented by their final *sectoral* destination. Reports on the final recipients of flows from (and through) offshore banking centers could be available. Then, prudential guidelines for international financial activities might be *refined*, with full cooperation between the G-7's and recipient countries' regulators and international agencies.

The hope that financial bubbles can be avoided altogether in the global financial world is probably illusory. But their occurrence can and should be minimized for the protection of innocent bystanders.

[36] Private rating institutions have to pay more attention to financial assets prices and credit growth to the private sector, in addition to the usual focus on CPI inflation and public sector fiscal deficits.

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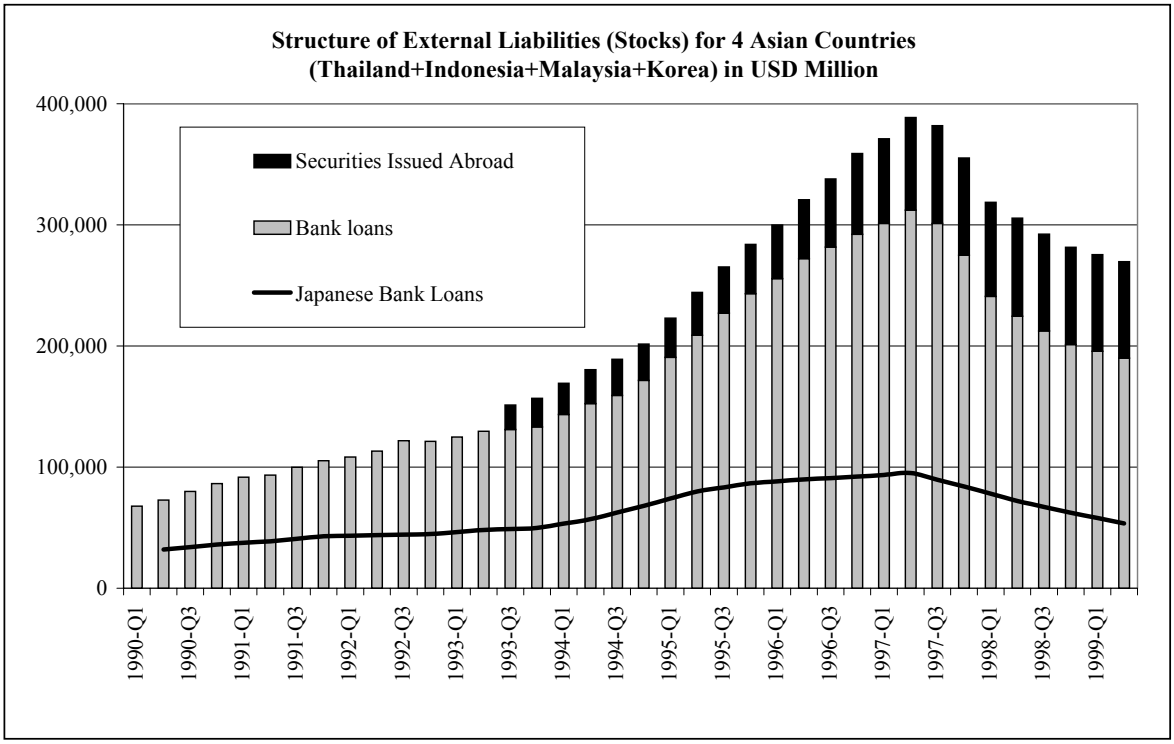
Charts

Chart 1



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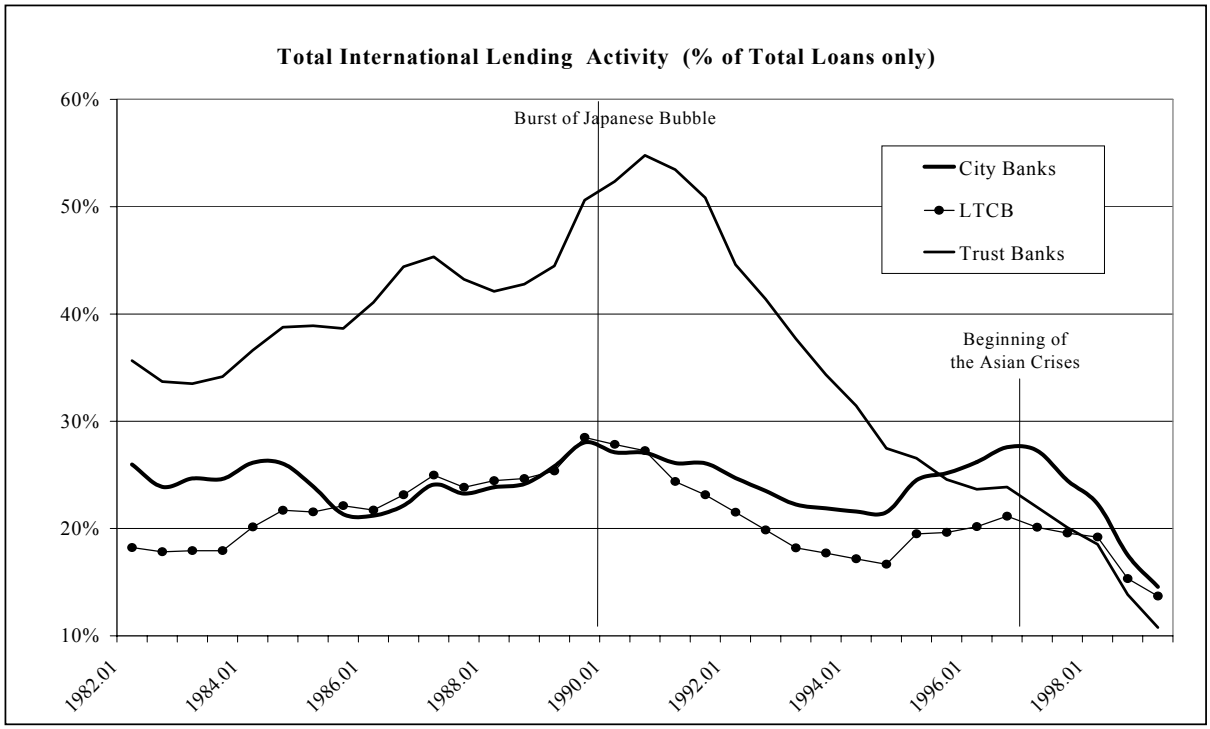

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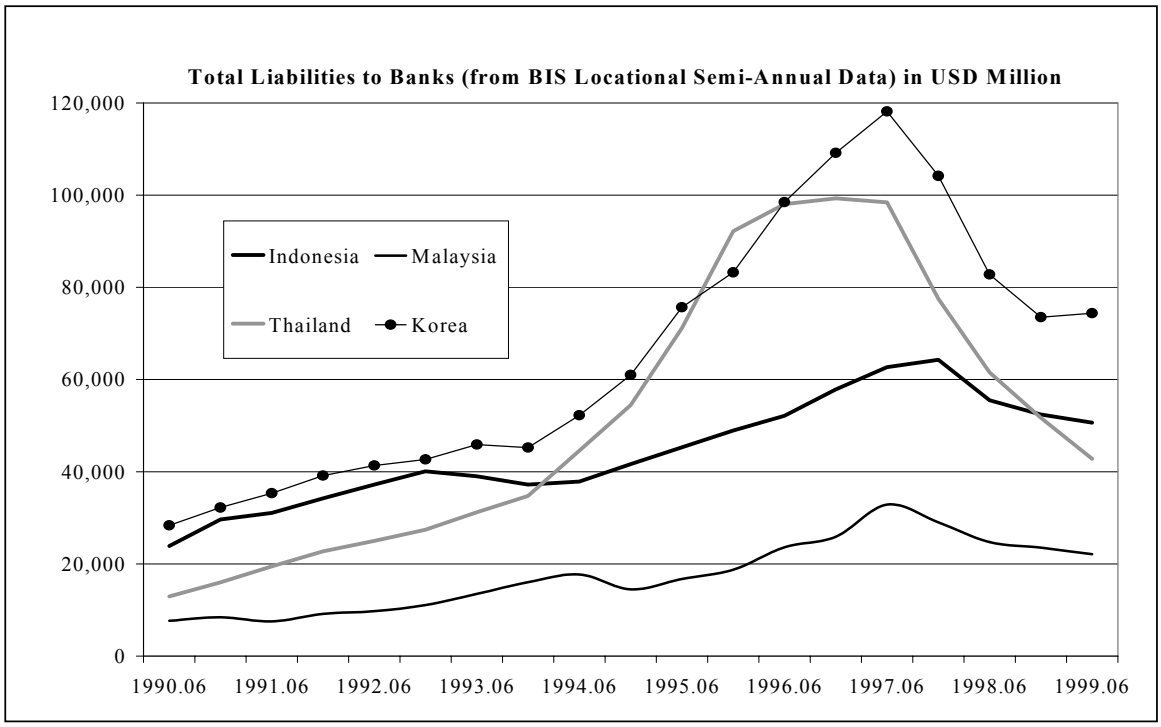

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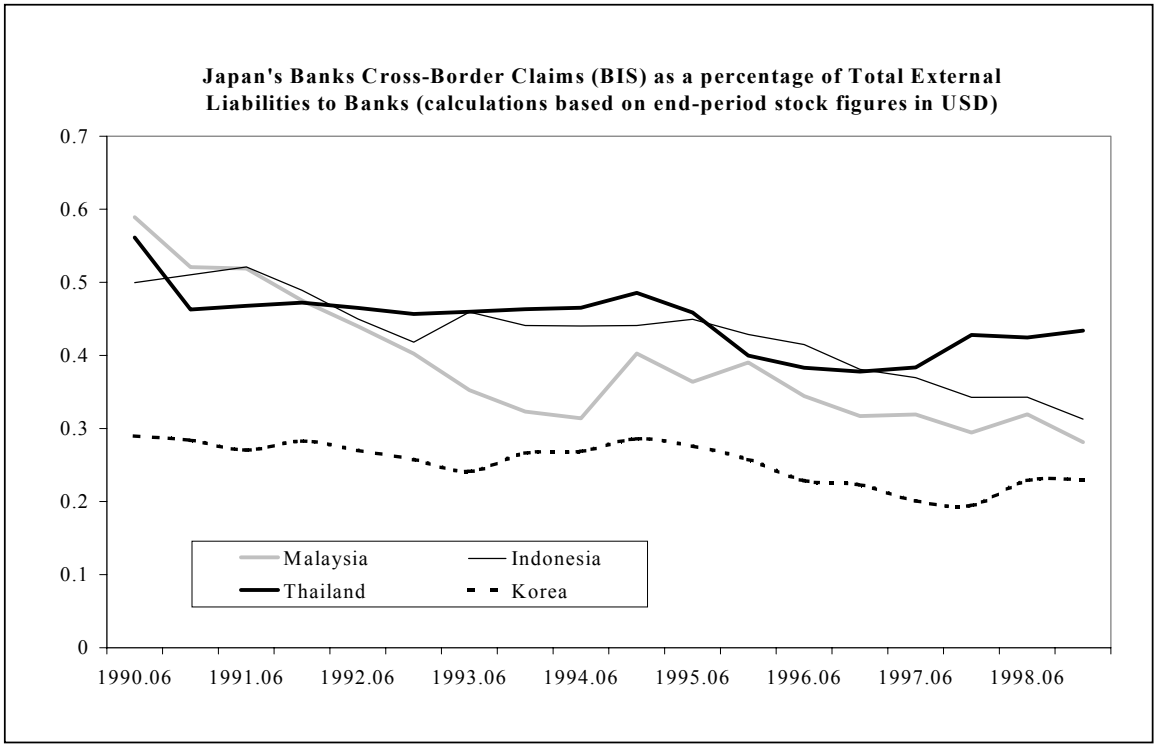

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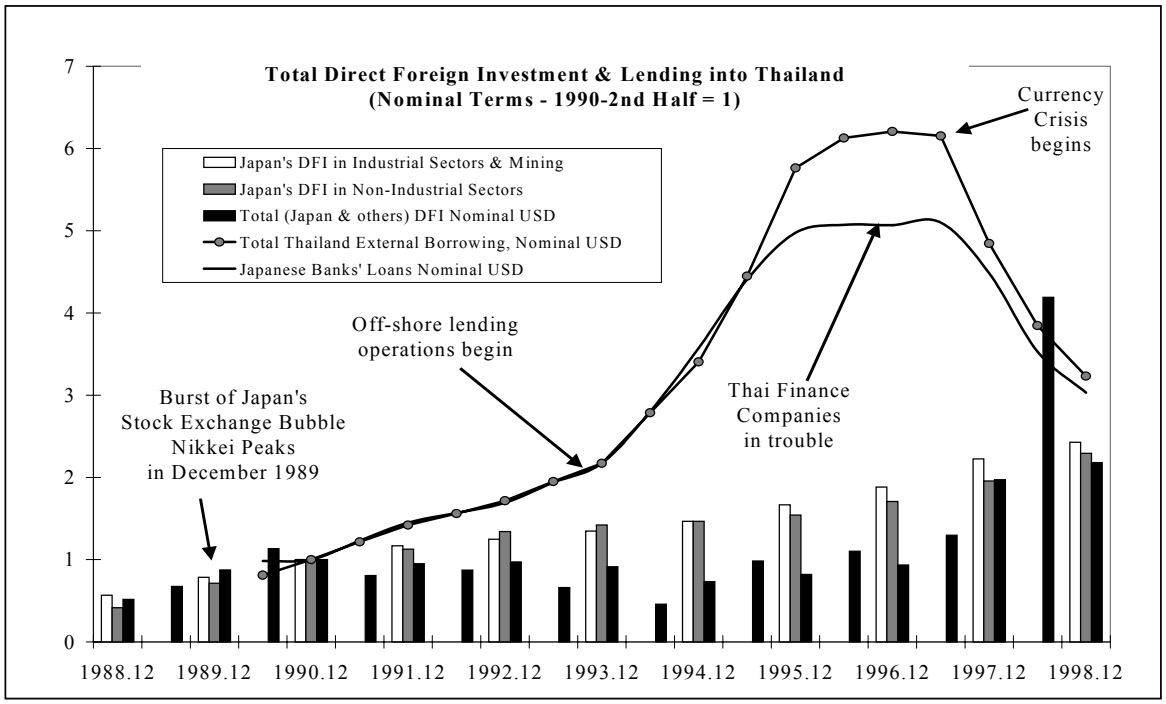

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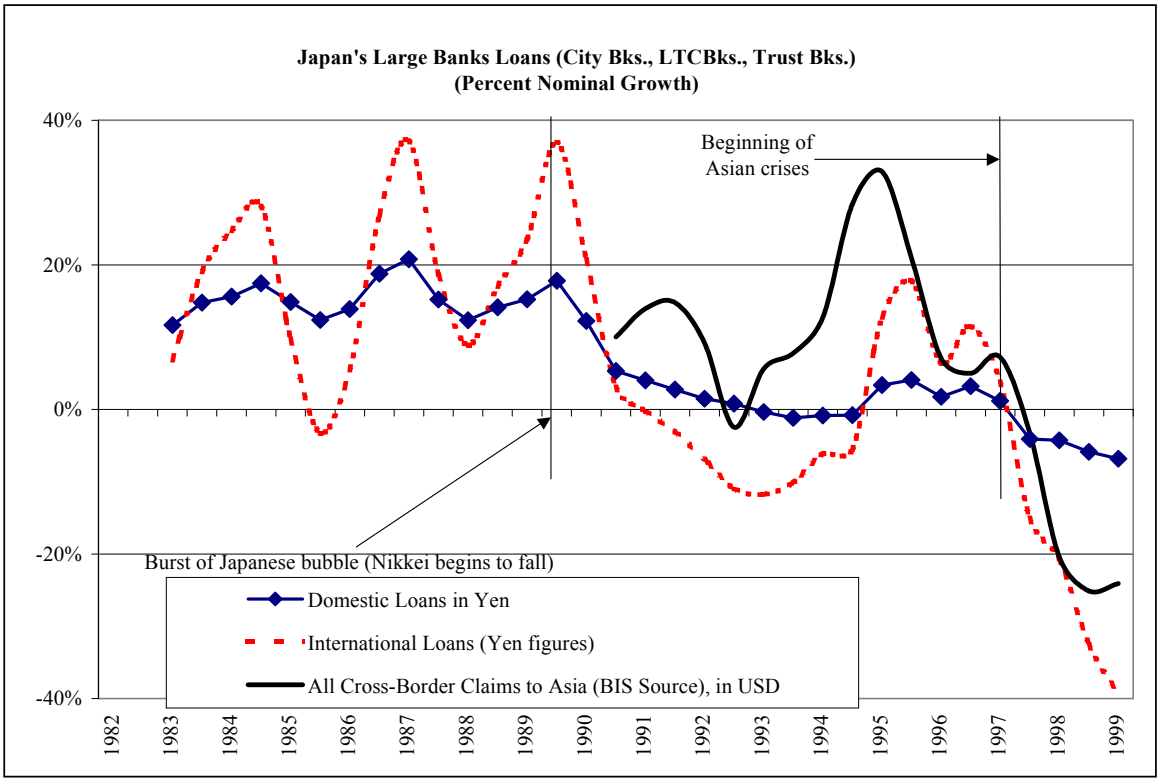

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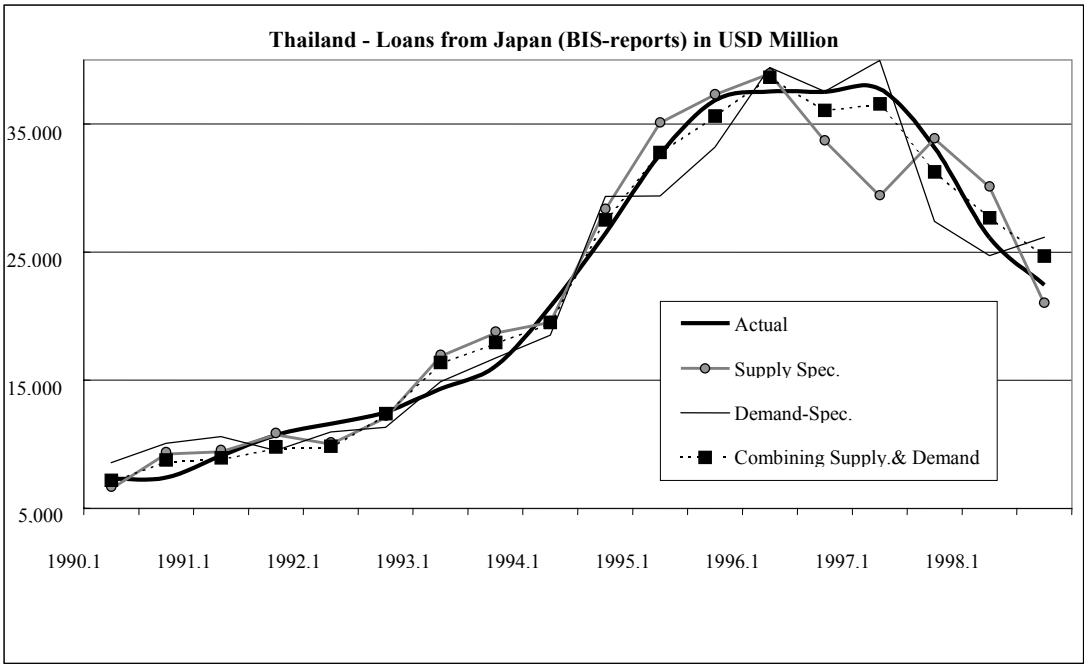

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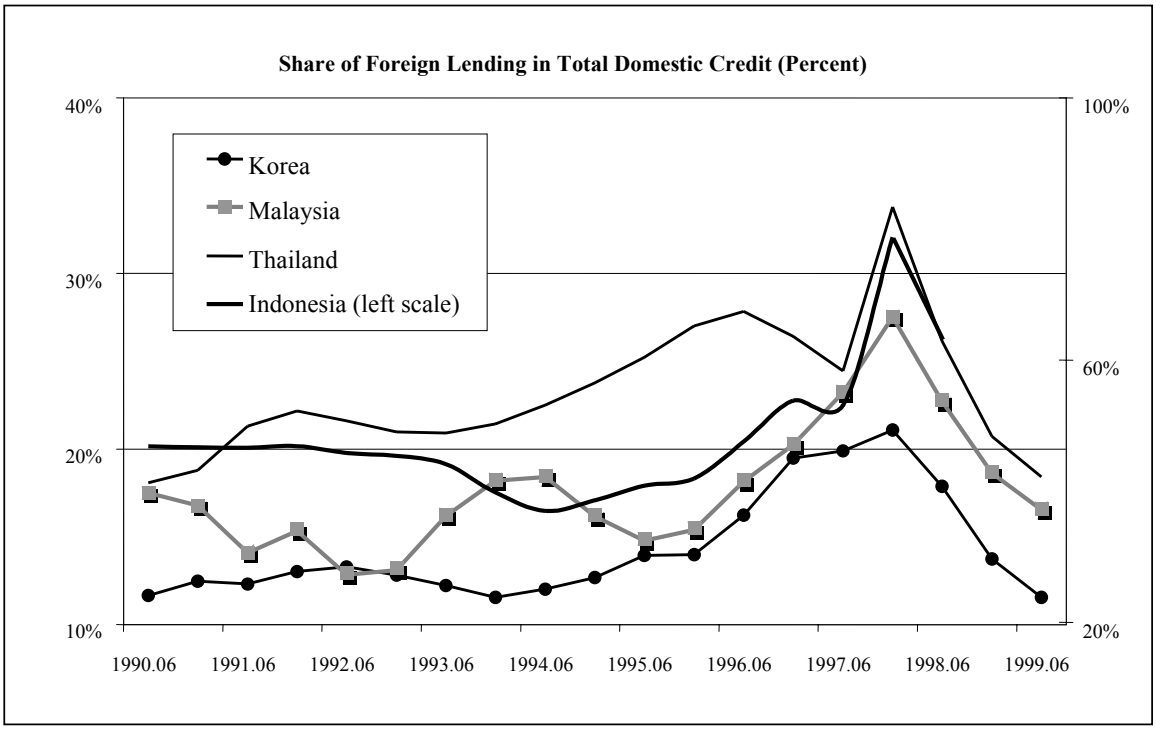

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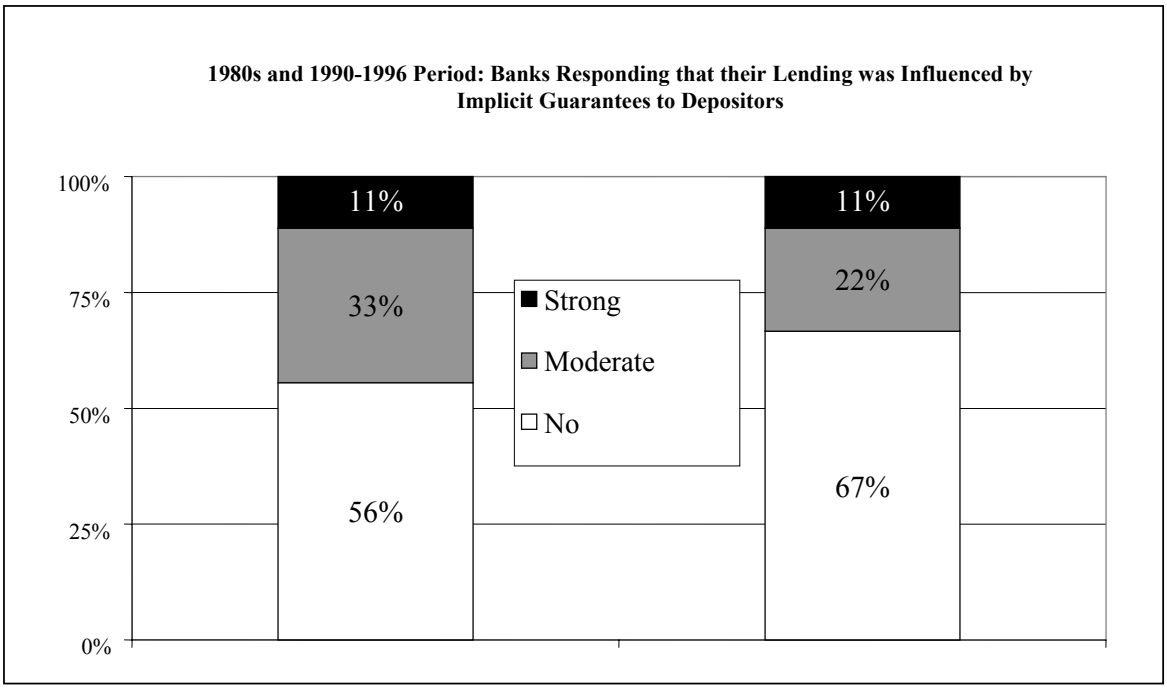

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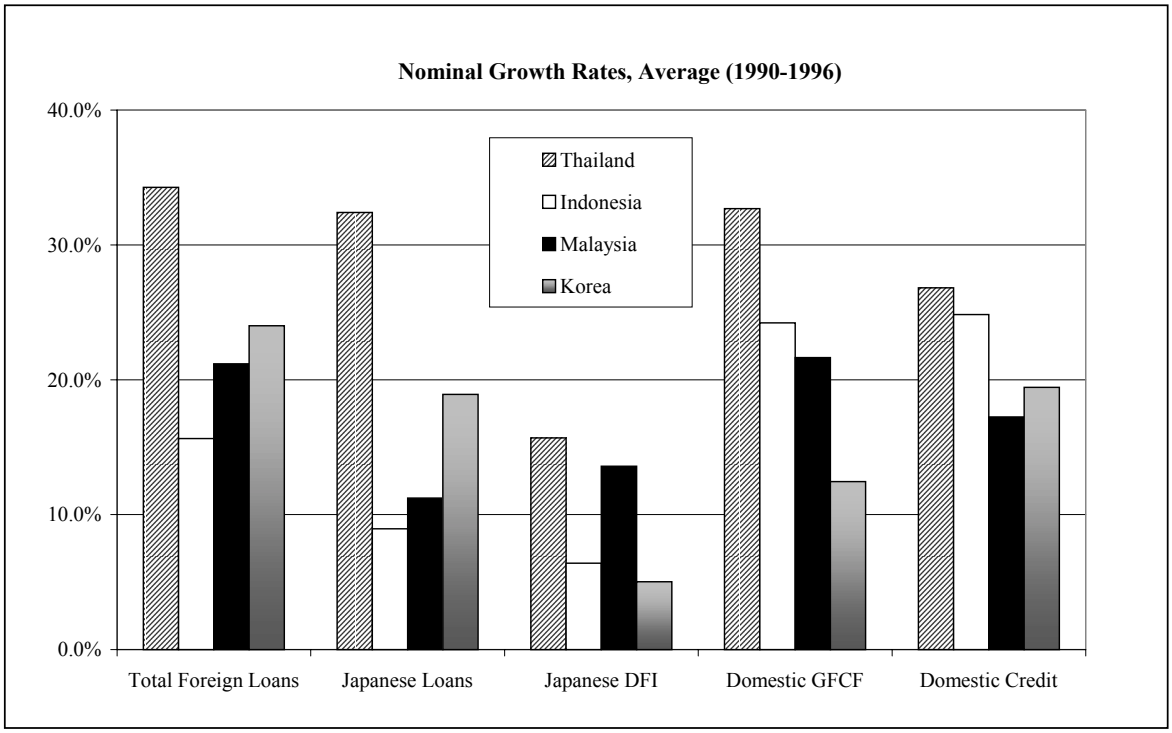

Appendix A

Data Sources to Analyze Japanese Capital Flows into East Asia

There are several and not necessarily consistent data sources capturing Japanese capital flows (equity and portfolio investment, bank and nonbank lending) into emerging markets in Asia (to governments, corporations and banks):

(a) individual private commercial bank annual reports[37];
(b) private commercial banks' submissions to the Bank of Japan (BoJ) (which then are submitted to the Bank for International Settlements [BIS]) of their cross-border claims[38];
(c) the regional (country-based) balance-of-payments of Japan, published by the BoJ and Japan's Ministry of Finance (MoF)[39];
(d) public sector lending which is not captured in Japan's BoJ submission to the BIS, but can be found in individual reports (e.g., the Overseas Economic Cooperation Fund [OECF] and the Export-Import Bank of Japan [JEXIM], now merged into the Japan Bank for International Cooperation [JBIC]); and
(e) for Japanese direct foreign investment (DFI), the MoF has released episodically data on the stocks and flows of Japanese DFI broken down by country of destination and by sector. Time series since mid-1988 are available.

On a recipient country perspective, the combined International Monetary Fund (IMF)-Organisation for Economic Co-operation and Development (OECD)-World Bank-BIS data-base on external liabilities provides a comprehensive picture (but one that is not broken down by nationality of claims) for each major emerging market. In parallel, the overall flows of international activity of Japanese banks (loans to nonresidents, purchase of foreign securities) can be tracked down in the BoJ's publication of the balance sheets of Japanese banks (but country breakdown is not available). In addition, the BoJ and the MoF also publish with balance of payments statistics, the overall external net investment position (assets and liabilities) of Japan. There are several problems of coverage and inconsistency in each of these various sources (see Appendix A, Table A-1 for a comparison of sources and measurement of differences).

(f) the "international activities" of Japanese banks cover the assets of "overseas branches" plus domestic transactions with nonresidents. But sometimes, there are loans to subsidiaries of Japanese corporations that are "guaranteed" (formally or

[37] From their 1998 fiscal exercise onwards, most Japanese city banks started publishing their "overall" exposure to major emerging markets, sometimes broken down between Japanese-affiliated companies and other local borrowers.
[38] The BoJ releases (quarterly and semi-annually) Japanese banks' crossborder (locational and consolidated) claims with a breakdown by country. Data are part of Japan's submission to the BIS, and have been available since FY1995. Recently, other G-7 participant countries to the BIS reporting system also started releasing the country of destination of their own flows (e.g., the Federal Reserve Board in the US).
[39] The April issue of the Balance of Payments Monthly published by the International Department of the BoJ features a breakdown of the capital account flows by country of origin/destination.

informally) by head offices. In such cases, accounting practices vary and the operation can be registered either in a domestic or an international account.

(g) many Japanese banks used the books of their overseas branches in offshore markets (e.g., in the European Union; Hong Kong, China; and Singapore) to conduct yen or euro-yen lending to Japanese nonbanks. Japanese banks recycled yen funds through their overseas branches, which "inflated" their international assets.[40]

(h) the current system of reporting to the BIS does not cover two-step lending from foreign banks that are based in offshore centers (Hong Kong, China; and Singapore) to emerging markets, when the lending is done to a bank or corporation domiciled in the offshore center itself (it is considered domestic lending and although it is monitored by the local central bank, banks in offshore centers do not report). *In other words, there is an underestimation of the true amount of lending to emerging markets in Asia from foreign banks.* Even the BIS "consolidated" figures are missing part of the true lending to emerging market because they can look only at what is reported to them, usually the primary destination of the flows.

[40] The Quarterly Locational International Banking Statistics use a strict nationality (locational) basis and imply the following: (a) yen funds borrowed by Japanese banks in the domestic market for relending are not recorded as an increase in liability because it is a transaction in the domestic market in local currency; (b) transfer of such funds to overseas branches is recorded as an international transaction, it corresponds to an increase in assets and liabilities (eventually netted out); and (c) euro-yen loans by overseas branches of Japanese banks to Japanese nonbanks are also recorded as an "international transaction".

Appendix A, Table A-1: Comparison between Several Estimates of International Lending by Japanese Banks

Source	Coverage		Nature	Item	Unit	End-Period FY-1995 (March 96)	Fiscal Year (April-March) End-Period 1996 (March 97)	End-Period 1997 (March 98)	End-Period 1998 (March 99)
Bank of Japan, Balance Sheets of Banks a/	City (9), Trust (7) & LTC (3) Banks	[1]	Stock	Loans & Discounts "overall accounts"	US$ billion	3,096	2,731	2,432	2,531
					Nominal growth rate (%)		-11.8%	-11.8%	4.1%
Bank of Japan, Balance Sheets of Banks a/	City (9), Trust (7) & LTC (3) Banks	[2]	Stock	Investment Securities "overall accounts"	USD billion	704	611	608	651
							-13.1%	-0.7%	7.1%
Bank of Japan, Balance Sheets of Banks a/	City (9), Trust (7) & LTC (3) Banks	[3]	Stock	Total Assets "overall accounts"	US$ billion	4,908	4,312	4,047	4,119
					Nominal growth rate (%)		-12.1%	-6.2%	1.8%
						a/	b/	c/	d/
BoJ & MoF, Balance of Payments f/	All institutions (BOP source)	[4]	Stock	Total international investment position, Total Loans	US$ billion	915	825	944	1,021
					Nominal growth rate (%)		-10.1%	14.7%	8.1%
BoJ & MoF, Balance of Payments f/	All institutions (BOP source)	[4a]	Stock	of which: International investment position, Bank Loans	US$ billion	647	556	656	680
					Nominal growth rate (%)		-14.0%	17.9%	3.7%
Bank of Japan, Balance Sheets of Banks a/	City (9), Trust (7) & LTC (3) Banks	[5]	Stock	Loans & Discounts "international accounts"	US$ billion	748	715	564	423
					Nominal growth rate (%)		-4.2%	-21.0%	-25.0%
Bank of Japan, Balance Sheets of Banks a/	City (9), Trust (7) & LTC (3) Banks	[5a]	Stock	of which: Loans & Discounts "overseas branches"	US$ billion	648	627	492	356
					Nominal growth rate (%)		-3.6%	-21.5%	-27.7%
Bank of Japan, Balance Sheets of Banks a/	City (9), Trust (7) & LTC (3) Banks	[6]	Stock	Securities "international accounts"	US$ billion	116	118	111	102
					Nominal growth rate (%)		2.0%	-6.0%	1.2%
Bank of Japan, Balance Sheets of Banks a/	City (9), Trust (7) & LTC (3) Banks	[6a]	Stock	of which: Securities "overseas branches"	US$ billion	37	35	30	24
					Nominal growth rate (%)		-5.3%	-15.3%	-17.7%
Author's Estimate	City (9), Trust (7) & LTC (3) Banks	[7]	Stock	Total Loans & Invest. Securities of International accounts	US$ billion	**862**	**833**	**675**	**538**
					Nominal growth rate (%)		**-3.4%**	**-18.9%**	**-20.7%**
BIS	Reporting institutions (private Banks)	[9]	Stock	Total Cross-Border Claims (does not cover public sector)	US$ billion			895	724
					Nominal growth rate (%)				-19.1%
BIS	Reporting institutions (private Banks)	[9a]	Stock	of which: to Non-Reporting	US$ billion		385	380	279
					Nominal growth rate (%)			-2.5%	-26.4%
BIS	Reporting institutions (private Banks)	[9b]	Stock	of which: to Asia	US$ billion		119	115	86
					Nominal growth rate (%)			-3.3%	-25.1%
Overseas Economic Cooperation Fund	OECF	[10]	Stock	Official Development Assistance (Total)	US$ billion	81	72	69	82
					Nominal growth rate (%)		-11.5%	-4.0%	18.9%
		[10a]	Stock	of which to Asia	US$ billion	63	56	54	65
					Nominal growth rate (%)		-11.5%	-3.7%	19.9%
Export-Import Bank of Japan	JEXIM	[11]	Stock	Loans	US$ billion	104	88	83	93
					Nominal growth rate (%)		-15.8%	-5.5%	12.6%
		[11a]	Stock	of which to Asia	US$ billion	39	34	34	41
					Nominal growth rate (%)		-14.1%	2.3%	19.5%
Total Internat. Investment Position, Loans BoJ	All institutions (BOP source) over total Assets for City, Trust & LTCBs	[12]		= [4]/[3]	%	18.7	19.1	23.3	24.8
Total International Acc., Loans & Discounts BoJ	City (9), Trust (7) & LTC (3) Banks Loans & Investment Securities	[13]		= [7]/([1]+[2])	%	**22.7**	**24.9**	**22.2**	**18.8**
BIS and BoJ	All reporting institutions / Loans & Investment Securities	[14]		= [9]/([1]+[2])	%			29.5	22.8
	of which Asia exposure	[15]		= [9b]/([1]+[2])	%		3.5	3.8	2.7
OECF, JEXIM, BIS and BoJ	All reporting institutions / Loans & Investment Securities of which Asia exposure						5.9	32.8 / 6.4	28.8 / 5.7

Sources: BoJ, MoF

a/ December-95
b/ December-96
c/ December-97
d/ December-98
e/ BoJ, November 1999 Quarterly Bulletin
f/ BoJ, regional BoP (April issues of BoJ Bulletins)

Appendix B

Financial Sector Institutions and Markets in Japan: How Institutional Changes Affected Financial Flows

There are many sources in a large body of literature analyzing the past history, the crises and the recent changes in Japan's financial industry. A history of Japan's banks and financial system can be found in Guichard [1999]; Aoki, Patrick and Sheard [1994]; Ueda [1994]; and Tamaki [1995]. These authors, inter alia, describe the functioning of the main or principal bank system.

A major characteristic of Japan's financial institutions is the important role of its public sector and in particular of the Ministry of Finance (MoF) through its supervisory powers and the issuance and monitoring of regulations both formal and informal. Supervision was, to a lesser extent, also provided by the Bank of Japan (BoJ), the Ministry of Trade and Industry (MITI), the Ministry of Posts and Telecommunications and the Ministry of Agriculture. Until recently, the MoF had the central responsibility in bank supervision (for the large commercial banks), which is now divided between the BoJ and the newly-created Financial Supervisory Agency. The dominance of the public sector (reflected in the confidence of the general public) is illustrated by the importance of household deposits in the postal savings system.

These institutional characteristics can be seen in the BoJ's published Flow of Funds for Japan. It is well-known that a comparison with the US data shows the importance of indirect (bank loans) vis-à-vis direct (stock issuance) financing in the assets/liabilities structure of Japanese firms, where banks, insurance, pension funds, securities firms, etc., play an important role.

These features lead to a main bank system, similar to that in Germany. There are advantages to such a system of financing that were identified in practice and in the literature (informational capital, governance of firms, surveillance of borrowers, availability of long term financing because of the possibility of coordinating credit among several financial institutions). But there are inconveniences too: weak supervision, role of the "amakudari" i.e., the practice of "reserved assignments" in high-level positions of the financial sector private institutions for retired MoF and BoJ officials, etc. These characteristics can bring moral hazard due to the strong role of government without any agent of quality control. That system also reduces the incentives of depositors to monitor the quality of financial institutions and of loans. It leads to weak profitability, high leverage, the widespread usage of collateral and usually undercapitalized institutions.

First shock: financial liberalization and opening up in the early 1980s, including internationalization of the yen (Oba-Spinkel accords of 1984), which brought also internationalization of banks (Kawai [1993]) and increased activities of the domestic capital market (deregulation of interest rates, emergence of a money market and of bond and securities markets). Competition between financial institutions increased. Financial liberalization destabilized the main bank system (see Davies [1992]). Incentives for credit expansion and internationalization, while prudential rules were distorted. Monetary authorities negotiated with the BIS to include 45% of hidden reserves—or potential profits on the huge amount of securities held by Japanese banks—as tier-2 capital in Japanese bank balance sheets (Frankel and Morgan [1992])

for calculation of the Cooke ratio. Leverage could then be significantly increased because BIS limits tier-2 capital not to exceed tier 1. Any excess tier-2 capital (resulting from the large amount of securities in Japanese banks' books) could then be mobilized to increase lending as soon as tier-1 capital came in.

This system naturally produced a credit boom. The real estate boom in Japan after 1985 can easily be explained by this chain of events (Ito and Iwaisako [1996]). To compensate losses of market shares in the credit market to large firms, banks shifted to households, finance companies and small and medium enterprises. There was a spectacular increase of credit to the real estate sector but in a weak environment of supervision and credit risk analysis. In addition, monetary policy in Japan was very expansionary during the boom due to several factors (the need to stabilize the appreciation of the yen after its spectacular strengthening following the Plaza Accords, US pressure to contribute to world demand expansion after the 1987 stock exchange crash and to reduce Japan's trade surplus with the US, Japan wanted to reduce the fiscal deficit and relied essentially on easy money). The asset price boom was not taken into account in setting the monetary policy stance.

Changes in monetary policy in 1989 triggered a crisis. Monetary authorities raised the discount rate from 2.5% to 6% (August 1990) in order to burst the bubble. They also acted directly in the real estate sector through quantitative restrictions to loans for that sector. Expectations shifted rapidly. The Nikkei fell by 40% during 1990. The consequences for banks' balance sheets included an inverted yield curve coupled with reversal of the structure of interest rates (deposit rates increase and financial intermediation margins were eroded significantly). Potential profits on stocks and hidden reserves on portfolio securities vanished, leaving banks undercapitalized while nonperforming loans started accumulating due to negative expectations, falls in asset prices, and the economic downturn. The result in the early 1990s was that Japanese banks were facing four negative shocks: on their financial margins, their fixed-asset prices, their tier-2 capital basis (hidden reserves) and the quality of their loans (solvency of borrowers).

Reactions to the crisis took time. From 1990 till 1995, there was a wait-and-see attitude based on the belief that after the bursting of the bubble, there would be a recovery in the real estate sector that would solve the problem of nonperforming loans. Some temporary measures were taken (intervention in the stock market) plus fiscal programs for the recovery of the economy but there was no real action in financial reforms. In 1995, the second round of the crisis emerged with several bankruptcies of small financial institutions and financial scandals revealing the weaknesses of the surveillance and supervision systems (MoF and BoJ).

But inaction did not solve the problems. Several additional difficulties emerged (e.g., a Japan premium appeared,[41] the Nikkei fell even further during most of 1996-

[41] After two small credit cooperatives were closed (summer of 1995), Japanese banks borrowing in international capital markets had to pay a specific (confidence-based) premium over and above each institution's own risk premium. This "Japan premium" jumped from 0 to 50-100 basis points in episodes correlated to several crises, such as the Daiwa Bank losses in the US (October 1995), the bankruptcies of Yamaichi Securities (November 1997), and of Hokkaido Takushoku and the spreading of the Asian crises. The difficulty for Japanese banks in procuring US dollar funds brought concerns that some would sell their US Treasury bond portfolio en masse, possibly putting pressure on US interest rates and triggering a commitment by the Federal Reserve board to directly lend US dollar funds in case of a significant shortage of US dollar financing for Japanese banks.

1998, the yen fell vis-à-vis the US dollar from July 1995 until mid-1998,[42] and there was an increasing crisis of confidence of depositors vis-à-vis Japan's financial system. This crisis culminated with several bank runs in 1997, the bankruptcy of the smallest of the city banks (Hokkaido Takushoku) and the transfer of household savings to the postal savings system.

Finally implementing some of the announced Big Bang reforms for its financial system, in October 1998, new banking legislation was introduced and significant amounts of public funds were injected into banks in March 1999 (¥7.8 trillion or about $75 billion). There were some signs of improvement. The October 1998 banking legislation offered three options for failing banks: (a) a public bridge bank; (b) temporary nationalization; or (c) liquidation. In a nutshell, new regulatory action was taken for all categories of banks, even those whose capital ratios were above the 8% minimum guideline. The principles were to provide capital (through preferred stock), to earmark sizeable amounts of public funds (¥70 trillion or about $650 billion) for deposit guarantees, nationalization and/or recapitalization (a quarter has already been used) while forcing the restructuring, closing and sanitization of activities.

While reforms were underway, it was also important to ensure that they would not trigger a worsening of the domestic credit crunch. Hence, the BoJ kept for a long period the zero-interest-rate policy. Despite the recovery in confidence, the amounts of nonperforming loans are still considerable and problems in the Japanese financial sector will require careful monitoring.

[42] Capital outflows from Japan correspond to an increasing suspicion of the health of its banking system. A significant portion of these flows were reduction in foreign bank deposits plus an increase of purchase of securities and other assets by Japanese banks. Part of the US stock exchange bubble in a sense, was fed by these outflows.

Appendix C

"Excessive" International Capital Flows to East Asia? The Overlending Syndrome in East Asia

a) General Characteristics of Japanese Capital Flows to East Asia

Japanese capital flows to East Asia should be understood in the general context of the overall trends governing international capital flows (see IIF [1997], World Bank [1999]) to emerging markets and the new composition of international financing:

- *Private capital flows have established themselves as the dominant external source of financing for emerging markets*[43] *during the 1990s.* By far, they dwarf official development assistance (ODA). While in 1990, the latter accounted for about 56% of net long-term flows to developing countries, their share fell in 1996 (before the surge of International Monetary Fund [IMF]-led programs) to about 10%. The tales of how large capital inflows went into East Asia are numerous (see for example the World Bank [1996] and the IIF [1997]). Table C-1 puts capital flows to East Asia in perspective. By 1995-1996, in a context where, according to the Institute of International Finance (IIF), private capital flows to the major 29 emerging markets peaked at around $311 billion, Asia was receiving about $161 billion (almost 50% and well above Latin America with $95.9 billion). The five East Asian emerging markets (Indonesia, Korea, Malaysia, Philippines and Thailand) got $93.8 billion (about a third of total external financing to the 29 major emerging markets). For the same countries, net private credit flows from commercial banks rose—from $4 billion in 1987 to $58 billion in 1996. Nevertheless, the outstanding stock of external debt never went beyond a relatively prudent level of about 32-33% of the East Asian countries' combined gross domestic product (GDP). But the nominal amounts involved were huge: $522 billion for medium/long-term debt and $228 billion for short-term debt.
- *Direct foreign investment (DFI) to emerging markets is concentrated into a few highly popular target regions and countries.* These favored destinations account for a large share of total flows (e.g., the top 10 recipients of DFI account for $42 billion or about 70% of total DFI flows; Brazil and People's Republic of China (PRC) alone account for $34 billion). A longer time perspective for a larger sample of countries in Asia provides the same picture. IIF data show that between 1987 and 1996, equity investment (net inflows of

[43] It should be recalled, however, that the major capital flow movements are inside the G-7, and that emerging markets represent only a minor share of flows. For example, while the overall net long-term resource *flows* from all origins to all developing countries averaged about $300 billion in 1996-1998, Japanese-only financial asset exposure to the US and Western Europe increased by an average of $200 billion. There was in the 1980s (see French and Poterba [1991]) a "home bias" that kept 94% (respectively 98% in Japan) of local investors' wealth (i.e. stocks) in the US (respectively in Japan). That prudent behavior has been partially offset in the 1990s by improvements in information about emerging markets and the more aggressive role of (primarily) US mutual funds whose share of international assets increased from 4% to 9% in the mid-1990s.

direct and portfolio equity capital, including reinvestment) for the eight Asian emerging economies (PRC, India, Indonesia, Korea, Malaysia, Pakistan, Philippines and Thailand) rose from $4 billion to $65.7 billion (16 times).

- There is limited information about the country of origin and exact nature of capital flows. Nevertheless, the following trends can be identified: (a) equity flows are mostly linked to DFI in manufacturing sectors; they increased significantly with the wave of privatization that affected particularly large economies such as Argentina, Brazil, PRC, Malaysia and Mexico in the late 1990s; and (b) private debt flows (essentially commercial bank lending) show a higher correlation between emission and recipient countries when there is geographical proximity (the US with Latin America, Japan with Asia, and Europe with Africa and Eastern Europe). Despite that risk-mitigating factor, the volatility of private debt flows is higher than that of official flows.

How do these general features fit the Japan-East Asian context? The answer is that Japanese capital flows into Asia were also largely private, concentrated into a handful of countries (the NICs, the Association of Southeast Asian Nations [ASEAN] and PRC) and biased toward debt flows (bank loans). These features result from both Japanese and local institutional, political economy factors, as we shall see below.

b) The Regional Balance-of-Payment Flows from Japan to East Asia

A comprehensive picture of the different categories of capital flows from (and to) Japan to (and from) East Asian countries can be found in the statistical bulletin that the Bank of Japan (BoJ) publishes every year since 1995, in its April monthly issue. There is a detailed country breakdown of Japan's balance-of-payments but unfortunately the data are recorded only from 1995. However since then, the Financial and Capital Accounts of the Balance-of-Payments (BoP) have been disaggregated by country, which allows an analysis of the recent capital movements and flows between Japan and four crisis-hit East Asian countries (Indonesia, Korea, Malaysia and Thailand). As expected, due to the crisis, the financial account shows outflows from each of these four countries to Japan in 1997. These outflows correspond to loans (Korea and Malaysia) and debt securities (Indonesia, Thailand) flows (repayments) to Japan. It should be noted that previously, in 1995 and 1996, these four countries enjoyed inflows from Japan (with the exception of Thailand in 1995, which repaid significant amounts of debt securities to Japan). (see Table C-2)

It is also important to notice that despite debt securities outflows from Thailand to Japan during 1995, 1996, 1997 and even 1998, bank loans from Japan partially offset these (mostly private) capital outflows. In particular, the Japanese public sector (through its banks and ODA agencies) stepped up its operations with Thailand in FY1997 (respectively FY1998), with combined gross disbursements of ¥570 billion (respectively, ¥536 billion), an overall total of about $8.5 billion.

c) Direct Foreign Investment from Japan to East Asia

The flows of DFI from Japan to Asia (see Table C-3) during the 1980s and 1990s were significant but not related to a drive toward high-risk high-return investment. Neither can they initially be explained by privatization policies in East Asian countries. Instead, they correspond to a steady and constant effort to expand Japan's manufacturing industry in East Asian markets. The stock of Japanese DFI in Asia is estimated in 1995 to total about $111 billion. This figure represents a large (25%) share of Japan's total worldwide DFI in 1995 totaling about $420 billion, which can be broken down between direct investment ($260 billion) plus total equity investment ($160 billion). Table C-4 shows these figures from Japan's regional balance-of-payments statistics.

The sectoral breakdown of Japanese DFI in Asia shows that industrial sectors and mining were the favored destination sectors for DFI. They represent about 60% of the overall stock during the 1990s (see Table C-3) and electronics, not surprisingly, is the largest industrial sector of destination (about 11% of the stock) followed by chemicals, machinery, transport equipment and iron. Mining accounts for a large chunk (about 12-13%) of the stock, and corresponds to large projects concentrated in Indonesia. Among the nonindustrial sectors, commerce, finance and insurance represent significant shares (7-8%), while the share of real estate, although not negligible (about 5%), never exceeded this relatively modest percentage. Hence, the overall year-on-year growth rate of Japanese investment into Asia is only slightly above (10%) the growth of the local economies. In addition, Japanese DFI went essentially to industrial and mining sectors, and thus cannot be directly linked to the formation of local real estate bubbles.

Japanese DFI followed the pattern of concentration into selected countries seen elsewhere. During the 1990s, four Asian countries alone (Indonesia, Korea, Malaysia and Thailand) represented more than 60% of the overall stock of DFI in industry and mining from Japan. Adding PRC that accounts for 16%, with the share of the first five countries is more than three-quarters of the entire stock. For each of these countries receiving Japanese DFI, Japanese bank lending accompanied Japan's DFI flows.

Appendix C, Table C-1:
External Sources of Financing (Flows) of Major Emerging Markets

In US$ billion	1995	1996	1997	1998
29 Major Emerging Markets				
Current Account Balance	**-95.0**	**-95.4**	**-76.2**	**-45.0**
External Financing, net	**267.8**	**311.1**	**282.4**	**200.4**
Private Flows, net	228.1	307.6	241.7	158.2
Latin America	43.6	95.9	97.5	85.9
Asia	137.1	161.0	59.7	19.4
Five Asian	83.8	93.8	-6.0	-24.6
Public Flows, net	39.7	3.5	40.7	42.2
Latin America	25.4	-10.6	-3.9	3.8
Asia	8.5	2.5	37.6	31.5
Five Asian	2.5	-2.6	30.9	28.3
Resident Lending/E&O, Other Items Net	-77.7	-128.6	-161.3	-115.9
Reserves Excl. Gold (- is increase)	-95.1	-87.1	-44.9	-39.5
Five Asians (Indonesia, Korea, Malaysia, the Philippines and Thailand)				
Current Account Balance	**-41.0**	**-54.5**	**-26.3**	**59.9**
External Financing, net	**86.4**	**91.2**	**25.0**	**3.7**
Private Flows, net	83.8	93.8	-6.0	-24.6
Equity Investment, net	15.9	17.4	-0.3	8.0
Direct Equity, net	4.9	5.8	6.5	6.9
Portfolio Equity, net	11.0	11.6	-6.8	1.1
Private Creditors (Debt), net	67.9	76.4	-5.7	-32.6
Commercial Banks, net	58.0	58.3	-29.0	-30.5
Non banks, net	9.9	18.1	23.3	-2.1
Official Flows, net	2.6	-2.6	31.0	28.3
International Financial Inst., net	-0.3	-2.0	22.6	22.4
Bilateral Official Creditors, net	2.9	-0.6	8.4	5.9
Resident Lending/E&O, Other Items net	-31.3	-17.4	-29.4	-23.2
Reserves Excl. Gold (- is increase)	-14.1	-19.3	30.7	-40.4
Memo:				
Short- Term Credit, net	45.1	36.0	-36.6	-49.9

Source: World Bank [1999] and Institute of International Finance [1997]

Appendix C, Table C-2: Japan Financial Account of the Balance-of-Payments

Total In US$ Million	1995 H1	1995 H2	1995 Total	1996 H1	1996 H2	1996 Total	1997 H1	1997 H2	1997 Total	1998 H1	1998 H2	1998 Total
Total Financial Account	-112,564	-241,500	**-359,157**	-69,217	-169,681	**-240,821**	-217,533	-245,398	**-463,078**	168,975	-246,197	**-74,064**
Direct Investment	-11,611	-11,082	**-22,672**	-11,957	-11,515	**-23,463**	-14,884	-14,335	**-29,217**	-15,471	-11,846	**-27,343**
Portfolio Investment	-37,321	-97,759	**-137,468**	-100,097	-88,863	**-188,741**	-116,884	-53,094	**-169,666**	-11,772	-175,544	**-186,064**
o/w Equity Investment	-7,082	-42,531	**-51,013**	-48,609	-9,172	**-57,022**	-35,662	-4,508	**-40,017**	-3,099	-25,171	**-28,101**
o/w Debt Securities	-30,237	-55,225	**-86,449**	-51,488	-79,692	**-131,718**	-81,222	-48,586	**-129,650**	-8,673	-150,373	**-157,963**
Other Investment	-63,632	-132,660	**-199,018**	42,837	-69,303	**-28,617**	-85,765	-177,969	**-264,195**	196,218	-58,808	**139,343**
o/w Loans	-68,644	-196,270	**-269,954**	35,972	-62,242	**-28,154**	-64,325	-181,095	**-246,001**	143,678	-105,331	**40,238**
o/w Trade Cred. & Res.	773	1,946	**2,765**	299	238	**536**	1,405	841	**2,243**	2,730	-560	**2,195**

Asia In US$ Million	1995 H1	1995 H2	1995 Total	1996 H1	1996 H2	1996 Total	1997 H1	1997 H2	1997 Total	1998 H1	1998 H2	1998 Total
Total Financial Account	-51,140	-111,536	**-165,061**	24,535	-50,814	**-27,725**	-32,564	-36,006	**-68,588**	110,857	35,274	**146,700**
Direct Investment	-3,886	-4,896	**-8,822**	-5,289	-4,744	**-10,022**	-6,192	-7,634	**-13,833**	-5,143	-3,087	**-8,245**
Portfolio Investment	1,256	-2,669	**-1,568**	-16,181	186	**-15,681**	-960	-4,049	**-5,024**	26,255	3,723	**30,148**
o/w Equity Investment	-1,334	-2,263	**-3,634**	-4,751	728	**-3,918**	1,183	6,309	**7,517**	2,882	983	**3,880**
o/w Debt Securities	2,589	898	**3,420**	-11,430	-542	**-11,763**	-2,143	-10,358	**-12,542**	23,372	2,740	**26,268**
Other Investment	-48,510	-103,970	**-154,670**	46,005	-46,256	**-2,022**	-25,411	-24,324	**-49,731**	89,745	34,638	**124,797**
o/w Loans	-52,282	-115,056	**-169,817**	48,146	-38,199	**8,290**	-20,603	-18,252	**-38,845**	92,981	35,564	**128,976**
o/w Trade Cred. & Res.	-558	-956	**-1,530**	-504	759	**279**	-252	-161	**-412**	923	765	**1,689**

Indonesia In US$ Million	1995 H1	1995 H2	1995 Total	1996 H1	1996 H2	1996 Total	1997 H1	1997 H2	1997 Total	1998 H1	1998 H2	1998 Total
Total Financial Account	-831	-1,382	**-2,235**	-1,303	-2,115	**-3,434**	-1,390	2,664	**1,294**	-183	-3,195	**-3,356**
Direct Investment	-351	-592	**-953**	-685	-807	**-1,495**	-817	-753	**-1,570**	-705	-215	**-924**
Portfolio Investment	-81	-24	**-102**	-66	-300	**-370**	-625	3,429	**2,824**	1,862	493	**2,366**
o/w Equity Investment	0	0	**0**	181	-24	**153**	-91	81	**-8**	224	-5	**221**
o/w Debt Securities	-81	-24	**-102**	-247	-276	**-523**	-534	3,347	**2,832**	1,638	499	**2,145**
Other Investment	-400	-766	**-1,180**	-552	-1,008	**-1,568**	52	-12	**40**	-1,340	-3,474	**-4,798**
o/w Loans	-462	-778	**-1,252**	-650	-1,444	**-2,110**	98	-112	**-15**	-1,146	-3,327	**-4,456**
o/w Trade Cred. & Res.	28	-61	**-37**	109	498	**614**	-15	168	**154**	-131	-82	**-214**

Korea In US$ Million	1995 H1	1995 H2	1995 Total	1996 H1	1996 H2	1996 Total	1997 H1	1997 H2	1997 Total	1998 H1	1998 H2	1998 Total
Total Financial Account	-2,359	-1,943	**-4,286**	571	-3,042	**-2,540**	951	2,846	**3,806**	-2,307	1,925	**-414**
Direct Investment	-297	-168	**-459**	-321	-183	**-501**	-110	-142	**-252**	-422	-22	**-447**
Portfolio Investment	-1,351	197	**-1,093**	-1,334	-866	**-2,191**	1,099	42	**1,136**	140	624	**761**
o/w Equity Investment	3	-9	**-6**	-31	-32	**-63**	-23	124	**102**	-81	-15	**-96**
o/w Debt Securities	-1,355	207	**-1,087**	-1,303	-834	**-2,128**	1,122	-82	**1,034**	221	639	**857**
Other Investment	-711	-1,973	**-2,733**	2,225	-1,993	**152**	-38	2,946	**2,923**	-2,026	1,323	**-728**
o/w Loans	-795	-2,295	**-3,149**	1,876	-1,581	**229**	283	3,400	**3,699**	-1,965	1,330	**-660**
o/w Trade Cred. & Res.	-74	77	**9**	86	97	**184**	-19	34	**15**	36	53	**89**

Malaysia In US$ Million	1995 H1	1995 H2	1995 Total	1996 H1	1996 H2	1996 Total	1997 H1	1997 H2	1997 Total	1998 H1	1998 H2	1998 Total
Total Financial Account	2,620	-1,213	**1,256**	172	-502	**-344**	-954	3,633	**2,701**	682	694	**1,376**
Direct Investment	-122	-256	**-383**	-288	-236	**-523**	-427	-572	**-999**	-362	-91	**-455**
Portfolio Investment	113	39	**149**	-44	-327	**-377**	-665	1,048	**391**	141	375	**514**
o/w Equity Investment	-1	-1	**-2**	170	-207	**-44**	379	1,126	**1,508**	77	194	**270**
o/w Debt Securities	114	39	**150**	-214	-121	**-333**	-1,044	-78	**-1,117**	64	181	**244**
Other Investment	2,629	-996	**1,489**	503	61	**556**	138	3,157	**3,309**	903	410	**1,317**
o/w Loans	2,550	-744	**1,677**	587	30	**606**	240	3,397	**3,652**	760	481	**1,244**
o/w Trade Cred. & Res.	52	-304	**-266**	-106	133	**32**	-38	-127	**-166**	187	-66	**123**

Thailand In US$ Million	1995 H1	1995 H2	1995 Total	1996 H1	1996 H2	1996 Total	1997 H1	1997 H2	1997 Total	1998 H1	1998 H2	1998 Total
Total Financial Account	3,665	5,668	**9,412**	145	-831	**-704**	3,042	-1,930	**1,088**	1,118	-2,387	**-1,242**
Direct Investment	-455	-481	**-937**	-610	-727	**-1,339**	-745	-1,273	**-2,021**	-1,103	-573	**-1,680**
Portfolio Investment	5,364	8,992	**14,499**	1,117	1,514	**2,639**	4,982	715	**5,676**	1,025	-637	**401**
o/w Equity Investment	2	-1	**1**	0	1	**1**	-1	5	**4**	0	0	**0**
o/w Debt Securities	5,361	8,994	**14,498**	1,114	1,598	**2,721**	4,516	798	**5,295**	1,061	-639	**435**
Other Investment	-1,244	-2,843	**-4,151**	-362	-1,618	**-2,004**	-1,194	-1,372	**-2,567**	1,196	-1,178	**37**
o/w Loans	-1,278	-2,921	**-4,264**	660	-1,476	**-857**	-885	-1,274	**-2,161**	1,088	-1,078	**27**
o/w Trade Cred. & Res.	-39	-175	**-219**	-366	49	**-310**	-146	85	**-60**	168	-51	**119**

Source: BoJ-Regional Balance of Payments, April Issues of BoJ Monthly Statistical Bulletins

Appendix C, Table C-3: Japan Direct Foreign Investment (Stocks) into Asia

Total Asia		1988	% of Total	1989	% of Total	1990	% of Total	1991	% of Total	1992	% of Total	1993	% of Total	1994	% of Total	1995	% of Total	1996	% of Total	1997	% of Total	1998	% of Total
By Sector:																							
Food	a.			44.7%		8.8%		10.7%		4.3%		8.3%		13.3%		13.5%		11.9%		6.6%		4.5%	
	b.	843	1.6%	1,187	2.2%	1,298	2.2%	1,667	2.2%	1,738	2.1%	1,882	2.1%	2,133	2.3%	2,421	2.3%	2,709	2.2%	2,887	2.3%	2,818	2.1%
Textiles	a.			6.6%		9.8%		6.8%		6.5%		8.2%		12.3%		18.7%		8.9%		7.5%		3.5%	
	b.	2,858	5.3%	3,057	4.9%	3,358	4.9%	3,378	4.8%	3,888	4.7%	4,120	4.7%	4,628	4.7%	5,402	4.9%	5,772	4.7%	6,205	4.6%	6,438	4.5%
Wood, Pulps	a.			9.5%		10.9%		4.7%		6.5%		10.8%		6.7%		18.3%		21.3%		8.9%		8.8%	
	b.	635	1.2%	604	1.1%	770	1.1%	806	1.1%	858	1.1%	943	1.1%	1,006	1.0%	1,114	1.0%	1,352	1.1%	1,486	1.1%	1,616	1.1%
Chemical Prod.	a.			9.5%		16.9%		13.1%		23.7%		7.3%		13.8%		8.5%		12.2%		15.8%		5.3%	
	b.	3,054	5.7%	3,236	5.4%	3,930	5.7%	4,488	6.0%	- 5,550	6.8%	5,868	5.8%	6,910	7.0%	7,344	6.8%	8,466	6.9%	9,815	7.3%	10,404	7.2%
Iron, etc.	a.			7.7%		5.3%		5.8%		5.8%		7.2%		9.4%		18.9%		14.5%		18.5%		6.3%	
	b.	3,884	7.2%	4,184	6.8%	4,413	6.4%	4,661	6.2%	4,932	6.1%	5,288	6.0%	5,783	5.9%	6,762	6.1%	7,744	6.3%	8,541	6.3%	9,079	6.4%
Machinery	a.			20.6%		13.3%		11.5%		8.8%		10.6%		12.6%		22.9%		13.6%		18.7%		5.8%	
	b.	1,646	3.1%	1,985	3.2%	2,152	3.3%	2,311	3.4%	2,731	3.4%	3,130	3.6%	3,584	3.6%	4,404	4.0%	4,978	4.0%	5,513	4.1%	5,790	4.1%
Electronics	a.			35.7%		19.3%		16.3%		9.0%		13.7%		18.3%		28.1%		16.4%		13.7%		4.3%	
	b.	3,530	6.5%	4,411	7.1%	5,253	7.6%	6,141	8.2%	6,696	8.2%	7,612	8.6%	9,019	9.2%	11,358	10.4%	13,450	10.8%	15,290	11.3%	15,842	11.3%
Transport Equipt.	a.			7.1%		18.2%		7.8%		6.3%		9.6%		13.1%		24.8%		18.8%		16.8%		12.8%	
	b.	1,955	3.6%	2,090	3.4%	2,471	3.6%	2,684	3.6%	2,838	3.5%	3,117	3.5%	3,509	3.6%	4,392	4.0%	5,216	4.2%	6,062	4.5%	6,862	4.8%
Other Ind. Prod.	a.			16.8%		11.9%		12.4%		14.9%		20.1%		16.7%		22.8%		11.2%		17.1%		3.5%	
	b.	2,343	4.4%	2,760	4.5%	3,089	4.5%	3,473	4.6%	3,980	4.9%	4,392	5.4%	5,501	5.7%	6,858	6.2%	7,620	6.2%	8,843	6.6%	9,260	6.5%
Total Industry	a.		#	13.2%	#	13.0%	#	11.8%	#	30.3%	#	11.3%	#	14.3%	#	19.3%	#	13.6%	#	12.3%	#	5.6%	#
	b.	20,736	38.6%	23,803	38.7%	27,035	38.2%	29,946	40.0%	33,740	40.2%	35,897	41.7%	42,177	42.5%	50,484	45.5%	57,147	46.6%	64,788	47.9%	68,167	48.2%
Agricult., Forestry	a.			3.4%		3.9%		4.4%		2.3%		3.2%		2.8%		7.8%		1.1%		0.7%		0.4%	
	b.	569	1.1%	588	1.0%	622	0.9%	649	0.9%	584	0.8%	682	0.8%	704	0.7%	734	0.7%	762	0.6%	763	0.6%	770	0.5%
Fisheries	a.			8.0%		6.3%		7.3%		20.1%		5.7%		38.0%		3.3%		13.3%		13.3%		0.4%	
	b.	277	0.5%	299	0.5%	318	0.5%	343	0.5%	410	0.5%	434	0.5%	588	0.6%	638	0.6%	715	0.6%	812	0.6%	816	0.6%
Mining	a.			1.5%		1.3%		1.9%		2.7%		1.9%		1.7%		1.8%		1.3%		6.3%		1.7%	
	b.	13,402	24.9%	13,509	22.0%	13,849	20.1%	14,108	18.8%	14,482	17.8%	14,190	16.7%	14,943	15.2%	15,216	13.7%	15,086	12.8%	16,188	12.4%	17,032	12.0%
Construction	a.			48.6%		31.5%		10.3%		16.3%		3.7%		13.7%		12.0%		10.0%		12.9%		6.8%	
	b.	569	1.1%	843	1.4%	942	1.4%	1,039	1.4%	1,208	1.5%	1,253	1.4%	1,425	1.4%	1,593	1.4%	1,753	1.4%	1,976	1.3%	2,102	1.5%
Commerce	a.			21.0%		31.3%		14.7%		14.0%		11.6%		8.6%		10.8%		9.6%		8.4%		10.8%	
	b.	3,033	5.6%	3,671	5.9%	4,982	7.1%	5,621	7.3%	6,606	7.8%	7,147	8.1%	7,768	7.9%	8,599	7.8%	9,422	7.7%	10,213	7.5%	11,323	8.0%
Finance, Insurance	a.			29.5%		14.4%		13.6%		11.7%		10.7%		16.0%		9.1%		8.7%		3.7%		3.9%	
	b.	3,494	6.5%	4,524	7.3%	5,123	7.5%	5,983	8.0%	6,683	8.2%	7,189	8.4%	8,584	8.7%	9,369	8.4%	10,188	8.3%	10,772	8.0%	11,190	7.9%
Other Services	a.			18.2%		12.9%		6.7%		6.7%		5.9%		11.7%		5.9%		7.1%		4.7%		3.0%	
	b.	5,897	11.0%	6,968	11.3%	7,830	11.4%	8,384	11.2%	8,913	10.5%	9,438	10.7%	10,545	10.7%	11,167	10.1%	11,960	9.7%	12,519	9.3%	12,890	9.1%
Transportation	a.			45.5%		9.3%		7.4%		24.0%		16.8%		16.2%		14.0%		10.2%		13.4%		6.8%	
	b.	816	1.5%	1,208	2.0%	1,123	1.9%	1,421	1.9%	1,262	1.2%	2,058	2.3%	2,394	2.4%	2,724	2.5%	3,000	2.4%	3,404	2.5%	3,688	2.5%
Real Estate	a.			68.5%		36.2%		10.8%		7.2%		9.4%		11.8%		16.3%		16.6%		13.9%		1.8%	
	b.	1,619	3.0%	2,697	4.4%	3,149	4.9%	3,711	5.0%	3,978	4.9%	4,153	4.9%	4,868	5.0%	5,565	5.0%	6,492	5.3%	7,382	5.5%	7,321	5.3%
Others	a.			8.3%		9.3%		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%		2.3%		0.3%	
	b.	2,437	4.5%	2,445	4.0%	2,451	3.6%	2,452	3.3%	2,452	3.0%	2,452	2.8%	2,452	2.5%	2,452	2.2%	2,452	2.0%	2,505	1.9%	2,512	1.8%
Total Non-Ind.	a.			14.7%		10.7%		7.3%		7.4%		6.4%		8.6%		7.0%		7.5%		7.5%		4.0%	
	b.	32,128	59.7%	36,894	59.7%	40,797	59.2%	43,728	58.4%	46,958	57.6%	49,977	58.3%	54,777	55.2%	58,577	52.8%	62,441	50.8%	65,184	48.6%	69,765	49.2%
Total	a.			14.9%		11.6%		8.7%		8.7%		8.5%		11.8%		12.6%		10.5%		10.1%		4.8%	
	b.	53,864	98.3%	60,697	98.4%	67,832	98.4%	73,706	98.4%	80,698	98.3%	85,874	98.3%	96,949	98.2%	108,536	97.8%	119,588	97.4%	122,872	97.5%	138,149	97.5%
Branches c.)	a.			11.3%		9.6%		10.9%		14.4%		8.9%		19.3%		31.5%		33.5%		8.6%		3.1%	
	b.	897	1.7%	997	1.6%	1,093	1.6%	1,212	1.6%	1,286	1.7%	1,509	1.7%	1,808	1.8%	2,387	2.1%	3,168	2.6%	3,432	2.5%	3,540	2.5%
Grand Total	a.			14.8%		11.6%		8.7%		8.9%		8.5%		11.2%		12.9%		10.8%		10.0%		4.7%	
	b.	53,761	100.0%	61,794	100.0%	68,899	100.0%	74,917	100.0%	81,484	100.0%	86,383	100.0%	98,249	100.0%	110,922	100.0%	122,950	100.0%	125,305	100.0%	142,689	100.0%

Source: Japan Ministry of Finance

Notes: a. YOY nominal growth rate b. Stocks in US$ Million c. Investment in other local subsidiaries of Japanese firms

Appendix C, Table C-4: Japan International Investment Position (Assets)

US$ billion, Calendar Years	1995	1996	1997	1998
Assets	2,878.4	2,828.7	2,940.2	2,636.4
Direct Investment	260.7	275.8	292.0	238.5
Equity Capital	197.8	212.4	260.2	208.5
Reinvested earnings	15.2	17.3	1.2	7.4
Other Capital	47.7	46.0	30.6	22.5
Portfolio Investment	965.0	1,038.8	1,012.2	969.8
Equity Securities	159.9	165.2	170.5	184.9
Public Sector	-	-	-	-
Banks	19.4	19.0	29.3	15.4
Other sectors	140.5	146.1	141.3	169.5
Debt Securities	778.4	834.2	803.3	752.5
Bonds and Notes	751.7	794.8	764.9	720.2
Public Sector	77.7	69.1	69.3	65.4
Banks	197.9	187.5	196.5	165.1
Other sectors	476.1	538.2	499.1	489.7
Money Market instruments	23.2	35.2	33.6	27.9
Public Sector	0.7	0.6	0.3	0.1
Banks	10.2	12.5	9.0	7.1
Other sectors	12.3	22.0	24.4	20.7
Financial sector derivatives	3.5	4.2	4.7	4.5
Public Sector	-	-	-	-
Banks	2.9	3.2	3.6	3.2
Other sectors	0.6	1.1	1.2	1.3
Other Investments	1,479.2	1,321.5	1,437.2	1,270.6
Loans	1,036.5	937.6	1,040.5	935.5
Public Sector	147.1	134.6	130.0	131.1
Banks	732.5	634.0	723.2	623.6
Other sectors	156.8	168.9	187.3	180.8
breakdown by:				
Short-term	482.3	425.8	397.6	350.5
Long-term	554.2	511.7	642.9	585.0
Trade Credits	65.7	58.6	55.3	48.7
Public Sector	13.9	11.1	8.9	8.4
Banks	51.9	47.5	46.4	40.3
Currency and Deposits	215.5	145.2	144.1	75.3
Public Sector	-	-	-	-
Banks	207.3	137.8	137.2	69.5
Other sectors	8.3	7.4	6.9	5.9
Other assets	161.5	180.1	197.3	211.1
Public Sector	42.1	36.0	35.4	33.7
Banks	56.5	52.6	64.9	80.5
Other sectors	62.9	91.4	97.0	96.9
Reserve Assets	200.2	232.0	237.2	189.9

Source: Bank of Japan and Ministry of Finance

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