Determinants of International Commercial Bank Loans to Developing Countries[*]

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Abstract: This paper analyzes the determinants of international bank loans provided by developed countries to developing countries in a gravity model framework using a historical data set recently made available by the BIS. Economic size, per capita income, distance, trade and FDI linkages, ODA programs, country risk assessment, and other macro and institutional variables are fundamental factors determining cross-border commercial bank loans to developing countries. Distance between a lending and a borrowing county can be a good proxy for information asymmetry. Trade and FDI linkages play a role of alleviating information asymmetry. Contingent on timing, the presence of an IMF program can be either a positive or a negative factor. A country with an explicit deposit insurance program generally attracts more international bank loans from developed countries. After the 1982 Latin American debt crisis, European banks have expanded rapidly on a global scale, in contrast with a global retrenchment of US banks over the sample period (1986-98) and a more recent global retreat of Japanese banks. Contrary to conventional wisdom, the lending by Japanese banks to East Asian countries did not expand excessively in the period leading up to the financial crisis (1993-96), nor did they withdraw excessively during the crisis period (1997-98), relative to the economic fundamentals that determine bank loans to developing economies.

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I. INTRODUCTION

Commercial bank loans from the developed world to the less developed countries (LDCs) have become a prominent form of capital flows since the1970s. Periodically since then, commercial bank lending to the LDCs has overtaken both international bond and foreign direct investment (FDI) as the major form of capital flows to developing economies. In many instances, bank loans to the LDCs play an important role in facilitating trade finance, encouraging domestic capital formation and investment, and promoting economic growth. Indeed, empirical evidence indicates that among different types of capital flows, bank lending to the LDCs is a large permanent component, whose stability is only second to FDI (Sarno and Taylor, 1999). However, bank lending to the LDCs is also said to possess distinctly pro-cyclical characteristics—a large build-up of loans leading up to a boom in recipient countries and a massive reversal after a bust. Such a pattern has proven to be both detrimental to the health of the banking system of the afflicted economies and subsequently to that of their real economic activity. Equally important, reverse contagion because of large exposures to the LDCs can have serious implications for financial stability of the lending countries (James, 1993, and Kho, Lee, and Stulz, 2000).

The rise of commercial bank loans to LDCs can be attributed to several factors—some intrinsic to the nature of the banking business, some to evolving institutional developments in international capital markets, and some to cyclical factors. Information asymmetry and difficulty of contract enforcement are commonly thought to be two key imperfections of the capital market (Hermalin and Rose, 1999). These imperfections pose risks to any financial transaction. In cross-border transactions, risks associated with these imperfections will only multiply when combined with sovereign risks, country risks, and uncertain exchange rates.

If domestic bank lending is risky enough, why do international commercial banks lend to the LDCs in large sum? Aside from obvious motives for high rates of return on assets and mechanisms to reduce information asymmetries, contract enforcement difficulties and moral hazard are generally noted as the reasons (Eichengreen and Mody, 1999). In theory and practice, banks are thought to be better positioned than other financial intermediaries to alleviate information asymmetry of financial markets since they have particular advantage over other financial intermediaries in information collection and monitoring loan recipients (Mishkin, 1999). Given the present state of limited information disclosure, reluctance to cede managerial control, and weak enforcement of property rights, capital markets in LDCs are difficult to develop (Krozner, 2000). Thus, relationship-based banking still plays a dominant role. Similarly, for cross-border transactions, borrowers in LDCs would have to disclose their own information to foreign lenders not commonly available to the general public.[1] Based on inside information provided by borrowers, international banks can then screen loan applicants, be that a sovereign, a bank, or a non-bank firm.[2] By requiring borrower-specific information in LDCs, international banks can reduce adverse selection problems. Because

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[1] Information required is likely to be firm specific, idiosyncratic, and non-standardized, as is common in emerging markets as noted by Yoshitomi and Shirai (2000).

[2] International lenders do differentiate various types of borrowers by the types of information borrowers possess and the ability to process information. There exists a positive correlation between the share of banking sector borrowing and total loans received by the recipient country, to which we shall turn in the next section.

of this information advantage, not surprisingly, international commercial bank lending is still one of the most important instruments in channeling capital flows to LDCs.

Prior to the Latin American debt crisis, financial innovations such as floating interest rates in pricing loans and supply-side factors such as excessive supply of deposits from oil rich countries to banks in industrialized countries had significantly increased the LDCs' foreign borrowing in the form of bank loans (Dod, 1981). Meanwhile, international capital markets had undergone major changes. With the introduction of syndicated loans, large international banks have been able to enforce debt contracts more effectively than loosely banded individual bond holders (Sachs and Cohen, 1982; Edwards, 1986; Folkerts-Landau, 1986). Defaulting borrowers in the LDCs would then be effectively excluded from international loan markets. As a result, the leverage of international banks on borrowers to force them to make credible commitments to repayment has improved. Notwithstanding, a borrowing country's rule of law tradition, capacity of honoring and enforcing contracts, and default history are also important factors for international loan commitment.

Aspects of moral hazard associated with bank lending such as deposit insurance in both lending and borrowing countries and increasingly frequent bailouts arranged by the international financial institutions—the International Monetary Fund, the World Bank, and regional development banks—are often cited as one of the factors inducing excessive cross-border bank loans to developing countries. In the aftermath of the Latin American debt crisis of the early 1980s, financial policies carried out by the US authorities were often perceived to give high priority to protecting the deposit liabilities of large and internationally active commercial banks so as to contain systemic bank runs at home (Folkerts-Landau, 1986). Similarly, explicit or implicit state guarantees of bank deposits in developing countries may have also weakened the incentives for international banks to do due diligence with their lending for the illusion that somehow their loans are guaranteed to be repaid. Local banks and firms in developing countries may have borrowed excessively reflecting a preconceived notion that if the loans cannot be paid, the state will step in. In addition, the perceived tradition of a "too big to fail" policy may also be the reason behind the excessive lending and borrowing behaviors observed in both developing and developed countries.

Stabilization programs, often arranged by the international financial institutions (IFIs), have made outright default unlikely. Instead, rescheduling of private commercial bank loans has become the norm used as an alternative to default. After the Mexican peso crisis (1994-95) and the recent Asian financial crisis (1997-98), many have argued that the readiness of the IFIs to intervene in the event of a sovereign default has reduced the expected losses of international lending and thereby disguised the true risks associated with such lending. International financial bailouts may distort cross-border lenders' incentive to do due diligence on borrowers who may not hedge risks of unexpected foreign exchange depreciation adequately (Stiglitz, 2000). Such a form of moral hazard encourages herding behavior in bank lending to LDCs, which sometimes creates asset price bubbles leading up to crises, but eventually bursts into disaster.

Although aforementioned factors are commonly described as factors affecting cross-border bank lending to developing countries, there appears to be a lack of statistical evidence on these determinants in a systematic fashion. This paper intends to close this gap and econometrically examines factors affecting international commercial bank loans

to developing countries. The objectives of the paper are threefold: First, it investigates the fundamental determinants of cross-border commercial bank loans to the LDCs by adopting a gravity model and systematically examines the roles of the basic gravity variables (economic size, per capita income, and distance) on bank loans. In addition to a traditional gravity model specification, factors related to portfolio selection, macroeconomic performance, economic linkages, institutional quality, and moral hazard are also examined in the model. Some of these factors are thought to be unique in explaining cross-border financial transactions. Second, the paper investigates whether there have indeed been a large build-up of loans to the LDCs before the Mexican peso and the East Asian currency crises and a massive withdraw afterwards by lending countries. Specifically, the lending behavior of Japanese banks with East Asian countries before and during the recent Asian financial crisis is examined statistically. The paper attempts to shed light on whether Japanese banks lent to East Asian countries excessively before the crisis and whether they withdrew excessively afterwards. Third, the paper provides some policy implications for both developing and developed countries.

To summarize the bottom line up front, the findings of this paper are as follows: economic size, per capita income, trade and FDI linkages, official development assistance, and country risk assessments are important factors determining private cross-border commercial bank loans to developing countries. Distance between a lending and borrowing county can be interpreted as a good proxy for information asymmetry, thus exerting a negative impact on cross-border bank loans to the LDCs. The presence of an IMF program can be either positively or negatively related to bank loans to the country depending on timing. If there is a widespread or region-wide financial crisis, IMF programs appear to facilitate greater bank loans. However, when the country crisis is an isolated incidence, an IMF program may have an adverse impact on bank loans to the country. An LDC with an explicit deposit insurance program is positively linked with their bank loans. After the 1982 Latin American debt crisis, European banks have expanded their cross-border bank loans rapidly on a global scale, in contrast to a global retrenchment of US banks over the whole sample period (1986-98) and a recent global retreat of Japanese banks (1994-98). Contrary to the conventional wisdom, cross-border loans by Japanese banks to East Asian countries did not expand excessively in the period leading up to the recent Asian financial crisis (1994-96). Nor did they withdraw excessively during the crisis period (1997-98), relative to the bilateral economic fundamentals and linkages that determine bank loans to the developing world.

The paper is organized as follows. Section II presents some stylized facts on cross-border commercial bank loans to the LDCs and focuses on the lending behavior of international commercial banks during several episodes of debt and currency crises. Section III surveys the literature on empirical studies on the determinants of cross-border bank loans to the LDCs. Section IV presents the gravity model, its empirical results, and our interpretation of the results. Section V provides conclusions, policy implications and agenda for future research.

II. CHRACTERISTICS OF IMTERNATIONAL BANK LOANS TO THE LDCS

1. Some Stylized Facts on Bank Lending and Other Capital Flows

Other than trade credit and finance, commercial banks had only a limited role in international capital flows from developed countries to the LDCs before 1970. For

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example, in 1970, net new commercial bank lending to the LDCs was below US$1 billion, only one tenth of official development assistance (ODA), foreign direct investment (FDI), portfolio equity flows, and bond issuing combined. It did not visibly take off until the first oil crisis in 1973 and then rapidly peaked in 1980, just 2 years before the outbreak of the Latin American debt crisis. By 1980, net new bank lending (flows) to the LDCs had reached US$72 billion, which was almost twice as much as the total flows of ODA, FDI, portfolio equity flows, and bond issuing combined together (Figure 1). During the period leading to the debt crisis of the 1980s, major US money center banks were the largest suppliers of LDC bank loans. They accounted for about 65 percent of the total lending to the LDCs, mainly to Latin American countries. US banks' total claims as a share of their total assets and capital in 1982 were 12 percent and 213 percent, respectively (Palmer, 2000). US banks were hit especially hard because of their large exposure at the time of rising bankruptcies and a severe recession at home. In the aftermath of the Latin American debt crisis, new commercial bank loan flows to the LDCs fell precipitously from US$53 billion in 1982 to a mere US$4 billion in 1985, a total of US$49 billion free fall. They then remained dormant for the rest of the decade, rarely reached US$20 billion a year, staying at the level of the mid-1970s.

The outstanding stock of bank loans to the LDCs remained stagnant for the most part of the 1980s. Bank claims to the Latin American region continued to decline while those to other regions were kept at low levels. Except for the banking centers, Asia, especially East Asia, was the only bright spot for international bank loans that buckled the stagnant trend in the 1980s (Figure 2).

International bank loans to the LDCs recovered in the mid-1990s and continued to rise until 1997, driven mainly by rapid loan demand from the East Asian and Eastern European economies. The overall bank loan claims to the LDCs rose from US$289 billion in 1990 to US$487 billion in 1997, an increase of 69%. Despite the impressive growth of bank loans in other regions of the world, loans to African and Middle East countries remained in doldrums, which could be partly explained by their lackluster economic performance and political instability. However, this dramatic upward global trend was broken by the eruption of the East Asian financial crisis (1997-98). The subsequent massive withdrawal of loans from East Asia and Eastern Europe was the major cause behind the sharp fall, though the Latin American region as a whole experienced some moderate increase in loan exposure. Offshore banking centers also saw sharp declines of bank loans.

2. Cross-border Loans by European, Japanese and US Banks

Large European, Japanese, and US banks are the main suppliers of cross-border bank loans to the LDCs. European banks, because of their geographical proximity and colonial links, are the major lenders to the African and Middle East regions. The level of their exposure to Asia and Eastern Europe was roughly the same as that to Africa until 1990 when rapid growth in Asia and the transition of the former Soviet bloc to market economy were perhaps the major causal factors driving such rapid loan growth. Bank loans to Latin America from European countries remained stagnant until the recent financial crisis in East Asia. They rose by US$15 billion in contrast to a sharp decline of US$33 billion in East Asia and Eastern Europe. Offshore banking centers are also the largest recipients of cross-border loans from the European banks (Figure 3).

Japanese banks have traditionally been active in Asia. Their outstanding stock of loans to Asian countries, with the majority concentrated in East Asia, is about 85 percent of their total overseas loans in 1997, excluding loans to offshore banking centers. Japanese banks have had only very limited exposure to Africa and the Middle East. They were more active in Latin America in the 1980s, but the share of their exposure to that region steadily declined to around 11 percent in the 1990s. Japanese banks tend to use offshore banking centers heavily, such as Hong Kong and Singapore.[3] Their loans to banking centers have traditionally been large in volume (US$322 billion in 1995 and US$216 billion in 1997 or 248 percent and 160 percent of total loans to the LDCs, respectively), far exceeding their loans to the LDCs combined. However, their loans to offshore banking centers suffered a precipitous fall in 1995, and continued to fall as a trend during the Asian financial crisis by US$161 billion from its peak of US$322 billion in 1995 (Figure 4).

US banks have traditionally provided a large amount of loans to Latin America. Though the stock of US bank loans to Latin America continued to decline in the 1980s after the debt crisis, it finally bottomed out in 1991 and has since been growing steadily despite the negative impact of the Mexican peso crisis (1994-95), the recent Asian financial crisis (1997-98), and the Brazilian real depreciation episode (1999). Asia is the second largest recipient region of US bank loans after Latin America. The 1990s saw a considerable growth of US bank loans in Asia. The loan exposure of US banks to Asia peaked at the end of 1996 and then started to decline, one or two quarters earlier than Japanese and European banks. Within the two-year period between 1996 and 1998, US banks withdrew US$12 billion of loans from Asia, of which US$10 billion from the five East Asian economies: Indonesia, Korea, Malaysia, the Philippines and Thailand. Similarly to Japanese banks, US banks have maintained limited exposure to Africa and the Middle East. The loan exposure to East European countries was even smaller than that to Africa and the Middle East before the mid-1990s. This trend started to change in 1996, overtaking the loan amount to Africa and the Middle East, but subsequently reverted to the previous level after the Russian default in August 1998. Relative to the amount of loans provided by European and Japanese banks to offshore banking centers, the US counterparts have lent a modest amount to such centers, slightly larger than loans to Asia (Figure 5).

3. Maturity and Sector Distribution of International Bank Loans

The maturity structure of cross-border bank loans to the LDCs has become shorter over time. Loans to Asia are a prime example. Its short-term exposure shot up rapidly from around 45 percent in 1985 to 63 percent in 1993 before it fell to slightly below 50 percent after the 1997-98 financial crisis. Short-term loans to Latin America remained small during most of the 1980s, and recovered in the 1990s, reaching around 50 percent. All regions saw increases in short-term loans over the period, with their share converging towards 50 percent since the recent Asian financial crisis. This trend is also observed for offshore banking centers, which used to have almost 90 percent of their loans in short term.

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[3] Such behavior is in fact not well understood. Available statistics indicate that cross-border loans provided to offshore banking centers eventually returned to Japan. This is attributed by some to tax factors.

Recipients of international bank loans are classified as banks, non-bank firms, and the public sector. International bank loans to local commercial banks for all the LDCs have increased in size steadily to close to 50 percent. However, this share dropped shapely in 1998 to 41 percent, a 9 percent point below the average. Local banks in Africa and Latin America tend to borrow less than their counterparts in Asia and Eastern Europe, and much less than local banks in offshore centers. While local banks in offshore centers used to be major recipients of loans, their shares have nonetheless dropped to below 40 percent since 1998. Consequently, non-bank firms have become major recipients of cross-border bank loans in offshore centers. Since the 1980s, loans to the public sector have declined rapidly in Asia, Latin America, and Eastern Europe. The public sector in Latin America used to be the largest recipients of international bank loans, with its share being at more than 50 percent in the 1980s. However, the share of international bank loans to the public sector has dropped sharply in the 1990s, at only 20 percent in 2000. The sector and maturity distributions of international bank loans to the LDCs are summarized in Table 1.

The relationship between the maturity/sector distribution of international bank loans and the overall level of such loans is summarized in Table 2. Using cross-country data, the stock of cross-border bank loans to recipient countries has been regressed on the share of short-term loans, the share of loans to banks, the share of loans to non-banks, and the dummy variables indicating the regional location of the recipients. The share of short-term loans had a negative relationship with total loans throughout the 1980s and the early 1990s though the relationship was never significant statistically. The only exception was that the relationship turned positive during 1993 to 1997, and significantly so in 1995. This suggests that cross-border bank loans were indeed biased towards short-term maturity in the period leading up to the Asian financial crisis.

With respect to the sector distribution and total bank loans, the share of cross-border bank loans to local banks has had a generally positive relationship with total bank loans throughout the period, though the relationship was statistically significant only in 1985-86. The statistical relationship lends weak support to the notion that international banks tend to lend more to local banks in developing countries. That local banks tend to have inside information on local firms suggests that major commercial banks in the developed world tend to rely on the network of local banks to screen and monitor local borrowers, rather than conducting the retail loan business themselves because of large information costs. For the same reason, the share of cross-border bank loans to non-bank firms tend to be negatively related (though mostly statistically insignificant) with the total volume of bank loans, despite the recent rapid growth of loans to non-bank private firms. In fact, the relationship has turned positive in 1999 and 2000 though never statistically significant.

4. Behavior of International Commercial Banks during Financial Crises

A distinctive pro-cyclical nature of bank loan flows to developing countries is often observed, as illustrated by Figure 1. Two major financial/banking crises, the Latin American debt crisis in 1982 and the Asian financial crisis in 1997, are primary cases in point. In the respective periods leading up to these two crises, there were large build-ups of net new loans to the designated booming LDCs (US$62 billion in 1981, and US$72 billion in 1997). After the crises, there were also large withdrawals of net new loans from the crisis-stricken economies (US$49 billion in 1982 and US$75 billion in 1998). In both

crises, the falls were steeper and more dramatic than the rises, suggesting the large damages afflicted on the real sectors of those economies. Since loan providers to the LDCs are concentrated mainly in the United States, Japan, and EU countries (primarily France, Germany, and the United Kingdom), their collective responses during crises matter. Common lender effects could ignite a regional financial contagion, with impact far greater than an isolated financial crisis. For example, US banks were considered as the chief culprits of the 1982 Latin American debt crisis.

The recent Asian financial crisis in 1997-98 told a different story. Although Japanese banks did not withdraw the first from the region, they in fact pulled out their loans the largest. Japan and the EU were major bank creditors to the five crisis-affected East Asian countries, each with outstanding loans about US$100 billion at the first half of 1997 (Figure 6). In contrast, US banks only had about US$25 billion loans at the end of 1996. On the question which group of banks left the region the earliest, the aggregated data indicate that US banks unloaded their exposure the first by the first half of 1997. Japanese banks did not reduce the total amount of their exposure to the East Asia-Five until the second half of 1997 when the region was beginning to be in an unprecedented economic turmoil. European banks, however, did not retreat from East Asia until the first half of 1998, the last to retreat from the region. With respect to the magnitude of the withdrawal, Japanese banks pulled back about US$50 billion (or a reduction of 52 percent of its total bank exposure to the five East Asian countries) from the region by the end of 1999. European banks, on the other hand, withdrew about US$22 billion (or a reduction of 22 percent) and US banks took back about US$10 billion (or a reduction of 39 percent). While the amount of loan withdrawals by US and EU banks had already bottomed out by the end of 1999, Japanese banks continued to pull out loans from the region on a steady basis. Japanese banks pulled out loans not only from East Asia but also from almost every region in the world, reflecting perhaps the continuing weakness of their balance sheets at home. In contrast, EU and US banks increased their exposure in Latin America, reflecting the regional rotation of different risk profiles in the world.

The distribution of withdrawals from the five crisis countries is rather uneven. Japanese banks pulled out massively from Thailand, reducing their loan exposure from US$38 billion at the first half of 1997 to a mere US$13 billion at the end of 1999. Large reductions of exposure of similar magnitude can be found in Indonesia (from US$23 billion to US$12.5 billion), Korea (from US$24 billion to US$13 billion), and Malaysia (from US$10 billion to US$6 billion), with an exception of the Philippines, which registered a slight increase (Figure 8). EU and US banks, on the other hand, pulled out loans from each of the five crisis countries in East Asia at the start of the crisis. They have, however, quickly returned to Korea, Indonesia, and Malaysia as the financial crisis settled its dusts, though these loans may not be net fresh new loans. They may be merely rescheduled or restructured loans with longer maturity (Figures 7 and 9).

Two biggest credit cycles driven mainly by international commercial bank loans in recent history, one in the early 1980s and one in the late 1990s, share a few similarities. First, because of geographical proximity and trade-investment linkages, both Japanese and US banks were major providers of bank loans to their respective recipient

regions.[4] Second, bank exposures relative to total assets and capital for US banks in 1982 and for Japanese banks in 1997 were all quite high. Hence, the potential impact for the need of loan exposure adjustment was both large. Third, both economies were suffering from a severe recession when a regional financial crisis occurred. Faced with potential loan defaults, banks in both countries reacted defensively by reducing their respective loan exposures as much as they could. In the case of Japan, the mixture of a weak yen, a steep fall of stock prices of banks, and a prolonged and severe domestic recession caused Japanese banks to scramble for capital. Under such circumstances, overseas loans were the first to be cut, which in turn may have exacerbated the economic slump in the region.

III. DETERMINANTS OF CROSS-BORDER BANK LOANS TO THE LDCS: A SURVEY OF LITERATURE

1. Pricing of Cross-border Bank Loans

Much has been said in the literature on the determinants of the *pricing* aspects of bank loans over the last two decades. Edwards (1984), in one of the first papers on this issue, empirically investigated the relationship between actual spreads and several economic characteristics of borrowers that measure default risks. These explanatory variables, such as the debt-service ratios, imports to GNP ratios, imports to reserve ratios, GNP growth rates, and investment to GNP ratios, are found to have significant impact on spreads. In a similar paper, using pricing data of LDC bank loans bond issued by the LDCs, Edwards (1986) explicitly compared the differences in pricing bank loans and bonds. He found that the difference in spreads did exist for bonds and bank loans to emerging markets, which seems to concur with the results of a theoretical model by Sachs and Cohen (1982). The latter model demonstrated that in the event of debt-service difficulties, bank loans could be rescheduled, spreads on bank loans were therefore lower than spreads on bonds for which only an option of default existed on the downside. In addition, the positive effect of higher debt ratios on the risk premium was confirmed in both bond and bank loan pricing.

In addition to macroeconomic variables, borrowers' history tends to make a difference on loan spreads as well. Ozler (1992) analyzed the effect of a borrower's repeated experience in the market on the pattern of spreads. The primary finding was that the experience of borrowing and loan repayment contributed significantly to the variation of spreads: The spreads began with high values at low levels of experience, and then decreased as the borrowing history of loan recipients increases. The empirical results based on the data sample indicated that at initial experience levels, spreads were approximately thirty percent above the asymptotic spreads. In another paper, Ozler (1993) investigated the effect of bad payment histories on borrowers' loan spreads. He found that borrowers with bad repayment histories in the earlier era paid higher spreads. The finding indicated that the banks took into account some characteristics of the borrowers when making loan decisions to the LDCs, specifically, those reflected in historical experience.

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[4] Although preferences for debt financing (bank loans) are dominating in both crises, most of the loans to Asia went to the private sector, whereas the majority of the loans to Latin America went to sovereign before the debt crisis.

The importance of short-term debt in pricing LDC loans has become a new focus in the recent Asian financial crisis. Eichengreen and Mody (1999), using a large set of pricing data on individual loan commitment to the LDCs, examined the determinants of the pricing aspects of syndicated bank loans made to developing countries. They found that the effects of domestic lending boom in the LDCs and low foreign reserves combined with short-term debt were already taken into account in pricing by international banks. Although some evidence existed for growing moral hazard affecting international bank lending, the statistical results were far from conclusive.

2. Volume of Cross-border Bank Loans

In a paper examining determinants of voluntary lending and involuntary lending using quantity rather than pricing data,[5] Nunnenkemp (1990) found that in the case of voluntary lending, better economic policies in recipient countries and improved economic performance were taken as favorable investment environments by private creditors. The investment to GDP ratio and export performance figured prominently in encouraging further capital flows. In the case of involuntary lending on the other hand, there was some weak and counterintuitive evidence that unfavorable economic performance of recipient countries led to higher credit disbursements. A positive relationship existed between the borrowers' potential benefits from default and disbursements to a group of such countries, which indicated banks' interest to protect their existing claims through involuntary lending. Nunnenkemp's empirical estimates were based on cross-country regressions run for a sample of 36 LDCs, including both problem borrowers and good borrowers, for annual data of the years between 1983 and 1986.

However, the existing empirical literature on the pricing aspect and the quantity aspect of bank loans is not satisfactory in addressing several important issues: First, we need to understand why some countries or regions tend to borrow more cross-border bank loans than others. Explanatory variables such as trade and FDI linkages, economic size, per capita income, geographical proximity, and information asymmetry may be considered as important factors determining the international distribution of cross-border bank loans among the LDCs. For example, empirical evidence backs the assertion that banks tend to first follow their customers who go to overseas markets and then enter into local banking markets (Fieleke, 1977, Nigh, Cho, and Krishman, 1986).[6] Second, in addition, various institutional factors that affect bank loans to the LDCs also need to be considered. For example, financial liberalization, the presence of an explicit deposit insurance system or the presence of an implicit guarantee of foreign borrowing, and experience of financial bailouts carried out by the IFIs may also be important determinants of bank loans to developing countries, which the previous literature has not addressed. Third, the lending behavior of international commercial banks before and during the recent Asian financial crisis has been subject to increased scrutiny. These banks are often said to have lent excessively, in comparison to the norm warranted by economic fundamentals, to some developing Asian countries before the crisis and to have withdrawn massively from these countries during and after the crisis. Such herding

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[5] Voluntary lending is defined as lending made by commercial banks based on borrowing countries' conditions. Involuntary lending is defined as lending brokered by the international financial institutions (IFIs) and national governments at the time of crisis.
[6] Though a recent paper by Seth et al. (1998) showed that these patterns are not necessarily valid for Japanese and European banks in the US market.

behavior may have ignited a financial contagion and therefore exacerbated the severity of the crisis. However, the validity of this view has not been established or rejected in the existing literature.

3. Bilateral Cross-border Bank Loans—BIS Data

There is a need to further investigate the behavior of international banking activity and the determinants of the volume of cross-border bank loans to the LDCs. Recently, the Bank for International Settlements (BIS) has made available rich data on cross-border bank loans extended by BIS-reporting countries to developing countries on a semi-annual basis, going back to the mid-1980s. This allows us to analyze econometrically the determinants of bilateral cross-border bank loans extended by major developed countries to many developing countries. In this paper, we focus on 10 developed countries as providers of cross-border bank loans; we have decided to use a subset of BIS-reporting countries that report data on a consistent basis throughout the sample period. We have chosen almost all LDCs as recipients of cross-border loans, whose number ranges from xx (in 19yy) to zz (in 19ww). Hence we have a total of vvv observations (in 19uu) to ttt (in 19ss) in our sample.

One important limitation of using the BIS data on cross-border bank loans to the to the LDCs is the fact that it does not fully capture the international bank intermediation role of the offshore banking centers. It is well-known that industrial country banks use the major offshore banking centers, such as Hong Kong and Singapore, as an intermediary to redistribute their international loans to other countries. First, the BIS data do not report cross-border bank loans from these offshore centers to the LDCs. Second, even if such data are available (as in the case of Hong Kong), it is almost impossible to identify the nationality of industrial country banks that intermediate such loans. Despite this limitation, the BIS data provide extremely useful information for systematic analysis.

IV. DETERMINANTS OF CROSS-BORDER BANK LOANS TO THE LDCS: AN ECONOMETRIC INVESTIGATION

1. Methodology—The Gravity Model Approach

This paper adopts a gravity model approach. The gravity model originally stems from the Newtonian physics which states that attraction between two physical objects are proportional to their masses, but inversely related to the distance between them. The model has been used successfully in explaining the determinants of bilateral trade flows, FDI flows, and equity flows.[7] For example, Frankel (1997) used the gravity model approach to explain the factors affecting the formation of trade blocs. In his standard gravity model, bilateral trade can be explained by variables such as GNP, per capita GNP, distance, adjacency, language, and trading blocs. Gravity models have also been used to explain determinants of FDI and equity flows. Kawai and Urata (1998) used a gravity model to investigate the relationship between trade and FDI using Japanese data at the industry level. After adjusting for economic size, per capita income, and distance factors, FDI and trade were found to be generally complementary to each other. In a recent paper studying the determinants of equity flows, Portes and Rey (1999) also adopted a gravity model to study factors affecting equity flows among 14 developed

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[7] Theoretical underpinnings of the gravity model and its applications are reviewed by Frankel (1997).

economies. Their empirical results demonstrate that market size, openness, efficiency of transactions, and distance are the most important determinants of bilateral equity flows.

Application of a gravity model approach to international bank loans can be justified on several grounds. First, the well-documented fact that countries of large economic size tend to trade more with each other indicates that economic size is an important determinants of trade credits and finance through international banks. Second, higher per capita income is closely associated with deeper financial markets, leading to greater cross-border banking transactions. Third, information asymmetry may become greater as the distance increases between a lender and a borrower country, thereby raising monitoring costs and exerting a negative influence over cross-border bank loans. Finally, to the extent that banks follow their domestic customers overseas, international bank loans to the LDCs tend to be positively associated with FDI. Trade and FDI linkages tend to reduce the problem of information asymmetry and therefore facilitate cross-border banking transactions.

Adoption of a gravity model framework allows us to address other specific questions. First, what are the fundamental determinants of international bank loans from developed countries to developing countries? Are traditional variables of gravity models such as economic size, per capital income, distance, and language and culture links, also significant explanatory variables? Second, are the LDCs' economic linkages with bank-loan source countries important? Does the presence of trade, FDI, or ODA linkages help maintain exposures to a given recipient country, especially at the time of a financial crisis? Third, do institutional arrangements, such as deposit insurance schemes and stabilization programs brokered by the IFIs, have any impact on international bank loans? Would the positive correlation, if it exists, be the evidence of moral hazard or a market confidence factor? Fourth, was there evidence of excessive bank loans to East Asian countries in the pre-crisis period and was there evidence of excessive withdrawals of bank loans from Asia during and after crisis? At the time of the Asian financial crisis, did Japan withdraw fund more than it should from the crisis countries?

Using the gravity model, the estimating regression equation can be specified as follows:

$$\log(BL_{ij}) = \alpha + \beta_1 \log(GNP_i GNP_j) + \beta_2 \log[(GNP_i / POP_i)(GNP_j / POP_j)] + \beta_3 \log(Dist_{ij}) +$$

$$\sum_k \gamma_k X_{ijk} + \sum_k \delta_k Y_{ik} + \sum_k \varepsilon_k Z_{jk} + \mu_{ij}$$

where BL_{ij} indicates bank loans from developed country i to less developed country j. GNP represents economic size. GNP/POP is per capita income as an indicator of economic development. $Dist_{ij}$ is the distance between country i and j, which could also be interpreted as a proxy of information asymmetry. The vector X_{ij} represents other potential explanatory variables, such as bilateral trade and FDI linkages, trade arrangements, bilateral overseas development assistance (ODA), and language. The vector Y_{ik} represents those variables pertinent to a lending country I, such as the lender dummy (whether the lending country is the United States, Japan or an EU member). The vector Z_{jk} represents variables for a borrowing country j, such as country risk ratings, macroeconomic variables, institutional characteristics, and other regional dummies. Some variables in X_{ij}, Y_i and Z_j are also in logs.

One would expect that the cross-border bank loans from developed to developing countries are positively related to economic size and per capita income, but negatively related to distance. Variables representing economic linkages are expected to have a positive relationship with bilateral bank loans. Other variables in vectors X_{ij}, Y_{ik}, and Z_{jk} would either facilitate or impede cross-border bank loans from the source to recipient countries.

After some preliminary investigations, we have chosen to use the bank loan stock variable for BL_{ij} from a developed country to a developing country. Hence, the dependent variable is the outstanding bilateral stock of bank loans.[8] We have decided not use flow data in this paper because the flow data are very volatile from one year to the next and cannot be well-explained by traditional gravity variables which in general do not vary dramatically year by year.[9]

Rather than pooling the data together, we have decided to run the regression year by year. The advantage of running a series of annual gravity regressions is that we can observe changes in coefficients over time and gain a better sense of the robustness of the gravity model and particular explanatory variables. Indeed, the coefficients of some important explanatory variables used in the regression are in general quite stable in sign and size and these variables explain quite a high variance of the model. This is especially comforting given the large cross-sectional data used. On the other hand, some other explanatory variables yield coefficients that are different in size and significance over time, but also in signs over time. This poses challenges in interpretation of such results.

2. Empirical Results of the Standard Gravity Model

Table 3 presents the results of OLS estimation of the basic specification of the gravity model. LOG[GNP(IJ)] represents the log product of GNP of lending and recipient countries; LOG[GNP/POP(IJ)] is the product of GNP per capita. LOG[TRADE(IJ)] represents the log of bilateral trade flows (exports + imports) between the lending and borrowing countries. LOG[ODA(IJ)] is the log stock value of bilateral official development assistance provided by the government of a lending country to the borrowing country. LOG[DISTANCE(IJ)] is the log distance between the financial center of a lending country and a recipient country.[10] LANGUAGE is a dummy variable taking either 1 or 0 depending on whether a lending and recipient country speak a common tongue. LOG[RATING(J)] is the log of institutional investors' rating on the borrowing country with a one-year lag.

The coefficient of the log of the product of GNP between lending and recipient countries always comes out as positive and highly significant statistically. It is generally below or equal to 0.42. The coefficient size is generally higher in early years of estimation (1986-92), but has fallen in later years (1993-98). The result indicates that international bank loans from a developed to a developing country generally increase

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[8] The data have been made available by the BIS for the period of 1985 to 2000.
[9] A different specification using flow data will be explored elsewhere.
[10] In measuring distance, we use the distance between the major financial center of a developed country and the major commercial city or the capital of an LDC, rather than the distance between capitals. For instance, when calculating the distance between Germany and China, we use Frankfurt, rather than Berlin, for Germany and Shanghai, rather than Beijing, for China.

with these countries' economic size: larger LDCs tend to attract more bank loans from developed countries, particularly from larger developed countries. However, the fact that the coefficient is less than 0.42 indicates that as cross-border bank loans increase with economic size, it increases significantly less than proportionately. This result may be explained partly by the fact that international banks and borrowers can economize on bank loans. It may be partly explained by the fact that our sample includes several small countries with offshore banking centers that tend to receive a large amount of international bank loans despite their small size of GNP.

The estimated coefficient on GNP per capita is also positive and highly significant, supporting the notion that richer LDCs tend to receive more international bank loans from developed countries, particularly from richer ones. It has an upward trend, with coefficients in early years of the data at around 0.15 and rising in later years to more than 0.4. The results suggest that the income level has become a more important element in attracting cross-border bank loans while holding country size constant. It is worthwhile to point out that some variations in the coefficient size of the product of GNP and the product of per capita GNP that appear in some years in the sample may be partly explained by large valuation changes of GNP measured at current exchange rates. This is especially true for countries that have in recent years experienced steep exchange rate depreciation.[11]

Bilateral trade flows come out as a statistically significant, positive variable, thus emphasizing the important role of trade linkages for international bank loans. Though the coefficient fluctuates over time, it gradually steadies around 0.3, indicating that the more two countries trade with each other, the more cross-border bank loans will be provided. Trade activity also increases knowledge of the trading partner countries and firms, thus reducing the extent of information asymmetry. The role of trade in improving information access may be another reason for the positive relationship between trade and international bank loans.

Bilateral official development assistance (ODA) also appears to be a good explanatory variable. The coefficient of ODA is always positive and statistically significant and trends gradually upwards to close to 0.2, indicating that the more a developed country provides ODA to a developing country, the more likely commercial banks of the developing country increase loans to the LDC. Such a result suggests that more ODA leads to more commercial bank loans, perhaps because ODA acts as some sort of official guarantee of the donor country's banking activity in a recipient LDC. Furthermore, some ODA programs may involve a large stake of government lending program in a recipient country, providing some comfort to the commercial banks in the donor country. In addition, ODA activity increases the donor country's knowledge and access to information of the country, reducing information problems and thereby encouraging commercial bank loans from the donor country. Finally, ODA may reflect a colonial history of the donor country with its former colony. The fact that European countries tend to provide more cross-border bank loans to Africa may partly reflect this historical colonial relationship.[12] Another variable that captures such a relationship is the language dummy. Whether a developing country speaks English, French, or Spanish

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[11] The alternative would be to use PPP measured GNP. But using PPP also suffers from inconsistency and measurement errors, as indicated by Srinivasan (1995).

[12] This observation is also supported by the regression results.

largely depends on whether the country is a former colony of her colonial master. The coefficient of language is statistically significant over the sample period except for a few years.

The distance variable is generally negative and statistically significant, except for a few years. The fact that many LDCs are located in the Southern Hemisphere and most developed countries in the Northern Hemisphere may help explain the negative correlation. The negative relationship means that the farther away between the two countries, the less international bank loans there will be. To the extent that distance is a measure of information asymmetry, the negative relationship between distance and international bank loans may be explained by the presence of information asymmetry.

An LDC's macroeconomic performance and some elements of its institutions are captured by the institutional investors' rating variable, LOG[RATING(J)]. A lagged variable is used in the regression to avoid potential simultaneity bias. Except for 1996, the coefficient of the rating variable is highly significant and positive. In addition, the evolution of the magnitude of the coefficient exhibits an uneven convex pattern. It is large in early years of the sample (1986-89) and becomes quite small during the years from 1990 to1992, coinciding with a large surge of commercial bank lending during this period. It also alludes to the fact that fundamentals tend to be ignored during the high tide of emerging-market lending. That the size and significance of the rating coefficient both increase after 1995 reflects the importance of macroeconomic fundamentals during economic downturns or during economic crises in emerging market economies.

The standard gravity model is adjusted for the regional locations of the developed and developing countries. The regional LDC dummies indicate whether an LDC is an onshore borrower in Asia, Africa, Latin America, and Eastern Europe or an offshore borrower in Asia and Latin America. The developed country dummies are divided into whether it belongs to the EU, the US, or Japan. The coefficients of these borrowing and lending dummies are very revealing. For most of the sample years, onshore and offshore borrowers have enjoyed a positive exposure of international bank loans from the developed world. This is particularly the case for onshore Latin America and offshore banking centers and interestingly, onshore Asia did not receive large international bank loans until 1996, indicating the possibility of a large build-up of foreign bank exposure in the year immediately prior to the crisis. Africa had received relatively large international bank loans in 1989-92 and in 1996, while Eastern Europe had its bank loan booms in 1986-92. Banks in the EU region have expanded their loans to the LDCs since 1988, in contrast with a global retrenchment of US banks throughout the 1980s and 1990s. Japanese banks expanded their exposure to the LDCs in the period of 1986 to 1990, but they started to retreat from LDC loans in 1994. Japanese bank loans to LDCs were significantly smaller during 1994-98 than dictated by the regression fundamentals, suggesting that Japanese banks did not contribute to a significant build-up of foreign bank exposure of the Asian countries in 1996.

3. Empirical Results from the Augmented Gravity Model

Table 4 builds upon the results of Table 3 by introducing additional elements and institutional variables: exchange rate volatility (LOG[ERVOL(IJ)]) between a lending and a recipient country; the real interest rate differential between a lending and a borrowing country (LOG[RIRD(IJ)]); the amount of interest and principle arrears as a

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share of total loans existing in a country (LOG[AREARS(J)]); the degree of corruption (LOG[CORRUPT(J)]); the initiation, or lack thereof, of some measures of financial liberalization in a borrowing country (FINANCIALLIB(J)) during the sample period; the presence or absence of an IMF program in a borrowing country (IMFPROGRAM(J)); the presence or absence of an explicit deposit insurance program in a borrowing country (DEPINSUR(J)). BILATERAL, APEC, and NAFTA are dummy variables of bilateral or regional trade agreements between a borrowing and a recipient country, which all take a value of either 1 or 0. The augmentation of these explanatory variables intends to enable us to understand the effect of portfolio allocation considerations, default history, and institutional factors on cross-border bank loans.

Most of the gravity components of the model are unaffected by the introduction of these new explanatory variables. The standard deviation of the bilateral exchange rate between a lending and a borrowing country, LOG[ERVOL(IJ)], is always negatively related to cross-border bank loans, though not always statistically significant. For some years (1990, 91, and 97), the coefficients are statistically significant. The negative coefficient indicates that bilateral exchange rate volatility exerts a negative influence on cross-border bank loans, which is in line with the standard portfolio theory.

The real interest rate differential between a borrowing and a lending country, LOG[RIRD(IJ)], is either positive or negative in sign depending on the sample year. This result is not difficult to explain. When the real interest rate is higher in a borrowing country than in a lending country, the volume of cross-border bank loans tends to be greater. However, to the extent that the high real interest rate in a borrowing country reflects a high country risk premium, there will be no or less incentive for international banks to lend. The high risk premium in a borrowing country reflects the overall riskiness of bank exposure to the country and, hence, may not have a favorable impact on the volume of cross-border bank loans. This empirical evidence could actually lend support to the notion that high interest rates may not always attract capital inflows, as has been pointed out in a theoretical model by Furman and Stiglitz (1998).

The amount of total interest and principal arrears held by a borrowing country as a share of its total loans from the lending country, LOG[AREARS(J)], is another way of measuring both default history and the actual amount of default involved. The coefficient is positive for most of the years, except for 1997. The positive and significant coefficient from 1986 to 1991 implies that the greater the arrears, the larger the volume of cross-border bank loans. This is a surprising result. But it is not as counter-intuitive as it appears. In fact, such phenomena occurred during the Latin American debt crisis. US banks were forced to extend loans to countries about to default for the fear that countries having difficulties of loan repayments may choose outright defaults. However, if loans were rescheduled or extended for regulatory and confidence reasons, the balance sheets of lending banks would look much healthier than the ones that had experienced outright defaults. Note that while the coefficient is still positive for most years of the 1990s, it is no longer statistically significant.

An index that measures pervasiveness of corruption in the borrowing country, LOG[CURRUPT(J)], is also included in the regression equation. The lower the index is, the more rampant the corruption is in the borrowing country. To some extent, this index is also a measure of the rule of law and contract enforcement since these indexes are

closely related to each other.[13] The positive and statistically significant coefficient for 1988-90 shows that corruption was negatively correlated international bank loans, and that foreign banks did take account of the rule of law of a country when making a loan decision. But, throughout the 1990s, the index becomes statistically insignificant.

If a country has undertaken financial liberalization, one would expect a large volume of cross-border bank loans to be provided to the country. A dummy variable indicating the starting year of financial liberalization, FINANCIALLIB(J), is 1 if the country has already undertaken a financial liberalization, unless there is a reversal of financial liberalization, and takes on value 0 if the country has not undertaken financial liberalization. The regression result implies that in early years of the sample until 1991, financial liberalization was positively related to cross-border bank loans to the LDCs. In later years, however, the coefficient turned negative, though they were not always statistically significant. The reason for the low level of cross-border bank loans in recent years in countries that have liberalized the financial systems may be attributed to the perceived risk of bank loans.

The presence or absence of an IMF stabilization program, as captured by IMFPROGRAM(J), may also affect international bank loans. For years between 1986-1988, the IMF program had a statistically significant and positive impact (1986-87) on international bank loans to the LDCs. Similarly, for years between 1996-1998, the IMF program also had positive, though statistically insignificant, impact on bank loans. One may note that these two periods coincide with emerging market crises: The former was associated with the aftermath of the Latin American debt crisis, the later with the recent Asian financial crisis. However, the IMF program had a statistically significant, negative impact on international bank loans in 1994. This result seems to imply that, at the time of a financial crisis, an IMF program tends to persuade international commercial bank creditors to stay in the country under the program.

The presence of an explicit deposit insurance scheme as indicated by the coefficient of DEPINSUR(J) has generally a positive effect on cross-border bank loans, though not always significant statistically. This result can be explained by the fact that the presence of an explicit deposit insurance scheme deters systemic runs on local bank deposits, and makes the borrowing country's banking system more resilient than those of the countries without explicit deposit insurance schemes in time of a crisis, thereby providing some psychological comfort for international bankers as well.[14]

Bilateral or regional trade agreements—represented by the dummy variables BILATERAL (bilateral trade agreements), APEC (Asian Pacific Economic Cooperation), and NAFTA (North American Free Trade Agreement)—have either positive or negative impact on bank loans to LDCs. Ironically, bilateral trade agreements between a lending

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[13] The international country risk guide (ICRG) index on corruption used in the regression is from the PRS group, a business-consulting firm based in Syracuse, New York. We also compared the indexes with similar ones published by the Transparency International and the World Competitive Report. These indexes are highly correlated with a correlation coefficient between 0.8 to 0.9. The advantage of using the PRG indexes is its large coverage of countries.

[14] This is consistent with the finding that the interest rate in the LDCs with explicit deposit insurance tends to be low. However, a recent study by Demirguc-Kunt and Detragiache (2000) shows that an explicit deposit insurance scheme increases the likelihood of banking crises, which is contrary to the interpretation we draw.

and a borrowing country appear to have a negative impact on international bank loans. However, regional trade agreements, such as APEC and NAFTA, tend to have positive effects and are for some years statistically significant for APEC. Though the coefficient of NAFTA is mostly positive, it is never significant statistically. Part of the reason may be due to the small number of observations; for example, only one LDC, Mexico, is in NAFTA, whereas many more LDCs are in APEC.

4. Geographical Connection between a Lending and a Borrowing Country

Table 5 reports results by adding the geographical connection dummies to the augmented gravity model. The traditional gravity variables such as economic size, per capita income, and distance still have the expected effects on cross-border bank loans and are statistically significant. Bilateral trade and ODA continue to have a robust and positive impact throughout the period. The country rating variable continues to have a positive impact, but for some years with statistically insignificant coefficients. The language variable continues to be significant with positive signs, even after introducing the geographical connection dummies. Most of the coefficients on other macro and institutional variables continue to behave in a similar way. With the addition of geographical connection dummies, the R^2-adjusted has improved considerably, compared with the results from the augmented gravity regression.

Geographical connection dummies are constructed by linking lending countries with onshore and offshore destinations. For example, EU-ONSHORE ASIA is a dummy variable that takes on value 1 if an EU country extends cross-border bank loans to an onshore Asian country and value 0 otherwise. Or, the dummy variable, JPN-OFFSHORE LATIN, takes on value 1 if Japan extends cross-border bank loans to an offshore banking center in Latin America, and value 0 otherwise. The estimation results for these geographical connection dummies reveal that European banks are relatively big lenders to Africa, in addition to their more recent presence in Central and Eastern Europe and the Former Soviet Union (CEE&FSU) and in Asia. European banks have increased their exposure globally over the years, even after the Mexican crisis in 1995, the Asian crisis in 1997-98, the Russian crisis in 1998, and the recent Brazilian devaluation in 1998. Because of their former colonial linkage with African countries, European banks are the only significant lenders in the region. They tend to lend more to their neighboring countries in CEE&FSU, after the collapse of communism in the region, presumably by taking advantage of their geographical proximity. European banks did not provide large amounts of cross-border loans to Asia in the 1980s (1986-90) and were not committing in the early 1990s. However, this trend started to change in 1993 when EU banks began to increase their loans exposure to Asia. Even during the recent Asian financial crisis, they maintained a large exposure in Asia.

US banks, after the 1982 Latin American debt crisis, became cautious with their lending to the LDCs in general. Specifically, US banks maintained smaller loan exposures, except to Latin America, than suggested by economic fundamentals and economic linkages, throughout the period. That US banks have always been cautious about their lending toward emerging market economies can be explained largely by the hard lessons learned during the Latin American debt crisis. The increasing reliance of US banks on fee business, rather than on loan business, may also explain their behavior that is distinct from their European and Japanese counterparts.

Japanese banks had maintained large loan exposures to CEEU (1987-93) and Latin America (1988-89) in early years of our sample period. However, this trend was reversed in the mid 1990s and Japanese banks became less active in cross-border lending, perhaps largely due to emerging problems in the domestic banking sector. They always lent less to Africa, particularly after 1991, and maintained just about average loan exposures to Asia in the early years of the sample. Surprisingly, they began to reduce their exposure in a significant way in 1995, as indicated by the statistically significant, negative coefficient on the JPN-ONSHORE ASIA dummy, and continued to do so in 1996, a year before the Asian financial crisis. During the Asian financial crisis (1997-98), Japanese banks maintained average bank exposure in the region, as indicated by the statistically insignificant (though negative) coefficients on the dummy, suggesting that their withdrawal of loans from the region was not excessive after controlling for the economic fundamentals and linkages in the regression equation.

European and Japanese banks have been major lenders to offshore banking centers. Their bank loans to both the Asian (particularly Singapore and Hong Kong) and the Latin American (particularly Bermuda and the Bahamas) offshore centers were quite large. However, Japanese bank loans to the Asian offshore centers began to be less notable in 1995, reflecting domestic banking sector difficulties.

5. Japanese Bank Loans to East Asia

East Asian economies,[15] with their rapid economic growth, are the major destinations of cross-border bank loans from BIS-reporting countries. In particular, there was a huge build up of bank loans before the recent financial crisis and a massive withdrawal afterwards. Japan is often singled out as the largest bank lender to the region in the pre-crisis years and the largest one to pull out from the regional economies during the crisis. The total amount of loans injected to the region amounted to US$rrrrr between December 1994 and June 1996. The total loans withdrawn from the region amounted to US$qqq billion between June 1996 and December 1998. Among the loan withdrawal from the region, Japanese banks accounted for 61 percent. Did the Japanese banks lend excessively to the East Asian economies before the crisis and subsequently call back loans excessively during the crisis? Our statistical results told a different story for their loans to Asia (that includes both East Asia and South Asia), after controlling for the fundamental variables that affect bilateral cross-border bank loans.

The basic results hold when focused on East Asia (Table 6). The estimated coefficients on the JPN-ONSHORE EAST ASIA dummy indicate that Japanese banks never maintained excessively large or small loan exposure in East Asia before or during the crisis. The coefficients on the dummy were negative for the period 1994-98, though not statistically significant, contrary to the impression by looking at absolute numbers alone.

Although the Japanese banks did not provide excessively large amounts of loans to East Asia in the pre-crisis period and did not withdraw loans excessively from the region, they may have behaved so with respect to the five crisis countries before and/or during the recent financial crisis. Did they not lend more than they should have before the

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[15] East Asian countries are defined as a group including China, Indonesia, Hong Kong SAR, South Korea, Malaysia, the Philippines, Singapore, Taiwan Province of China, Thailand, and Vietnam.

crisis and withdraw loans more than they should have during the crisis? Figure 10 illustrates that the regression residuals for Indonesia, Thailand and, to some extent, Malaysia were consistently larger than the average of the sample residuals between Japanese banks and the rest of the world. This result seems to indicate that these countries consistently received loans more than the average amount of Japanese bank loans to the rest of world. The regression residuals for Korea and the Philippines, on the other hand, were consistently smaller than the average of the sample. During the crisis period (1997-98), the residuals of the latter countries did not fall below the average. In fact, during the crisis, the negative residuals for Korea and the Philippines were somewhat reduced in absolute value, while the positive residuals for Indonesia and Thailand were kept at high levels.[16]

6. Impact of Foreign Direct Investment

Foreign direct investment (FDI) has not been included as an explanatory variable in the regression results so far. The problem is data availability. Because the definition of FDI varies by country, it is difficult to use a consistent measure in cross-country studies. Although FDI data among the BIS-reporting countries (a subset of OECD countries) are well collected, those between a developed and a developing country are hard to come by. We use a data set published by the OECD Foreign Investment Yearbook from 1989 to 1998 which reports FDI data in a consistent manner, supplemented with publication from national statistical agencies and IFS data set. Unfortunately, because of no coverage of FDI stock data for our sample countries such as Belgium, Italy, Spain and Sweden, we have to drop these countries from the sample. The OECD data also suffer from the problem of low coverage on developing countries as FDI recipients. This may give us a smaller sample where only countries with reported FDI stock data are selected. The interpretation of this set of regressions, therefore, should be treated with caution. As expected, the number of observations dropped by more than one third. This is one of the reasons we run the regressions with FDI separately.

Table 7 through Table 10 present the regression results with FDI as an explanatory variable. To avoid the simultaneity bias between trade and FDI, we have decided to use lagged FDI stock data in the regression.[17] There are some noted changes in Table 7. One is that ODA becomes statistically insignificant in some years in the sample. Second, LANGUAGE is no longer significantly positive and becomes negative, though not always significant, in the later part of the sample period. Third, although the coefficient of LOGFDI(J) is always positive and often statistically significant, its size is not as stable as other regressors. In particular, the coefficients for years of 1992 and 1993 were close to 0.5, while those for other years stay in the range between 0.02 and 0.25. Fourth, although the number of observations is reduced by one third, the R^2-adjusted has increased considerably.

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[16] The surprising result that Japanese banks did not provide loans excessively to East Asia, particularly to the Philippines and Korea, nor did they withdraw loans excessively from the region, particularly from Indonesia and Thailand, requires further research in the future. One reason for this result may be because of the omission of data on cross-border bank loans from BIS-reporting countries, intermediated through offshore banking centers such as Hong Kong and Singapore.

[17] An alternative procedure would be to use instrumental variables or two stage least squares. The problem then is that appropriate instruments are difficult to find given a large number of regressors in the equation.

With more institutional features added to the FDI regression (Table 8), basic results for gravity variables observed in Table 7 are maintained. The interpretation of the IMFPROGRAM(J) variable still remains, while the deposit insurance system is no longer significant, except for 1992-93 when the coefficients were negative. The only difference is that the LOG[ERVOL(IJ)] variable becomes positive over the sample period, though insignificant statistically in almost all years. With lending and recipient countries linked together, the results are closer to those obtained from the regressions without FDI (Table 9-10). The interpretation of bilateral lending regional dummy variables still holds. Similarly, the results that Japan did not withdraw loans excessively during the recent Asian financial crisis after adjusting for the FDI link also hold.

V. CONCLUDING REMARKS

Applying a gravity model, we have found that economic size, per-capita income levels, bilateral trade flows, bilateral ODA and FDI stocks, and key macroeconomic and institutional variables are important fundamental determinants of cross-border commercial bank loans to developing countries. Offshore banking centers have received more bank loans than their onshore counterparts. The presence of an IMF program has been either a positive or a negative factor in attracting cross-border bank loans depending on the time period of the sample. During certain periods (1986-88 and 1997-98), an IMF program provided a positive signaling factor. In other times (1993-95), however, an IMF program had a negative impact on bank loans to the LDCs. This finding implies that stabilization programs brokered by the IFIs can be a stabilizing factor in moderating volatile international bank lending, contrary to criticisms of such programs. One consistent result from the paper is that a borrowing country with an explicit deposit insurance program has received more bank loans. After the 1982 Latin American debt crisis, European banks expanded loans rapidly on a global scale, in contrast with a global retrenchment of US banks over the whole sample period and a recent global retreat of Japanese banks. Contrary to the conventional wisdom, Japanese banks did not provide loans excessively to East Asia before the crisis, nor did they withdraw loans excessively during the financial crisis (1997-1998), after controlling for economic fundamentals and linkages.

The paper offers several policy implications. There is no question that cross-border bank loans contributes to economic growth of the recipient country if used for productive purposes and if managed prudently. Maintaining favorable macroeconomic environments is necessary to attract cross-border bank loans as well as other forms of foreign capital. Strengthening economic relationships with the source countries through trade and FDI can have positive impact on the volume of cross-border bank loans by reducing information asymmetry. Capital market development is also useful to induce more cross-border bank loans because. The experience of financial crises in emerging market economies suggest that over-extension of cross-border bank loans can lead to overheating of the recipient economy and the eventual collapse, resulting in banking and currency crises. Hence, management of bank loans is crucial to manage the macroeconomic condition and the domestic banking sector.

The present paper has certainly raised more questions than it could answer in such a simple gravity model framework. For example, the relationship between bank loans to the LDCs and the presence of an explicit deposit insurance program or of an IMF program is provocative and the question of how we should measure and assess the effect

of moral hazard still remains. Further research examining the details of the deposit insurance program in the borrowing country as well as the details of IMF stabilization programs should help understand the mechanisms that give rise to the issues of moral hazard in cross-border bank loans to the LDCs. Such studies may have important policy implications on the ongoing financial sector reform and the reform of the international financial architecture.

The results on the aggregate lending activities of Japanese banks to East Asia are counter-intuitive that belie many commonly held perception on Japanese banks' businesses in East Asia. This result may reflect the lack of data on cross-border bank loans that are intermediated through the offshore banking centers such as Hong Kong and Singapore. A more careful examination of the lending behavior of Japanese banks in East Asia, before, during, and after the Asian crisis will certainly improve our understanding of the complicated nexus of trade, FDI, and bank loans in East Asia.

Finally, we have not touched upon the issue of pro-cyclical nature of cross-border bank loans to the LDCs. The flow data of bank lending to the LDCs do present some degree of pro-cyclicality. Understanding the factors that cause pro-cyclical cross-border bank loans could help curb excessive foreign borrowing and prevent future bank-related liquidity crisis from occurring in emerging market economies.

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Figure 1: Net Financial Flows to Developing Countries by Type (1970-98)
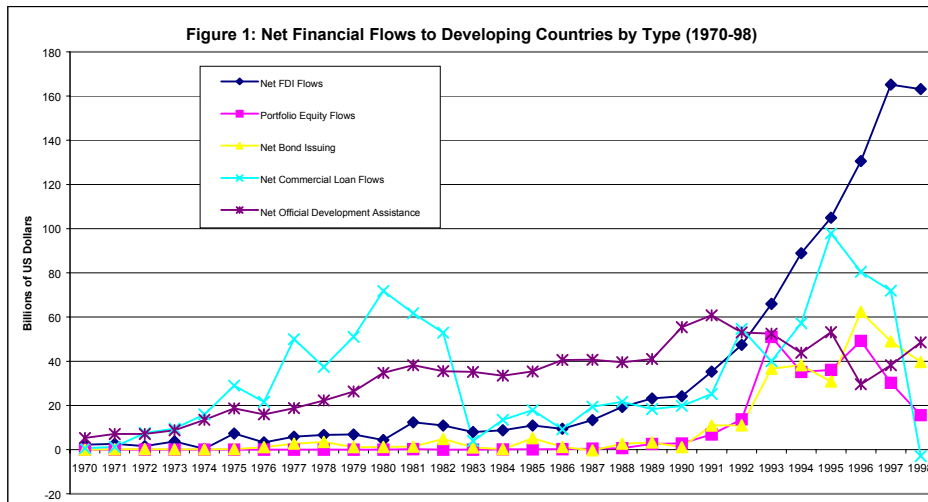
Source: Global Development Finance (2000), World Bank.
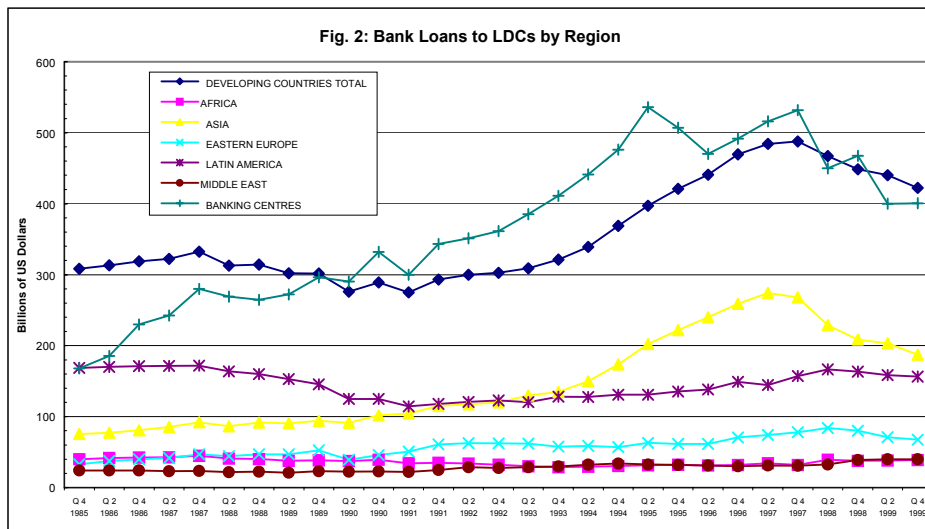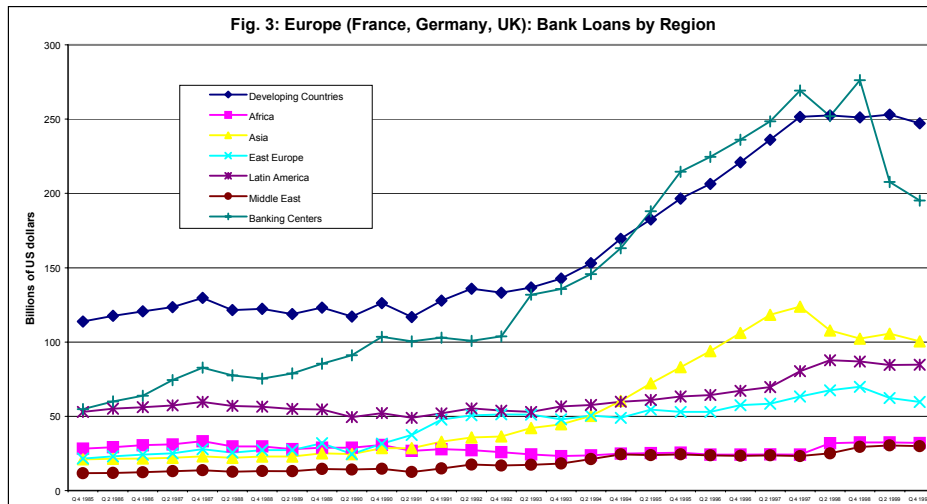
Fig. 2: Bank Loans to LDCs by Region

Source: BIS, *Consolidated International Banking Statistics.*

Fig. 3: Europe (France, Germany, UK): Bank Loans by Region

Source: BIS, *Consolidated International Banking Statistics.*

Fig. 4: Japan: Bank Loans by Region

Source: BIS, *Consolidated International Banking Statistics.*

Fig. 5: USA: Bank Loans by Region

Billions of US Dollars

Legend:
- DEVELOPING COUNTRIES
- AFRICA
- ASIA
- EASTERN EUROPE
- LATIN AMERICA
- MIDDLE EAST
- BANKING CENTRES

X-axis: Q4 1985, Q2 1986, Q4 1986, Q2 1987, Q4 1987, Q2 1988, Q4 1988, Q2 1989, Q4 1989, Q2 1990, Q4 1990, Q2 1991, Q4 1991, Q2 1992, Q4 1992, Q2 1993, Q4 1993, Q2 1994, Q4 1994, Q2 1995, Q4 1995, Q2 1996, Q4 1996, Q2 1997, Q4 1997, Q2 1998, Q4 1998, Q2 1999, Q4 1999

Source: BIS, *Consolidated International Banking Statistics.*

Fig. 6. Major Bank Exposures in Five East Asian Countries

(Billions of Dollars; end of period)

Legend:
- Jun-95
- Dec-95
- Jun-96
- Dec-96
- Jun-97
- Dec-97
- Jun-98
- Dec-98
- Jun-99
- Dec-99

X-axis: Japan, United States, Europe

Source: BIS, *Consolidated International Banking Statistics.*

Fig. 7: European Banks: Exposure to East Asia

Source: BIS, *Consolidated International Banking Statistics.*

Fig. 8: Japanese Banks: Exposure to East Asia

Source: BIS, *Consolidated International Banking Statistics.*

Fig.9: US Banks: Exposure to East Asia
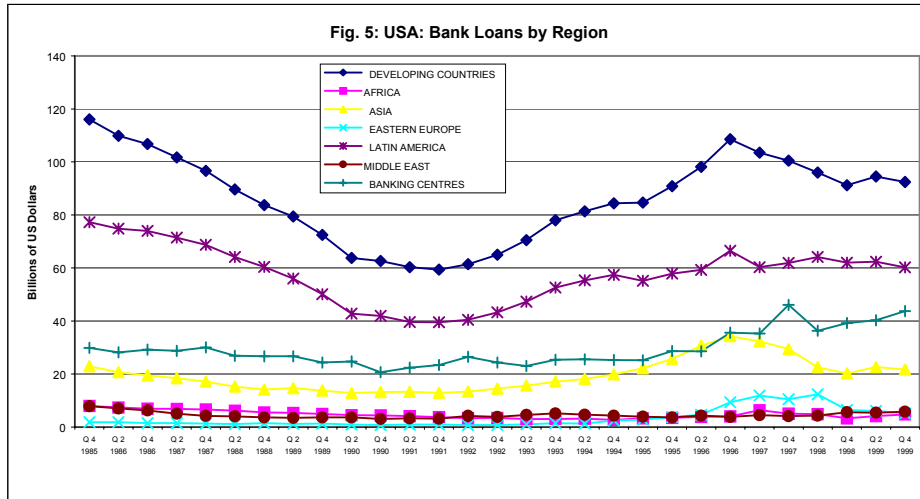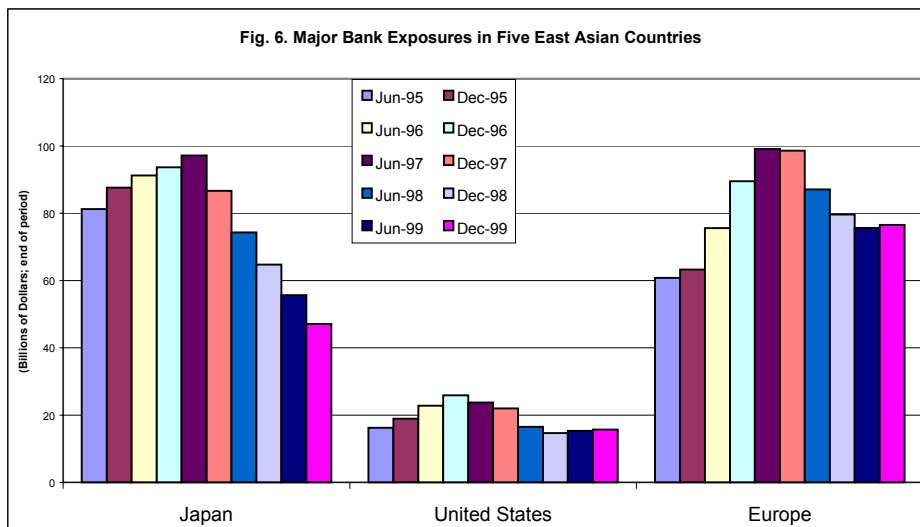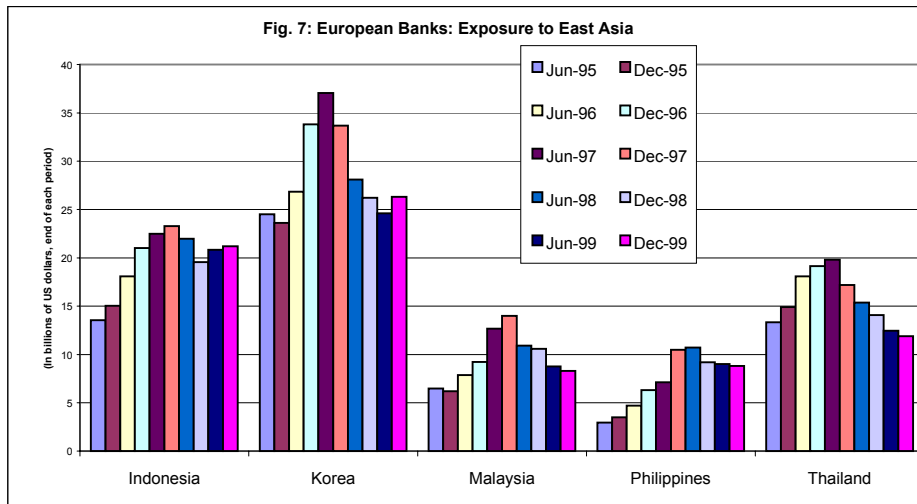
Source: BIS, *Consolidated International Banking Statistics.*
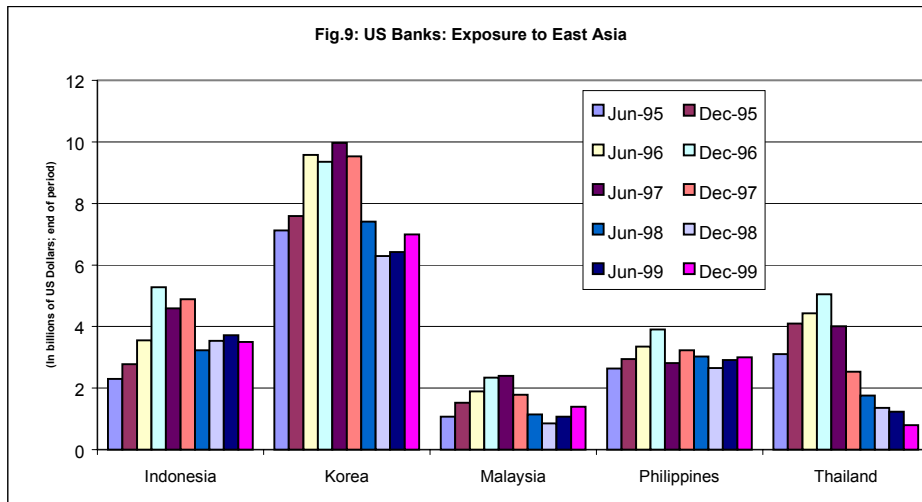
Figure 10: Residuals
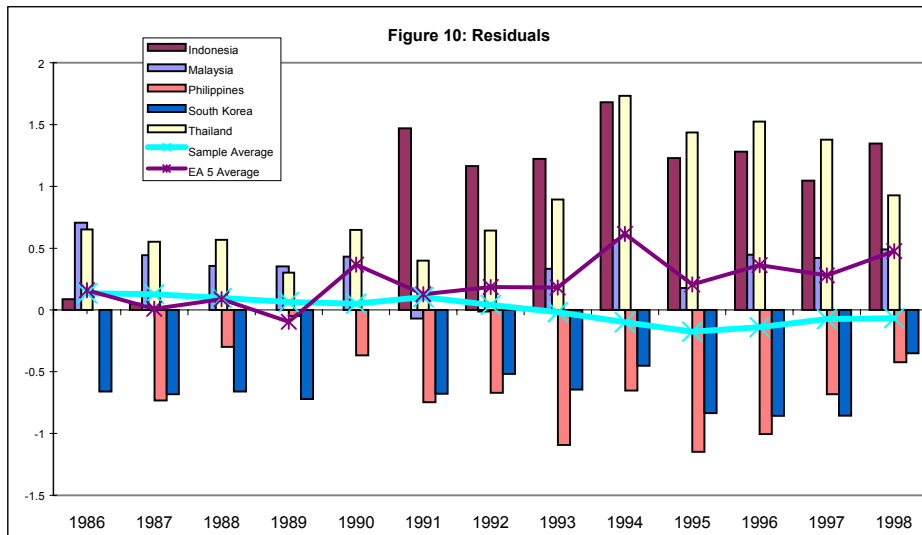
Table 1: Some characteristics of Bank Loans from BIS Reporting Countries (Numbers are in Percent)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Share of S-T Term Loans in Total																
All Borrowers	56	58	59	58	60	63	63	66	67	67	66	63	60	54	55	54
OECD*	42	44	45	46	48	49	50	51	52	55	55	55	53	52	56	56
Africa	46	49	46	44	48	48	44	50	47	51	54	51	57	53	52	52
Asia	45	43	46	47	50	55	58	62	63	63	63	61	54	47	46	47
Eastern Europe	37	36	36	36	36	42	39	42	48	37	41	45	46	41	39	41
Latin America	40	34	33	32	32	37	41	46	49	51	52	54	55	51	48	49
Offshore Banking Centers	86	87	87	86	85	83	83	83	82	82	80	74	71	63	52	48
Share of Loans to Banks																
All Borrowers	42	42	43	41	42	44	43	43	44	43	53	49	46	41	49	48
OECD*	23	28	29	30	34	35	36	35	37	40	43	44	44	42	52	52
Africa	28	28	27	28	29	29	34	37	40	40	41	39	34	34	28	25
Asia	31	28	29	30	30	34	37	39	41	42	43	43	44	40	36	35
Eastern Europe	44	51	50	49	47	48	50	51	56	60	60	55	47	48	42	40
Latin America	22	21	21	21	21	21	22	25	26	25	25	24	26	21	19	18
Offshore Banking Centers	76	68	66	61	60	60	56	53	52	48	68	61	57	50	39	37
Share of Loans to Non-Banks																
All Borrowers	26	29	29	31	33	34	37	39	41	43	36	41	44	49	37	38
OECD*	42	41	40	42	40	40	43	46	45	43	43	42	39	42	32	34
Africa	41	42	41	39	41	43	38	36	35	37	37	39	48	50	52	52
Asia	28	32	31	32	36	36	36	38	39	42	45	47	47	49	50	51
Eastern Europe	7	7	9	11	16	20	21	25	25	24	25	29	40	42	43	43
Latin America	26	25	23	21	22	26	29	31	36	40	43	48	52	57	60	61
Offshore Banking Centers	17	28	29	34	35	35	41	44	46	50	31	39	42	49	60	61
Share of Loans to Public Sector																
All Borrowers	28	26	25	25	22	19	18	16	14	13	11	10	8	9	12	12
OECD*	26	24	23	21	19	18	16	15	16	16	14	14	15	14	13	12
Africa	27	29	29	31	28	26	27	26	25	23	21	21	17	15	20	22
Asia	40	39	38	37	33	29	26	23	20	16	12	9	7	9	12	13
Eastern Europe	34	38	37	36	33	27	25	23	19	16	15	15	13	10	14	17
Latin America	50	53	55	56	56	52	47	42	37	35	32	28	21	22	21	20
Offshore Banking Centers	4	2	2	2	2	2	2	2	1	2	1	1	1	1	1	1

Note: OECD countries here do not include BIS reporting countries.
Source: BIS, *Consolidated International Banking Statistics.*

Table 2: Relations Between Maturity and Sector Distribution and the Overall Level of International Bank Loans

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
CONSTANT	2408.97	74.30	4216.11	2423.50	7002.30	1976.85	5133.50	2138.38	2576.91	-1461.82	-2181.90	-4422.76	-3532.08	2435.66	-7007.92	-2402.45
	(0.34)	(0.01)	(0.49)	(0.25)	(0.74)	(0.19)	(0.54)	(0.19)	(0.22)	(-0.12)	(-0.18)	(-0.30)	(-0.21)	(0.18)	(-0.13)	(-0.04)
SHARE OF S-T LOANS	-103.80	-47.81	-60.10	-41.21	-77.99	-61.18	-61.14	-40.96	63.13	142.56	219.64	138.13	137.10	-39.10	-47.36	-174.56
	(-1.54)	(-0.63)	(-0.68)	(-0.44)	(-0.81)	(-0.65)	(-0.62)	(-0.38)	(0.62)	(1.29)	(1.82)***	(1.37)	(1.20)	(-0.37)	(-0.11)	(-0.36)
SHARE OF LOANS TO BANKS	217.16	168.52	130.27	134.78	127.72	198.83	128.81	148.42	70.17	63.12	89.28	177.86	150.54	179.18	358.37	327.18
	(2.49)**	(1.75)***	(1.17)	(1.13)	(1.09)	(1.52)	(1.07)	(1.18)	(0.54)	(0.43)	(0.6)	(1.14)	(0.77)	(1.22)	(0.59)	(0.46)
SHARE OF LOANS TO NON-BANKS	-46.79	-60.04	-84.72	-107.87	-100.92	-91.63	-84.28	-45.46	-182.42	-149.61	-290.69	-178.51	-162.09	-68.61	31.14	141.12
	(-0.61)	(-0.74)	(-0.88)	(-1.01)	(-0.93)	(-0.81)	(-0.76)	(-0.42)	(-1.52)	(-1.08)	(-1.96)***	(-1.20)	(-0.92)	(-0.50)	(0.06)	(0.22)
OECD	9691.54	12224.39	12140.21	14131.84	11450.35	14039.37	12489.68	10851.62	13302.06	13697.49	18688.66	17632.84	18419.30	21995.36	216723.97	231059.24
	(1.63)	(1.73)***	(1.50)	(1.74)***	(1.39)	(1.54)	(1.40)	(1.11)	(1.27)	(1.09)	(1.44)	(1.40)	(1.32)	(1.81)***	(5.71)*	(5.52)*
OFFSHORE	13861.59	22979.79	27150.98	27974.31	29607.73	32641.31	34892.85	32363.80	41905.80	43796.52	50187	49025.86	55055.47	46358.37	39713.94	35119.58
	(2.74)*	(3.76)*	(3.84)*	(3.93)*	(4.06)*	(4.05)*	(4.30)*	(3.75)*	(4.35)*	(3.96)*	(4.45)*	(4.48)*	(4.57)*	(4.42)*	(0.92)	(0.74)
AFRICA	1714.33	3617.69	2413.41	3233.79	67.83	2456.24	411.90	168.86	2186.07	984.06	2246.63	3598.51	2933.39	1839.54	1834.55	-748.83
	(0.37)	(0.66)	(0.39)	(0.51)	(0.01)	(0.36)	(0.06)	(0.02)	(0.28)	(0.11)	(0.24)	(0.39)	(0.29)	(0.21)	(0.05)	(-0.02)
ASIA	2192.77	4444.92	2540.12	5388.69	1802.51	4931.62	2195.06	4334.97	7774.97	5791.59	10871.42	10964.56	10633.45	6120.17	5722.53	3172.36
	(0.46)	(0.77)	(0.39)	(0.79)	(0.27)	(0.67)	(0.32)	(0.55)	(0.93)	(0.61)	(1.09)	(1.17)	(1.03)	(0.70)	(0.16)	(0.08)
EASTERN EUROPE	2984.22	4478.55	4083.61	5549.80	-128.87	-658.36	-437.34	-452.17	569.71	2893.51	6708.85	4089.38	5427.92	2709.24	1208.41	-1554.51
	(0.41)	(0.52)	(0.41)	(0.56)	(-0.02)	(-0.07)	(-0.05)	(-0.05)	(0.06)	(0.28)	(0.63)	(0.42)	(0.50)	(0.29)	(0.03)	(-0.04)
LATIN AMERICA	9119.55	9918.20	8377.90	8518.49	4747.57	7410.22	6014.87	6622.99	7228.69	6366.98	7955.91	10414.90	10866.48	10359.38	11366.64	8093.46
	(1.81)***	(1.64)	(1.22)	(1.20)	(0.68)	(0.95)	(0.82)	(0.84)	(0.87)	(0.67)	(0.82)	(1.08)	(1.02)	(1.13)	(0.30)	(0.20)
No. Of Obs.	121	127	128	120	127	129	133	130	141	147	149	154	160	162	185	183
R^2 Adj.	0.18	0.19	0.18	0.18	0.19	0.19	0.20	0.16	0.19	0.17	0.23	0.22	0.20	0.19	0.32	0.31

Table 3: Basic Gravity Model

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1. Constant	-1.38	-1.65	-3.12	-2.96	-2.23	-3.45	-3.79	-4.22	-4.37	-5.25	-5.48	-5.35	-5.5
	(-1.24)	(-1.47)	(-2.92)*	(-2.71)*	(-2.13)**	(-3.48)*	(-3.75)*	(-4.62)*	(-4.90)*	(-6.16)*	(-6.41)*	(-6.15)*	(-6.47)*
2. LOGGNP(IJ)	0.39	0.38	0.53	0.49	0.52	0.49	0.52	0.45	0.5	0.5	0.56	0.52	0.53
	(7.51)*	(7.11)*	(10.57)*	(9.60)*	(10.37)*	(9.55)*	(10.10)*	(9.03)*	(10.02)*	(10.6)*	(12.03)*	(11.19)*	(11.46)*
3. LOGGNPPC(IJ)	-0.09	-0.05	0.08	0.15	0.23	0.18	0.24	0.18	0.25	0.36	0.47	0.46	0.43
	(-1.11)	(-0.69)	(0.99)	(1.75)***	(2.96)*	(2.48)**	(3.16)*	(2.62)*	(3.51)*	(5.11)*	(6.44)*	(6.02)*	(5.81)*
4. LOGTRAD(IJ)	0.34	0.33	0.28	0.28	0.25	0.33	0.27	0.36	0.32	0.32	0.29	0.3	0.33
	(6.75)*	(6.64)*	(5.91)*	(5.73)*	(5.41)*	(7.06)*	(5.97)*	(7.86)*	(6.91)*	(7.30)*	(6.90)*	(7.05)*	(7.89)*
5. LOGODA(IJ)	0.09	0.12	0.11	0.12	0.16	0.15	0.16	0.19	0.2	0.22	0.22	0.21	0.19
	(2.90)*	(3.61)*	(3.61)*	(3.71)*	(4.89)*	(4.94)*	(5.10)*	(6.19)*	(6.58)*	(7.32)*	(7.31)*	(6.78)*	(6.43)*
6. LOGDIST(IJ)	-0.2	-0.21	-0.28	-0.31	-0.38	-0.27	-0.23	-0.15	-0.16	-0.15	-0.16	-0.19	-0.16
	(-1.67)***	(-1.72)***	(-2.51)**	(-2.62)*	(-3.33)*	(-2.43)**	(-2.10)**	(-1.43)	(-1.56)	(-1.59)	(-1.61)	(-1.97)**	(-1.69)***
7. LANGUAGE(IJ)	0.79	0.79	0.67	0.56	0.45	0.37	0.46	0.32	0.11	0.23	0.24	0.52	0.54
	(4.67)*	(4.56)*	(4.15)*	(3.42)*	(2.83)*	(2.38)**	(2.94)*	(2.05)**	(0.68)	(1.50)	(1.60)	(3.33)*	(3.52)*
8. LOGRATING(J)	0.61	0.57	0.59	0.55	0.32	0.35	0.32	0.49	0.4	0.42	0.19	0.34	0.32
	(4.69)*	(4.05)*	(4.38)*	(3.86)*	(2.34)**	(2.48)**	(1.96)**	(3.18)*	(2.46)**	(2.66)*	(1.19)	(2.16)**	(1.98)**
9. ONSHASIA	-0.53	-0.33	-0.17	0.01	0.07	0.23	0.18	-0.03	-0.08	0.18	0.58	0.62	0.56
	(-2.01)**	(-1.25)	(-0.69)	(0.05)	(0.26)	(0.91)	(0.70)	(-0.13)	(-0.36)	(0.84)	(2.60)*	(2.71)*	(2.46)**
10. ONSHAFRICA	-0.21	0.00	0.32	0.37	0.38	0.56	0.39	0.18	0.08	0.24	0.36	0.32	0.25
	(-1.05)	(0.00)	(1.63)	(1.84)***	(1.95)***	(2.88)*	(1.91)***	(0.92)	(0.40)	(1.26)	(1.76)***	(1.50)	(1.21)
11. ONSHLATIN	1.05	1.07	1.34	1.43	1.10	1.11	0.85	0.61	0.57	0.58	0.74	0.82	0.66
	(5.31)*	(5.35)*	(6.83)*	(7.14)*	(5.77)*	(5.63)*	(4.24)*	(3.18)*	(2.89)*	(3.10)*	(3.75)*	(4.04)*	(3.26)*
12. ONSHEASTEU	0.62	0.69	0.42	0.46	0.34	0.66	0.66	0.22	-0.12	-0.18	0.11	0.20	0.14
	(2.31)**	(2.66)*	(1.73)***	(1.81)***	(1.39)	(2.77)*	(2.66)*	(0.98)	(-0.55)	(-0.86)	(0.53)	(0.97)	(0.68)
13. OFFSHASIA	2.35	2.65	2.51	2.6	2.85	2.69	2.59	2.37	2.34	2.32	2.38	2.12	1.58
	(6.50)*	(7.17)*	(7.16)*	(7.07)*	(8.07)*	(8.00)*	(7.48)*	(6.91)*	(6.70)*	(6.83)*	(6.90)*	(6.01)*	(4.55)*
14. OFFSHLATIN	2.61	3.04	3.28	3.73	3.57	3.57	3.37	3.18	3.31	3.37	3.21	3.42	3.14
	(5.61)*	(6.44)*	(7.31)*	(7.97)*	(7.60)*	(8.05)*	(7.46)*	(7.03)*	(7.18)*	(7.50)*	(7.08)*	(7.35)*	(6.93)*
15. EU	-0.09	0.1	0.46	0.56	0.58	0.74	0.57	0.42	0.35	0.41	0.36	0.43	0.5
	(-0.45)	(0.48)	(2.34)**	(2.71)*	(2.89)*	(3.84)*	(2.90)*	(2.14)**	(1.70)***	(2.14)**	(1.92)***	(2.28)**	(2.73)*
16. US	-0.45	-0.53	-0.5	-0.53	-0.68	-0.72	-0.72	-1.06	-1.28	-1.33	-1.23	-1.22	-1.22
	(-1.63)	(-1.92)	(-1.89)***	(-1.98)**	(-2.61)*	(-2.79)*	(-2.74)*	(-4.09)*	(-4.87)*	(-5.38)*	(-4.94)*	(-4.89)*	(-4.90)*
17. JAPAN	0.68	0.82	0.86	0.87	0.58	0.36	0.3	-0.38	-0.64	-0.71	-0.95	-0.66	-0.52
	(2.35)**	(2.81)*	(3.13)*	(3.06)*	(2.10)**	(1.33)	(1.06)	(-1.35)	(-2.23)**	(-2.59)*	(-3.57)*	(-2.48)**	(-1.98)**
No. of Obs.	708	714	727	743	734	763	755	832	850	886	894	921	919
R^2 Adj.	0.55	0.54	0.60	0.58	0.59	0.63	0.63	0.63	0.64	0.66	0.67	0.66	0.66

Note: Numbers in parentheses are t-statistics. Signs of *, **, *** are at 99%, 95%, and 90% statistical significance levels, respectively.

Table 4: Augmented Gravity Model

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1. Constant	-1.88	-0.97	-0.99	-2.26	-2.54	-1.41	-3.84	-29.35	-4.72	-0.93	-2.08	-5.41	-1.41
	(-1.23)	(-0.62)	(-0.70)	(-1.52)	(-1.90)***	(-0.98)	(-1.97)**	(-1.99)**	(-1.04)	(-0.64)	(-1.43)	(-3.82)*	(-0.72)
2. LOGGNP(IJ)	0.58	0.56	0.64	0.58	0.61	0.57	0.64	0.56	0.63	0.59	0.62	0.54	0.45
	(8.69)*	(8.56)*	(11.07)*	(9.72)*	(9.89)*	(10.08)*	(10.99)*	(9.66)*	(10.19)*	(11.12)*	(11.35)*	(9.60)*	(7.70)*
3. LOGGNPPC(IJ)	-0.16	-0.06	0.22	0.3	0.2	0.08	0.2	0.21	0.3	0.44	0.39	0.41	0.43
	(-1.49)	(-0.62)	(2.25)**	(2.55)**	(2.06)**	(0.86)	(2.35)**	(2.56)**	(3.39)*	(5.01)*	(4.22)*	(3.99)*	(4.33)*
4. LOGTRAD(IJ)	0.27	0.3	0.22	0.23	0.26	0.29	0.22	0.28	0.21	0.24	0.22	0.34	0.42
	(4.77)*	(5.43)*	(4.37)*	(4.13)*	(4.78)*	(5.76)*	(4.55)*	(5.56)*	(3.94)*	(5.01)*	(4.48)*	(6.89)*	(8.25)*
5. LOGODA(IJ)	0.15	0.08	0.1	0.07	0.13	0.13	0.13	0.13	0.16	0.19	0.19	0.14	0.15
	(3.93)*	(2.25)**	(2.85)*	(1.94)***	(3.60)*	(3.80)*	(3.92)*	(3.91)*	(4.56)*	(5.85)*	(5.37)*	(3.88)*	(4.29)*
6. LOGDIST(IJ)	-0.53	-0.52	-0.63	-0.58	-0.47	-0.4	-0.47	-0.3	-0.48	-0.54	-0.56	-0.2	-0.22
	(-3.57)*	(-3.63)*	(-4.68)*	(-3.91)*	(-3.36)*	(-2.98)*	(-3.49)*	(-2.20)**	(-3.50)*	(-4.12)*	(-4.19)*	(-1.62)	(-1.67)***
7. LANGUAGE(IJ)	0.56	0.66	0.62	0.56	0.46	0.34	0.55	0.33	0.26	0.29	0.34	0.43	0.45
	(2.96)*	(3.59)*	(3.66)*	(3.16)*	(2.59)*	(2.00)**	(3.30)*	(1.99)**	(1.45)	(1.86)**	(2.10)**	(2.60)*	(2.74)*
8. LOGRATING(J)	0.83	0.33	0.36	0.42	0.34	0.69	0.43	0.4	0.37	0.35	0.9	0.36	0.69
	(3.79)*	(1.48)	(1.96)**	(2.23)*	(1.83)***	(3.51)*	(2.02)**	(1.86)***	(1.41)	(1.18)	(2.88)*	(1.31)	(2.66)*
9. LOGEXCHVOL(IJ)	-0.02	-0.01	-0.01	-0.02	-0.04	-0.02	-0.02	-0.02	-0.01	-0.01	-0.01	-0.02	-0.01
	(-1.64)	(-1.17)	(-0.82)	(-1.35)	(-3.03)*	(-1.79)***	(-1.58)	(-1.52)	(-0.70)	(-1.46)	(-0.86)	(-1.91)***	(-0.83)
10. LOGREALINTERD(IJ)	0.41	0.42	-0.06	-0.01	-0.02	-0.3	0.16	3.04	0.23	-0.22	-0.41	-0.06	-0.97
	(3.25)*	(2.33)**	(-1.00)	(-0.17)	(-0.44)	(-3.69)*	(0.53)	(1.73)***	(0.41)	(-4.04)*	(-4.47)*	(-0.66)	(-2.77)*
11. LOGAREARS(J)	0.19	0.14	0.15	0.13	0.15	0.15	0.06	0.07	0.05	0.02	0.05	-0.02	0.05
	(2.90)*	(2.24)**	(3.32)*	(2.59)*	(2.97)*	(3.15)*	(1.40)	(1.62)	(0.97)	(0.36)	(0.85)	(-0.40)	(0.85)
12. LOGCORRUPT(J)	-0.45	-0.18	0.52	0.66	0.45	0.06	0.19	0.26	0.3	0.23	0.01	0.28	-0.28
	(-2.24)**	(-1.28)	(2.32)**	(2.50)**	(1.93)***	(0.53)	(1.03)	(1.29)	(1.36)	(1.13)	(0.04)	(1.25)	(-1.28)
13. FINLIBERAL(J)	0.9	0.83	0.43	0.11	0.16	0.3	-0.16	-0.22	-0.38	-0.2	-0.27	-0.37	-0.13
	(4.63)*	(5.14)*	(2.93)*	(0.66)	(1.03)	(2.05)**	(-1.02)	(-1.48)	(-2.40)**	(-1.39)	(-1.93)***	(-2.60)*	(-0.94)
14. IMFPROG(J)	0.46	0.26	0.15	-0.09	0.11	-0.17	0.05	-0.21	-0.28	-0.18	0.22	0.19	0.17
	(3.23)*	(1.86)***	(1.12)	(-0.59)	(0.64)	(-1.21)	(0.35)	(-1.51)	(-1.74)***	(-1.27)	(1.49)	(1.48)	(1.39)
15. DEPINSUR(J)	-0.47	0.22	0.21	0.5	0.26	0.15	-0.07	0.23	0.28	0.14	0.15	0.17	0.2
	(-2.29)**	(1.24)	(1.39)	(2.91)*	(1.70)***	(1.11)	(-0.47)	(1.72)***	(2.15)**	(1.16)	(1.26)	(1.30)	(1.55)
16. BILATERAL(IJ)	-0.27	-0.23	-0.19	-0.11	-0.54	-0.21	-0.63	-0.55	-0.68	-1.24	-0.92	-0.09	-0.42
	(-1.02)	(-0.84)	(-0.74)	(-0.44)	(-1.69)***	(-0.93)	(-2.84)*	(-2.34)**	(-3.08)*	(-5.35)*	(-3.95)*	(-0.40)	(-1.94)***
17. APEC(IJ)				0.63	-0.04	0.48	0.56	0.65	0.53	0.78	0.66	0.82	0.63
				(1.55)	(-0.08)	(1.47)	(1.73)***	(2.21)**	(1.68)***	(2.65)*	(2.25)**	(2.35)**	(2.13)**
18. NAFTA(IJ)							0.98	0.47	0.14	0.25	0.08	0.2	-0.23
							(0.72)	(0.35)	(0.14)	(0.26)	(0.09)	(0.14)	(-0.17)
19. ONSHASIA	-2.33	-1.47	-0.25	0.16	-0.5	-0.33	-0.15	-0.13	0.08	0.14	0.31	0.58	0.05
	(-6.14)*	(-4.43)*	(-0.77)	(0.40)	(-1.43)	(-1.01)	(-0.46)	(-0.43)	(0.25)	(0.45)	(0.92)	(1.71)***	(0.15)
20. ONSHAFRICA	-1.48	-0.86	0.12	0.49	-0.25	0.14	0.09	0	0.5	0.39	0.39	0.48	0.13
	(-4.71)*	(-2.93)*	(0.40)	(1.52)	(-0.82)	(0.50)	(0.30)	(0.00)	(1.73)***	(1.37)	(1.32)	(1.57)	(0.41)
21. ONSHLATIN	-0.25	-0.5	0.70	1.27	0.52	0.63	0.63	0.46	0.88	0.68	0.79	1.00	0.63
	(-0.82)	(-1.70)***	(2.44)**	(4.14)*	(1.68)***	(2.26)**	(2.29)**	(1.70)***	(3.13)*	(2.60)*	(2.88)*	(3.64)*	(2.14)**
22. ONSHEASTEU	-0.49	-0.49	-0.03	0.15	-0.17	0.37	0.36	0.57	0.51	0.63	0.57	0.40	0.25
	(-1.52)	(-1.54)	(-0.11)	(0.48)	(-0.53)	(1.20)	(1.20)	(1.90)***	(1.59)	(2.38)**	(1.98)**	(1.37)	(0.82)
23. OFFSHASIA	1.61	1.66	1.93	2.14	2.3	2.13	2.21	2.15	2.47	2.11	2.16	2.08	1.10
	(3.18)*	(4.11)*	(5.08)*	(5.39)*	(5.80)*	(5.75)*	(5.75)*	(5.70)*	(6.16)*	(5.53)*	(5.47)*	(5.24)*	(2.78)*
24. OFFSHLATIN	1.73	2.33	3.46	4.04	3.49	3.52	3.23	3.11	3.77	3.72	3.29	3.40	2.76
	(3.70)*	(4.72)*	(7.38)*	(8.13)*	(7.12)*	(7.74)*	(6.66)*	(6.60)*	(7.46)*	(7.78)*	(6.60)*	(6.73)*	(5.44)*
25. EU	0.06	0.12	0.5	0.74	0.71	0.97	0.87	0.87	0.73	0.94	0.88	0.78	0.69
	(0.25)	(0.53)	(2.43)**	(3.23)*	(3.17)*	(4.61)*	(4.04)*	(4.05)*	(3.16)*	(4.51)*	(4.08)*	(3.54)*	(3.29)*
26. US	-0.54	-0.44	-0.36	-0.14	-0.51	-0.25	-0.47	-0.53	-0.86	-0.86	-0.8	-0.87	-1.12
	(-1.68)***	(-1.40)	(-1.24)	(-0.47)	(-1.58)	(-0.86)	(-1.58)	(-1.85)***	(-2.80)*	(-3.12)*	(-2.84)*	(-3.00)*	(-3.93)*
27. JAPAN	0.52	0.65	0.74	0.96	0.72	0.77	0.58	0.1	-0.38	-0.7	-0.63	-0.57	-0.56
	(1.65)***	(2.13)**	(2.59)*	(3.15)*	(2.32)**	(2.69)*	(1.94)***	(0.32)	(-1.20)	(-2.43)**	(-2.15)**	(-1.90)***	(-1.91)***
No. of Obs.	479	542	547	545	506	609	629	625	621	665	661	689	679
R² Adj.	0.65	0.62	0.66	0.64	0.67	0.66	0.66	0.69	0.68	0.72	0.71	0.70	0.70

Note: Numbers in parentheses are t-statistics. Signs of *, **, *** are at 99%, 95%, and 90% statistical significance levels, respectively.

Table 5: Regression Results with Regional Dummies

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1. Constant	-0.89	-1.73	-0.73	-1.34	-1.94	-1.62	-4.65	-29.14	-5.54	-0.86	-1.86	-5.49	-1.88
	(-0.51)	(-0.98)	(-0.45)	(-0.79)	(-1.30)*	(-1.00)	(-2.27)**	(-2.01)**	(-1.21)	(-0.55)	(-1.18)	(-3.63)*	(-0.93)
2. LOGGNP(IJ)	0.53	0.52	0.62	0.55	0.59	0.55	0.63	0.55	0.65	0.58	0.62	0.54	0.44
	(8.04)*	(8.18)*)	(10.75)*	(9.41)*	(9.60)*	(9.90)*	(10.86)*	(9.70)*	(10.51)*	(10.88)*	(11.22)*	(9.66)*	(7.53)*
3. LOGGNPPC(IJ)	0.07	0.08	0.29	0.36	0.31	0.19	0.29	0.30	0.35	0.48	0.44	0.45	0.46
	(0.68)	(0.82)	(3.15)*	(3.42)*	(3.34)*	(2.32)*	(3.61)*	(4.02)*	(4.25)*	(5.81)*	(4.98)*	(4.62)*	(4.87)*
4. LOGTRAD(IJ)	0.31	0.33	0.23	0.23	0.29	0.3	0.22	0.27	0.18	0.22	0.20	0.31	0.39
	(5.46)*	(6.03)*	(4.46)*	(4.31)*	(4.78)*	(5.91)*	(4.56)*	(5.63)*	(3.38)*	(4.62)*	(4.04)*	(6.33)*	(7.70)*
5. LOGODA(IJ)	0.09	0.05	0.08	0.07	0.11	0.13	0.13	0.12	0.15	0.19	0.18	0.14	0.15
	(2.49)**	(1.31)	(2.43)**	(1.74)***	(2.97)*	(3.67)*	(3.78)*	(3.43)*	(4.20)*	(5.59)*	(5.13)*	(3.83)*	(4.20)*
6. LOGDIST(IJ)	-0.59	-0.44	-0.58	-0.57	-0.45	-0.26	-0.32	-0.14	-0.47	-0.45	-0.49	-0.11	-0.15
	(-3.18)*	(-2.48)**	(-3.48)*	(-3.06)*	(-2.74)*	(-1.60)	(-2.00)**	(-0.87)	(-2.96)*	(-2.95)*	(-3.17)*	(-0.76)	(-1.00)
7. LANGUAGE(IJ)	0.49	0.62	0.62	0.58	0.47	0.31	0.54	0.38	0.31	0.34	0.36	0.49	0.46
	(2.47)**	(3.39)*	(3.54)*	(3.18)*	(2.60)*	(1.86)***	(3.22)*	(2.29)*	(1.73)***	(2.11)**	(2.26)**	(2.98)*	(2.80)*
8. LOGRATING(J)	0.53	0.14	0.31	0.4	0.22	0.56	0.35	0.33	0.39	0.29	0.82	0.28	0.6
	(2.49)**	(0.63)	(1.67)***	(2.15)**	(1.22)	(2.92)*	(1.66)***	(1.58)	(1.52)	(0.99)	(2.69)*	(1.03)	(2.31)**
9. LOGEXCHVOL(IJ)	0.00	0.00	0	0.00	-0.03	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	-0.01
	(-0.15)	(-0.14)	(0.18)	(-0.31)	(-2.19)**	(-0.90)	(-0.85)	(-1.04)	(-0.60)	(-1.35)	(-0.66)	(-1.70)***	(-0.65)
10. LOGREALINTERD(IJ)	0.40	0.50	-0.06	-0.03	-0.03	-0.32	0.21	2.92	0.37	-0.21	-0.39	-0.04	-0.8
	(3.04)*	(2.80)*	(-1.12)	(-0.46)	(-0.60)	(-3.86)*	(0.72)	(1.69)***	(0.65)	(-3.84)*	(-4.29)*	(-0.37)	(-2.32)**
11. LOGAREARS(J)	0.16	0.12	0.17	0.17	0.15	0.15	0.07	0.08	0.07	0.02	0.05	-0.01	0.04
	(2.33)**	(1.87)***	(3.69)*	(3.16)*	(2.91)*	(3.12)*	(1.58)	(1.94)***	(1.34)	(0.46)	(0.80)	(-0.24)	(0.74)
12. LOGCORRUPT(J)	-0.57	-0.24	0.44	0.57	0.38	0.03	0.11	0.18	0.24	0.15	-0.08	0.20	-0.36
	(-2.81)*	(-1.75)***	(1.95)***	(2.13)**	(1.65)***	(0.23)	(0.61)	(0.93)	(1.13)	(0.72)	(-0.36)	(0.91)	(-1.63)
13. FINLIBERAL.(J)	0.95	0.8	0.49	0.21	0.16	0.28	-0.17	-0.32	-0.37	-0.18	-0.24	-0.29	-0.11
	(4.93)*	(5.01)*	(3.36)*	(1.29)	(1.02)	(2.02)**	(-1.12)	(-2.18)**	(-2.38)*	(-1.29)	(-1.71)***	(-2.05)**	(-0.82)
14. IMFPROG(J)	0.40	0.23	0.15	-0.06	0.08	-0.2	0.04	-0.15	-0.22	-0.21	0.19	0.17	0.13
	(2.82)*	(1.63)	(1.08)	(-0.36)	(0.46)	(-1.44)	(0.29)	(-1.07)	(-1.41)	(-1.47)	(1.34)	(1.34)	(1.08)
15. DEPINSUR(J)	-0.24	0.25	0.29	0.60	0.3	0.19	-0.04	0.29	0.28	0.17	0.18	0.16	0.23
	(-1.18)	(1.43)	(1.87)***	(3.51)*	(1.95)***	(1.40)	(-0.29)	(2.21)**	(2.17)**	(1.43)	(1.47)	(1.27)	(1.79)***
16. BILATERAL(IJ)	-0.45	-0.35	-0.3	-0.24	-0.47	-0.25	-0.63	-0.53	-0.70	-1.18	-0.89	0.00	-0.35
	(-1.58)	(-1.24)	(-1.12)	(-0.91)	(-1.45)	(-1.09)	(-2.78)*	(-2.21)**	(-3.11)*	(-4.78)*	(-3.61)*	(-0.01)	(-1.57)
17. APEC(IJ)				0.48	-0.27	0.18	0.47	0.6	0.47	0.91	0.91	0.95	0.72
				(1.06)	(-0.48)	(0.47)	(1.26)	(1.82)***	(1.28)	(2.57)**	(2.59)*	(2.46)**	(2.12)**
18. NAFTA(IJ)							0.56	-0.28	0.39	-0.07	-0.35	0.59	-0.95
							(0.40)	(-0.20)	(0.37)	(-0.07)	(-0.34)	(0.41)	(-0.67)
19. EUONSHASIA	-1.47	-0.96	-0.11	0.27	-0.05	0.08	0.24	0.43	0.32	0.6	0.67	0.87	0.57
	(-4.90)*	(-3.61)*	(-0.43)	(0.86)	(-0.18)	(0.33)	(0.98)	(1.81)***	(1.25)	(2.41)**	(2.59)*	(3.30)*	(2.23)**
20. EUONSHAFRICA	-0.55	-0.08	0.49	0.69	0.38	0.85	0.69	0.75	0.87	0.84	0.84	0.76	0.59
	(-2.16)**	(-0.34)	(2.12)**	(2.81)*	(1.62)	(3.94)*	(3.20)*	(3.51)*	(3.84)*	(3.94)*	(3.82)*	(3.38)*	(2.66)*
21. EUONSHLATIN	0.02	-0.33	0.55	0.96	0.76	0.78	0.71	0.71	0.97	0.89	0.92	1.02	0.86
	(0.08)	(-1.42)	(2.47)**	(3.98)*	(3.22)*	(3.65)*	(3.41)*	(3.49)*	(4.41)*	(4.44)*	(4.45)*	(4.89)*	(4.14)*
22. EUONSHEASTEU	-0.36	-0.23	-0.01	0.04	0.06	0.86	0.95	1.19	0.75	1.22	1.03	0.79	0.75
	(-0.95)	(-0.62)	(-0.03)	(0.10)	(0.17)	(2.77)*	(3.02)*	(3.73)*	(2.35)*	(4.18)*	(3.46)*	(2.62)*	(2.44)**
23. USONSHASIA	-1.44	-1.15	-0.49	-0.4	-0.57	-0.92	-1.07	-1.23	-1.13	-1.47	-1.31	-1.06	-1.88
	(-2.43)**	(-2.20)**	(-0.94)	(-0.68)	(-1.01)	(-1.86)***	(-2.15)**	(-2.63)*	(-2.27)**	(-3.02)*	(-2.64)*	(-2.11)**	(-3.74)*
24. USONSHAFRICA	-1.21	-0.81	-0.53	-0.32	-1.12	-0.9	-1.05	-1.16	-0.83	-1.19	-1.19	-1.26	-1.38
	(-2.96)*	(-2.01)**	(-1.40)	(-0.79)	(-2.70)*	(-2.25)**	(-2.68)*	(-3.17)*	(-2.12)**	(-3.38)*	(-3.26)*	(-3.48)*	(-3.62)*
25. USONSHLATIN	-0.25	-0.20	0.15	0.62	-0.07	0.28	0.15	0.4	-0.42	0.11	0.26	0.18	-0.03
	(-0.48)	(-0.40)	(0.33)	(1.24)	(-0.12)	(0.60)	(0.30)	(0.84)	(-0.87)	(0.24)	(0.57)	(0.40)	(-0.07)
26. USONSHEASTEU	-0.36	-0.37	-0.45	-0.18	-0.56	-0.52	-1.05	-0.6	-1.28	-1.08	-0.88	-1.16	-1.23
	(-0.50)	(-0.52)	(-0.66)	(-0.26)	(-0.82)	(-0.77)	(-1.53)	(-0.91)	(-1.98)**	(-1.80)***	(-1.43)	(-1.82)***	(-1.95)***
27. JPNONSHASIA	-0.69	0.06	0.67	0.79	0.61	0.61	0.29	0.07	-0.53	-0.92	-1.00	-0.28	-0.44
	(-1.22)	(0.13)	(1.40)	(1.39)	(1.20)	(1.26)	(0.59)	(0.15)	(-1.02)	(-1.78)***	(-1.90)***	(-0.51)	(-0.84)
28. JPNONSHAFRICA	-0.83	-1.01	-0.34	0.01	-0.68	-0.93	-1.17	-1.41	-0.98	-1.2	-1.21	-1.30	-1.22
	(-1.64)	(-2.17)**	(-0.79)	(0.02)	(-1.38)	(-1.99)**	(-2.48)**	(-3.00)*	(-2.02)**	(-2.53)**	(-2.59)*	(-2.68)**	(-2.57)**
29. JPNONSHLATIN	0.48	0.59	0.95	1.47	0.71	0.3	0.57	-0.31	-0.29	-1.13	-0.77	-0.77	-0.78
	(1.03)	(1.30)	(2.25)**	(3.25)*	(1.62)	(0.70)	(1.27)	(-0.74)	(-0.61)	(-2.73)*	(-1.76)***	(-1.72)***	(-1.84)***
30. JPNONSHEASTEU	1.19	1.35	1.39	1.77	1.49	2.14	1.71	1.35	-0.43	-0.15	-0.31	-0.05	0.08
	(1.47)	(1.65)***	(1.80)***	(2.16)**	(1.90)***	(3.17)*	(2.48)**	(2.02)**	(-0.66)	(-0.25)	(-0.54)	(-0.08)	(0.14)
31. EUOFFSHASIA	2.1	2.06	2.11	2.11	2.65	2.42	2.55	2.63	2.7	2.59	2.59	2.42	1.7
	(3.81)*	(5.00)*	(5.43)*	(5.55)*	(6.74)*	(6.55)*	(6.56)*	(6.91)*	(6.62)*	(6.69)*	(6.58)*	(6.07)*	(4.32)*
32. EUOFFSHLATIN	2.01	2.55	3.38	3.89	3.52	3.49	3.19	3.07	3.7	3.79	3.21	3.29	2.8
	(3.89)*	(4.85)*	(6.79)*	(7.31)*	(6.60)*	(7.16)*	(6.22)*	(6.27)*	(6.93)*	(7.54)*	(6.19)*	(6.24)*	(5.38)*
33. JPNOFFSHASIA	2.82	3.16	2.89	2.96	3.58	3.32	3.09	2.85	2.56	1.49	1.2	1.37	0.77
	(2.05)**	(3.15)*	(3.04)*	(2.90)*	(3.74)*	(3.38)*	(3.08)*	(2.96)*	(2.46)**	(1.51)	(1.20)	(1.30)	(0.75)
34. JPNOFFSHLATIN	3.43	3.76	4.66	5.02	4.73	4.51	4.28	3.87	4.32	4.23	4.38	3.91	3.56
	(2.49)**	(2.71)*	(3.54)*	(3.58)*	(3.54)*	(3.43)*	(3.17)*	(2.98)*	(3.09)*	(3.21)*	(3.26)*	(2.79)*	(2.61)*
No. of Obs.	479	542	547	545	506	609	629	625	621	665	661	689	679
R^2 Adj.	0.62	0.61	0.65	0.62	0.65	0.66	0.66	0.70	0.68	0.71	0.71	0.70	0.69

Note: Numbers in parentheses are t-statistics. Signs of *, **, *** are at 99%, 95%, and 90% statistical significance levels, respectively.

Table 6: Regression Results with East Asia Regional Dummies

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1. Constant	-1.08	-1.53	0.09	-0.92	-1.59	-1.08	-3.93	-31.55	-5.83	-0.91	-1.47	-4.53	-1.08
	(-0.58)	(-0.84)	(0.06)	(-0.53)	(-1.06)	(-0.66)	(-1.88)***	(-2.16)**	(-1.27)	(-0.56)	(-0.90)	(-2.91)*	(-0.52)
2. LOGGNP(IJ)	0.51	0.51	0.61	0.54	0.58	0.54	0.61	0.53	0.62	0.56	0.59	0.52	0.41
	(7.60)*	(8.05)*	(10.64)*	(9.24)*	(9.46)*	(9.71)*	(10.62)*	(9.41)*	(10.10)*	(10.29)*	(10.62)*	(9.12)*	(6.99)*
3. LOGGNPPQ(IJ)	0.3	0.23	0.34	0.36	0.34	0.21	0.3	0.29	0.34	0.45	0.42	0.42	0.48
	(3.35)*	(2.71)*	(4.21)*	(4.01)*	(3.95)*	(2.77)*	(4.00)*	(4.22)*	(4.46)*	(5.77)*	(5.02)*	(4.65)*	(5.27)*
4. LOGTRAD(IJ)	0.31	0.32	0.21	0.23	0.25	0.28	0.21	0.26	0.17	0.23	0.19	0.3	0.38
	(5.27)*	(5.79)*	(4.20)*	(4.27)*	(4.60)*	(5.73)*	(4.32)*	(5.22)*	(3.21)*	(4.66)*	(3.96)*	(6.08)*	(7.48)*
5. LOGODA(IJ)	0.08	0.05	0.09	0.07	0.12	0.13	0.13	0.12	0.15	0.18	0.18	0.14	0.16
	(2.12)**	(1.31)	(2.77)*	(1.92)***	(3.11)*	(3.87)*	(3.84)*	(3.45)*	(4.17)*	(5.40)*	(4.98)*	(3.90)*	(4.34)*
6. LOGDIST(IJ)	-0.58	-0.50	-0.67	-0.61	-0.49	-0.32	-0.39	-0.2	-0.51	-0.43	-0.48	-0.13	-0.18
	(-2.99)*	(-2.75)*	(-3.94)*	(-3.19)*	(-2.98)*	(-1.94)***	(-2.39)*	(-1.24)	(-3.16)*	(-2.78)*	(-3.07)*	(-0.90)	(-1.20)
7. LANGUAGE(IJ)	0.61	0.70	0.64	0.56	0.48	0.29	0.51	0.33	0.27	0.28	0.32	0.43	0.4
	(3.05)*	(3.83)*	(3.72)*	(3.14)*	(2.65)*	(1.75)***	(3.10)*	(2.01)**	(1.55)	(1.77)***	(2.02)**	(2.66)*	(2.46)**
8. LOGRATING(J)	0.31	-0.04	0.24	0.39	0.19	0.5	0.3	0.33	0.42	0.38	0.84	0.2	0.46
	(1.38)	(-0.20)	(1.31)	(2.14)**	(1.05)	(2.60)*	(1.44)	(1.60)	(1.61)	(1.31)	(2.74)*	(0.74)	(1.68)***
9. LOGEXCHVOL(IJ)	0	0	0	0	-0.03	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	0
	(0.23)	(-0.10)	(0.32)	(-0.19)	(-2.10)**	(-0.71)	(-0.71)	(-1.01)	(-0.55)	(-1.41)	(-0.62)	(-1.45)	(-0.35)
10. LOGREALINTERD(IJ)	0.42	0.55	-0.07	-0.02	-0.03	-0.29	0.24	3.3	0.48	-0.22	-0.4	-0.03	-0.75
	(3.12)*	(3.07)*	(-1.30)	(-0.37)	(-0.53)	(-3.55)*	(0.83)	(1.89)***	(0.85)	(-3.90)*	(-4.35)*	(-0.33)	(-2.16)**
11. LOGAREARS(J)	0.16	0.11	0.17	0.16	0.15	0.13	0.06	0.07	0.06	0.02	0.03	-0.03	0.03
	(2.25)**	(1.75)***	(3.55)*	(3.08)*	(2.88)*	(2.80)*	(1.31)	(1.73)***	(1.20)	(0.46)	(0.57)	(-0.60)	(0.46)
12. LOGCORRUPT(J)	-0.65	-0.26	0.48	0.58	0.4	0.06	0.11	0.18	0.23	0.11	-0.15	0.15	-0.41
	(-3.16)*	(-1.82)***	(2.14)**	(2.22)**	(1.72)***	(0.54)	(0.59)	(0.92)	(1.08)	(0.54)	(-0.69)	(0.69)	(-1.85)***
13. FINLIBERAL(J)	0.84	0.76	0.47	0.19	0.13	0.24	-0.14	-0.27	-0.33	-0.14	-0.19	-0.21	-0.03
	(4.19)*	(4.68)*	(3.27)*	(1.16)	(0.84)	(1.67)***	(-0.94)	(-1.88)***	(-2.12)**	(-1.01)	(-1.36)	(-1.48)	(-0.24)
14. IMFPROG(J)	0.46	0.22	0.16	-0.04	0.09	-0.17	0.05	-0.13	-0.23	-0.18	0.2	0.12	0.07
	(2.99)*	(1.47)	(1.16)	(-0.26)	(0.57)	(-1.24)	(0.36)	(-0.92)	(-1.47)	(-1.21)	(1.39)	(0.91)	(0.57)
15. DEPINSUR(J)	-0.13	0.22	0.32	0.62	0.32	0.22	-0.01	0.32	0.31	0.18	0.19	0.2	0.25
	(-0.58)	(1.26)	(2.04)**	(3.66)*	(2.10)**	(1.60)	(-0.10)	(2.42)**	(2.31)**	(1.50)	(1.57)	(1.54)	(1.98)**
16. BILATERAL(IJ)	-0.43	-0.39	-0.34	-0.26	-0.47	-0.28	-0.66	-0.53	-0.69	-1.15	-0.85	0.04	-0.33
	(-1.46)	(-1.36)	(-1.26)	(-0.99)	(-1.43)	(-1.20)	(-2.90)*	(-2.19)**	(-3.04)*	(-4.60)*	(-3.40)*	(0.15)	(-1.45)
17. APEC(IJ)				0.44	-0.29	0.15	0.43	0.37	0.07	0.4	0.5	0.92	0.58
				(0.84)	(-0.52)	(0.33)	(0.95)	(1.04)	(0.19)	(1.06)	(1.35)	(2.33)**	(1.64)
18. NAFTA(IJ)							0.57	-0.01	0.81	0.4	0.07	0.61	-0.8
							(0.41)	(-0.01)	(0.75)	(0.39)	(0.06)	(0.43)	(-0.56)
19. EUONSHEASTASIA	-0.53	-0.3	0.31	0.47	0.2	0.35	0.5	0.62	0.42	0.55	0.73	1.05	0.9
	(-1.54)	(-1.10)	(1.24)	(1.61)	(0.77)	(1.42)	(2.02)**	(2.62)*	(1.67)***	(2.17)**	(2.82)*	(3.92)*	(3.31)*
20. EUONSHAFRICA	-0.05	0.27	0.57	0.65	0.43	0.88	0.69	0.7	0.83	0.75	0.75	0.62	0.57
	(-0.20)	(-1.23)	(2.80)*	(3.08)*	(2.05)**	(4.52)*	(3.59)*	(3.62)*	(4.11)*	(3.91)*	(3.84)*	(3.16)*	(2.89)*
21. EUONSHLATIN	0.36	-0.03	0.65	0.95	0.82	0.84	0.74	0.69	0.97	0.83	0.86	0.93	0.84
	(1.43)	(-0.15)	(3.19)*	(4.33)*	(3.78)*	(4.27)*	(3.91)*	(3.78)*	(4.82)*	(4.50)*	(4.59)*	(5.01)*	(4.47)*
22. EUONSHEASTEU	-0.01	-0.03	-0.01	-0.01	0.09	0.83	0.92	1.1	0.69	1.17	0.98	0.70	0.73
	(-0.03)	(-0.09)	(-0.04)	(-0.04)	(0.26)	(2.71)*	(2.96)*	(3.48)*	(2.20)**	(4.01)*	(3.31)*	(2.37)**	(2.41)**
23. USONSHEASTASIA	-0.66	-0.61	-0.01	-0.19	0.04	-0.41	-0.5	-0.35	0.23	-0.38	-0.27	-0.38	-1.16
	(-0.94)	(-0.97)	(-0.02)	(-0.26)	(0.06)	(-0.61)	(-0.74)	(-0.56)	(0.34)	(-0.59)	(-0.41)	(-0.61)	(-1.78)***
24. USONSHAFRICA	-0.77	-0.48	-0.4	-0.32	-1.03	-0.81	-0.95	-1.09	-0.75	-1.21	-1.19	-1.29	-1.29
	(-1.91)***	(-1.20)	(-1.09)	(-0.81)	(-2.57)**	(-2.11)**	(-2.53)*	(-3.08)*	(-2.00)**	(-3.52)*	(-3.41)*	(-3.72)*	(-3.49)*
25. USONSHLATIN	0.12	0.04	0.21	0.61	0.01	0.33	0.2	0.44	-0.34	0.13	0.30	0.19	0.04
	(0.23)	(0.08)	(0.45)	(1.24)	(0.03)	(0.73)	(0.41)	(0.95)	(-0.72)	(0.28)	(0.65)	(0.43)	(0.08)
26. USONSHEASTEU	-0.04	-0.14	-0.34	-0.16	-0.46	-0.44	-0.95	-0.53	-1.19	-1.06	-0.84	-1.1	-1.09
	(-0.06)	(-0.19)	(-0.50)	(-0.22)	(-0.68)	(-0.66)	(-1.39)	(-0.80)	(-1.85)***	(-1.76)***	(-1.36)	(-1.72)***	(-1.73)***
27. JPNONSHEASTASIA	0.18	0.71	0.77	0.87	1.00	0.81	0.47	0.52	-0.01	-0.2	-0.35	-0.1	-0.04
	(0.25)	(1.19)	(1.31)	(1.10)	(1.57)	(1.17)	(0.68)	(0.84)	(-0.02)	(-0.32)	(-0.54)	(-0.15)	(-0.06)
28. JPNONSHAFRICA	-0.34	-0.64	-0.19	0.01	-0.58	-0.84	-1.09	-1.36	-0.91	-1.23	-1.23	-1.36	-1.17
	(-0.68)	(-1.38)	(-0.46)	(0.02)	(-1.21)	(-1.87)***	(-2.37)**	(-2.94)*	(-1.92)***	(-2.61)*	(-2.70)*	(-2.87)*	(-2.53)**
29. JPNONSHLATIN	0.8	0.89	1.08	1.49	0.81	0.39	0.68	-0.22	-0.17	-1.07	-0.70	-0.76	-0.72
	(1.67)***	(1.95)***	(2.60)*	(3.34)*	(1.88)***	(0.96)	(1.53)	(-0.54)	(-0.35)	(-2.62)*	(-1.62)	(-1.70)***	(-1.73)***
30. JPNONSHEASTEU	1.54	1.62	1.52	1.8	1.6	2.22	1.81	1.41	-0.35	-0.12	-0.28	-0.01	0.19
	(1.86)***	(1.97)**	(1.97)**	(2.20)**	(2.05)**	(3.33)*	(2.64)*	(2.12)**	(-0.54)	(-0.20)	(-0.48)	(-0.02)	(0.32)
31. EUOFFSHASIA	2.5	2.33	2.26	2.35	2.77	2.55	2.67	2.71	2.74	2.54	2.61	2.52	1.8
	(4.42)*	(5.65)*	(5.84)*	(5.71)*	(7.05)*	(6.81)*	(6.81)*	(7.03)*	(6.67)*	(6.48)*	(6.56)*	(6.28)*	(4.57)*
32. EUOFFSHLATIN	2.2	2.78	3.51	3.89	3.57	3.57	3.22	3.08	3.72	3.70	3.10	3.24	2.83
	(4.15)*	(5.23)*	(7.14)*	(7.42)*	(6.73)*	(7.24)*	(6.32)*	(6.31)*	(6.97)*	(7.38)*	(6.04)*	(6.17)*	(5.46)*
33. JPNOFFSHASIA	3.23	3.35	2.94	3.01	3.69	3.43	3.23	3.18	3.04	2.03	1.71	1.56	1.02
	(2.30)**	(3.30)*	(3.09)*	(2.92)*	(3.86)*	(3.36)*	(3.11)*	(3.25)*	(2.87)*	(2.02)**	(1.68)***	(1.47)	(0.99)
34. JPNOFFSHLATIN	3.59	3.99	4.85	5.05	4.84	4.6	4.4	4.02	4.46	4.2	4.35	3.96	3.65
	(2.55)**	(2.83)*	(3.68)*	(3.61)*	(3.63)*	(3.50)*	(3.26)*	(3.09)*	(3.18)*	(3.16)*	(3.22)*	(2.82)*	(2.66)*
No. of Obs.	479	542	547	545	506	609	629	625	621	665	661	689	679
R² Adj	0.60	0.60	0.65	0.62	0.65	0.66	0.66	0.70	0.67	0.71	0.70	0.69	0.69

Note: Numbers in parentheses are t-statistics. Signs of *, **, *** are at 99%, 95%, and 90% statistical significance levels, respectively.

Table 7: Basic Gravity Model with Lagged FDI

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1. Constant	-3.14	-4.93	-4.86	-7.46	-7.14	-5.10	-4.54	-6.38	-4.52	-4.85
	(-1.90)***	(-3.24)*	(-3.13)*	(-4.71)*	(-3.36)*	(-4.04)*	(-3.72)*	(-5.75)*	(-4.14)*	(-4.48)*
2. LOGGNP(IJ)	0.65	0.61	0.56	0.62	0.54	0.62	0.61	0.63	0.57	0.37
	(6.16)*	(6.42)*	(6.10)*	(8.03)*	(6.54)*	(6.93)*	(7.57)*	(8.56)*	(7.66)*	(5.23)*
3. LOGGNPPC(IJ)	0.13	0.13	0.19	0.19	0.10	0.18	0.12	0.15	0.11	0.11
	(0.87)	(0.97)	(1.60)	(2.00)**	(1.02)	(1.71)***	(1.08)*	(1.44)	(1.03)	(0.98)
4. LOGTRAD(IJ)	0.23	0.17	0.30	0.12	0.23	0.20	0.17	0.12	0.23	0.30
	(1.85)***	(1.55)	(2.91)*	(1.62)	(3.18)*	(2.73)*	(2.56)**	(1.99)**	(4.11)*	(4.96)*
5. LOGFDI(IJ)	0.25	0.18	0.06	0.47	0.50	0.13	0.10	0.29	0.02	0.14
	(2.32)**	(1.71)***	(0.44)	(2.73)*	(2.05)**	(2.21)**	(2.04)**	(3.64)*	(0.33)	(2.86)*
6. LOGODA(IJ)	0.02	0.06	0.06	0.07	0.06	0.06	0.10	0.14	0.11	0.14
	(0.42)	(1.16)	(1.43)	(1.75)***	(1.57)	(1.28)	(2.56)**	(3.77)*	(2.81)*	(3.70)*
7. LOGDIST(IJ)	-0.40	-0.41	-0.38	-0.35	-0.39	-0.16	-0.35	-0.31	-0.25	-0.13
	(-2.36)**	(-2.63)*	(-2.46)**	(-2.84)*	(-2.85)*	(-1.19)	(-2.90)*	(-2.83)*	(-2.28)**	(-1.24)
8. LANGUAGE(IJ)	0.06	0.08	0.12	0.15	-0.04	-0.31	-0.19	-0.33	-0.27	-0.32
	(0.26)	(0.34)	(0.53)	(0.73)	(-0.16)	(-1.27)	(-0.89)	(-1.63)	(-1.37)	(-1.71)***
9. LOGRATING(IJ)	0.17	0.70	0.79	0.73	0.88	0.40	0.86	0.88	0.83	1.01
	(0.59)	(2.61)*	(3.05)*	(3.16)*	(3.72)*	(1.48)	(3.30)*	(3.72)*	(3.52)*	(3.88)*
10. ONSHASIA	0.81	1.00	0.53	0.40	0.02	0.41	0.31	0.66	0.66	0.27
	(1.81)***	(2.35)**	(1.33)	(1.14)	(0.06)	(1.21)	(0.96)	(2.03)**	(2.09)**	(0.85)
11. ONSHAFRICA	0.72	1.12	0.62	0.18	-0.18	0.44	0.02	0.13	0.02	-0.26
	(1.68)***	(2.65)*	(1.54)	(0.51)	(-0.50)	(1.30)	(0.06)	(0.41)	(0.06)	(-0.88)
12. ONSHLATIN	1.98	2.34	1.81	1.39	0.92	1.12	0.88	0.99	1.02	0.60
	(5.13)*	(6.04)*	(4.88)*	(4.28)*	(2.82)*	(3.44)*	(2.99)*	(3.34)*	(3.65)*	(2.14)**
13. ONSHEASTEU	0.99	1.12	0.68	0.66	-0.08	0.39	-0.14	0.20	0.23	-0.25
	(2.05)**	(2.42)**	(1.65)	(1.85)***	(-0.22)	(1.15)	(-0.43)	(0.66)	(0.77)	(-0.87)
14. OFFSHASIA	2.76	2.96	2.26	2.25	1.66	2.35	2.24	2.25	2.20	1.35
	(5.54)*	(6.17)*	(5.16)*	(5.85)*	(4.00*)	(5.49)*	(5.81)*	(6.00)*	(6.01)*	(3.75)*
15. OFFSHLATIN	3.35	4.43	4.16	3.68	2.98	3.20	3.08	3.16	3.47	2.46
	(4.35)*	(6.52)*	(6.15)*	(6.51)*	(4.56)*	(4.74)*	(5.02)*	(5.40)*	(6.34)*	(4.52)*
16. EU	0.50	1.05	0.92	0.92	0.96	0.95	0.97	0.62	0.64	0.62
	(1.45)	(3.23)*	(3.03)*	(3.65)*	(3.60)*	(3.14)*	(3.66)*	(2.49)**	(2.67)*	(2.67)*
17. US	-1.06	-0.53	-0.61	-0.54	-0.52	-0.92	-0.50	-0.91	-0.99	-1.16
	(-2.78)*	(-1.50)	(-1.84)***	(-1.88)***	(-1.66)***	(-2.70)*	(-1.71)***	(-3.24)*	(-3.74)*	(-4.44)*
18. JAPAN	0.61	1.25	1.08	1.05	0.51	0.21	0.28	-0.24	-0.16	-0.21
	(1.47)	(3.15)*	(2.88)*	(3.29)*	(1.53)	(0.53)	(0.78)	(-0.72)	(-0.48)	(-0.67)
No. of Obs.	157	158	186	193	220	240	239	247	251	250
R^2	0.75	0.78	0.77	0.81	0.76	0.74	0.78	0.81	0.79	0.79

Note: Numbers in parentheses are t-statistics. Signs of *, **, *** are at 99%, 95%, and 90% statistical significance levels, respectively.

Table 8: Augmented Gravity Model with Lagged FDI

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1. Constant	-2.10	-5.65	30.42	-0.97	22.38	6.41	-483.4	-3.28	-6.00	-3.75
	(-1.03)	(-2.64)*	(1.18)	(-0.42)	(1.48)	(1.14)	(-1.15)	(-1.44)	(-3.41)*	(-1.58)
2. LOGGNP(IJ)	0.67	0.57	0.53	0.48	0.40	0.75	0.60	0.66	0.60	0.37
	(5.98)*	(5.86)*	(6.18)*	(5.93)*	(4.74)*	(6.71)*	(6.86)*	(8.13)*	(7.59)*	(4.85)*
3. LOGGNPPC(IJ)	0.29	0.21	-0.07	0.13	0.10	0.21	0.21	0.21	-0.02	0.03
	(1.26)	(1.35)	(-0.58)	(1.30)	(0.95)	(1.55)	(1.68)***	(1.77)***	(-0.17)	(0.21)
4. LOGTRAD(IJ)	0.16	0.24	0.26	0.19	0.29	0.11	0.22	0.13	0.24	0.29
	(1.33)	(2.29)**	(2.75)*	(2.40)**	(4.16)*	(1.40)	(3.15)*	(2.23)**	(4.2)*	(4.56)*
5. LOGFDI(IJ)	0.16	0.03	-0.01	0.20	0.54	0.11	0.07	0.27	-0.01	0.11
	(1.22)	(0.26)	(-0.06)	(1.10)	(2.20)**	(1.66)***	(1.30)	(3.16)*	(-0.22)	(2.21)**
6. LOGODA(IJ)	-0.04	0.12	0.04	0.08	0.09	0.05	0.09	0.11	0.07	0.08
	(-0.71)	(2.26)**	(1.12)	(2.05)**	(2.01)**	(1.00)	(2.17)**	(2.71)*	(1.63)	(2.00)**
7. LOGDIST(IJ)	-0.58	-0.49	-0.38	-0.41	-0.31	-0.29	-0.52	-0.54	-0.25	-0.20
	(-3.36)*	(-3.03)*	(-2.64)*	(-3.19)*	(-2.29)**	(-1.69)***	(-3.20)*	(-3.6)*	(-1.96)***	(-1.66)***
8. LANGUAGE(IJ)	-0.08	0.02	-0.02	0.25	-0.07	-0.39	-0.34	-0.27	-0.32	-0.30
	(-0.31)	(0.07)	(-0.11)	(1.04)	(-0.30)	(-1.38)	(-1.42)	(-1.22)	(-1.54)	(-1.45)
9. LOGRATING(IJ)	-0.21	0.98	1.29	1.38	0.81	0.53	-0.21	0.53	1.38	1.79
	(-0.56)	(2.11)**	(3.32)*	(4.29)*	(2.70)*	(1.07)	(-0.43)	(0.96)	(3.46)*	(5.05)*
10. LOGEXCHVOL(IJ)	0.01	-0.02	0.01	0.02	0.02	0.03	0.02	0.01	0.02	0.02
	(0.34)	(-1.35)	(0.88)	(1.12)	(1.59)	(1.64)	(1.62)	(1.04)	(1.48)	(1.67)***
11. LOGREALINTERD(IJ)	0.03	0.03	-4.32	-0.67	-3.38	-1.62	51.82	0.02	-0.07	-0.64
	(0.29)	(0.43)	(-1.34)	(-1.95)***	(-1.80)***	(-2.24)**	(1.15)	(0.12)	(-0.68)	(-1.43)
12. LOGAREARS(J)	0.01	0.06	0.07	0.10	0.05	0.16	-0.08	0.01	0.01	0.04
	(0.15)	(1.50)	(1.97)***	(2.88)*	(1.63)	(2.88)*	(-1.93)***	(0.26)	(0.34)	(1.44)
13. LOGCORRUPT(J)	0.64	0.32	-0.14	-0.60	0.29	-0.14	-0.38	-0.22	0.65	0.26
	(1.14)	(0.74)	(-1.00)	(-1.81)***	(0.86)	(-0.30)	(-1.01)	(-0.58)	(2.01)**	(0.84)
14. FINLIBERAL(J)	0.26	0.39	0.96	0.19	-0.13	0.69	0	-0.12	-0.58	-0.56
	(0.76)	(1.44)	(3.96)*	(0.70)	(-0.46)	(2.04)**	(0)	(-0.58)	(-2.95)*	(-2.79)*
15. IMFPROG(J)	0.6	1.06	0.34	0.57	0.25	-0.03	-0.67	0.07	0.39	0.30
	(2.50)**	(3.86)*	(1.60)	(3.02)*	(1.33)	(-0.12)	(-2.68)*	(0.30)	(2.38)**	(2.10)**
16. DEPINSUR(J)	0.46	0.01	-0.23	-0.46	-0.33	-0.06	0.14	-0.20	-0.03	0.13
	(1.48)	(0.06)	(-1.27)	(-2.28)**	(-1.66)***	(-0.27)	(0.71)	(-1.12)	(-0.19)	(0.84)
17. BILATERAL(IJ)	0.39	0.44	-0.74	-0.97	-1.31	-0.50	-0.62	-0.90	0.12	0.14
	(0.66)	(0.78)	(-1.61)	(-2.79)*	(-3.88)	(-1.44)	(-1.44)	(-2.28)**	(0.44)	(0.60)
18. APEC(IJ)	0.34	-0.31	0.03	0.31	0.22	0.30	0.28	0.15	0.09	-0.30
	(0.96)	(-0.59)	(0.13)	(1.16)	(0.84)	(0.89)	(0.89)	(0.54)	(0.25)	(-1.19)
19. NAFTA(IJ)				0.29	0.55	0.66	0.34	0.00	0.47	0.56
				(0.32)	(0.63)	(0.80)	(0.44)	(0.00)	(0.52)	(0.64)
20. ONSHASIA	1.66	0.55	-0.71	-0.72	-0.69	0.53	0.82	0.72	0.42	0.19
	(2.00)**	(0.78)	(-1.28)	(-1.36)	(-1.28)	(0.83)	(1.32)	(1.22)	(0.92)	(0.43)
21. ONSHAFRICA	1.23	0.49	-0.38	-0.91	-1.20	0.50	0.62	0.32	0.29	0.12
	(1.64)	(0.71)	(-0.74)	(-1.82***)	(-2.32)**	(0.86)	(1.19)	(0.65)	(0.69)	(0.28)
22. ONSHLATIN	1.94	1.35	0.77	0.62	0.29	0.67	1.21	0.93	1.17	0.89
	(2.92)*	(1.92)***	(1.42)	(1.23)	(0.56)	(1.12)	(2.06)**	(1.60)	(2.82)*	(2.04)**
23. ONSHEASTEU	1.57	0.90	-0.28	-0.22	-0.27	0.77	0.63	0.82	0.01	-0.34
	(2.38)**	(1.35)	(-0.50)	(-0.47)	(-0.56)	(1.24)	(1.29)	(1.65)	(0.02)	(-0.83)
24. OFFSHASIA	3.41	2.70	1.44	1.19	0.70	2.36	2.78	2.19	2.19	1.56
	(5.00)*	(4.11)*	(2.60)**	(2.18)**	(1.26)	(3.66)*	(4.58)*	(3.86)*	(4.94)*	(3.53)*
25. OFFSHLATIN	5.04	5.39	3.96	2.11	1.77	3.39	4.44	3.26	3.47	2.44
	(5.06)*	(6.16)*	(5.73)*	(3.01)*	(2.33)**	(3.40)*	(5.02)*	(4.06)*	(5.01)*	(3.65)*
26. EU	0.55	0.74	0.8	0.95	0.93	1.11	1.20	0.82	0.73	0.49
	(1.58)	(2.58)**	(3.02)*	(3.57)*	(3.59)*	(3.32)*	(3.85)*	(2.83)*	(2.43)**	(1.92)***
27. US	-0.21	-0.42	-0.33	-0.47	-0.52	-0.78	-0.52	-1.12	-0.79	-0.85
	(-0.53)	(-1.20)	(-1.06)	(-1.51)	(-1.68)***	(-2.07)**	(-1.63)	(-3.67)*	(-2.48)**	(-3.18)*
28. JAPAN	0.92	1.06	1.32	1.12	0.42	-0.07	0.03	-0.38	-0.02	0.09
	(2.34)**	(2.92)*	(4.16)*	(3.56)*	(1.41)	(-0.16)	(0.08)	(-1.04)	(-0.05)	(0.26)
No. of Obs.	115	108	152	160	174	189	195	197	203	201
R^2	0.82	0.83	0.82	0.82	0.82	0.73	0.80	0.82	0.81	0.79

Note: Numbers in parentheses are t-statistics. Signs of *, **, *** are at 99%, 95%, and 90% statistical significance levels, respectively.

Table 9: Regression Results with Lagged FDI and Bilateral Regional Dummies

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1. Constant	4.09	2.68	45.15	0.76	19.77	9.45	30.96	-1.17	-8.03	-4.25
	(1.45)	(0.94)	(1.51)	(0.25)	(1.26)	(1.61)	(0.07)	(-0.44)	(-3.68)*	(-1.64)
2. LOGGNP(IJ)	0.63	0.54	0.52	0.45	0.42	0.84	0.64	0.69	0.57	0.39
	(4.73)*	(4.69)*	(5.03)*	(4.94)*	(4.62)*	(7.27)*	(7.00)*	(8.23)*	(7.06)*	(4.98)*
3. LOGGNPPC(IJ)	0.06	0.19	0.16	0.3	0.23	0.28	0.28	0.24	0.09	0.17
	(0.29)	(1.16)	(1.30)	(3.09)*	(2.38)**	(2.35)**	(2.40)**	(2.20)**	(0.67)	(1.38)
4. LOGTRAD(IJ)	0.11	0.14	0.17	0.17	0.25	0.04	0.13	0.06	0.16	0.18
	(0.79)	(1.16)	(1.58)	(1.97)***	(3.28)*	(0.53)	(1.77)***	(0.90)	(2.70)*	(2.67)*
5. LOGFDI(IJ)	0.26	0.3	0.15	0.22	0.55	0.13	0.09	0.28	0.08	0.15
	(1.85)***	(2.43)**	(1.11)	(1.01)	(2.09)**	(1.89)***	(1.78)***	(3.20)*	(1.22)	(3.1)*
6. LOGODA(IJ)	-0.07	0.01	0.06	0.1	0.09	0.02	0.09	0.12	0.05	0.10
	(-1.09)	(0.18)	(1.20)	(2.25)**	(2.00)**	(0.40)	(2.11)**	(2.75)*	(1.25)	(2.39)**
7. LOGDIST(IJ)	-1.03	-1.08	-0.91	-0.59	-0.32	-0.30	-0.42	-0.60	0.00	-0.09
	(-3.65)*	(-3.96)*	(-3.92)*	(-2.74)*	(-1.60)	(-1.29)	(-1.94)***	(-3.12)*	(0.02)	(-0.54)
8. LANGUAGE(IJ)	0.25	0.13	0.08	0.3	0.03	-0.22	0	-0.06	-0.04	-0.10
	(0.87)	(0.44)	(0.34)	(1.22)	(0.13)	(-0.78)	(0)	(-0.29)	(-0.18)	(-0.46)
9. LOGRATING(J)	-0.08	0.39	0.33	1.07	0.54	0.59	0.25	0.55	1.43	1.36
	(-0.21)	(0.79)	(0.77)	(3.15)*	(1.77)***	(1.31)	(0.52)	(1.00)	(3.44)*	(3.68)*
10. LOGEXCHVOL(IJ)	0.02	-0.02	0.02	0.02	0.02	0.03	0.02	0.01	0.01	0.01
	(0.89)	(-0.85)	(1.22)	(1.24)	(1.73)***	(1.82)***	(1.30)	(0.76)	(0.63)	(1.29)
11. LOGREALINTERD(IJ)	0.05	0.05	-5.24	-0.54	-2.99	-1.97	-3.38	-0.08	-0.03	-0.37
	(0.43)	(0.60)	(-1.41)	(-1.45)	(-1.54)	(-2.69)*	(-0.07)	(-0.40)	(-0.29)	(-0.83)
12. LOGAREARS(J)	0.02	0.06	0.04	0.1	0.08	0.22	-0.02	0.03	0.04	0.04
	(0.45)	(1.43)	(0.94)	(2.90)*	(2.46)**	(4.11)*	(-0.54)	(0.83)	(1.26)	(1.59)
13. LOGCORRUPT(J)	0.45	0.09	-0.03	-0.41	0.12	-0.59	-1.10	-0.68	0.20	-0.17
	(0.82)	(0.19)	(-0.18)	(-1.13)	(0.36)	(-1.31)	(-2.96)*	(-1.83)***	(0.60)	(-0.56)
14. FINLIBERAL(J)	0.75	0.46	0.85	0.05	-0.34	0.74	0.09	-0.04	-0.47	-0.35
	(2.21)**	(1.48)	(3.33)*	(0.19)	(-1.20)	(2.24)**	(0.36)	(-0.21)	(-2.28)**	(-1.73)***
15. IMFPROG(J)	0.43	0.67	-0.1	0.5	0.17	0.09	-0.38	0.12	0.38	0.21
	(1.60)	(2.23)**	(-0.41)	(2.47)**	(0.87)	(0.34)	(-1.59)	(0.54)	(2.33)**	(1.42)
16. DEPINSUR(J)	0.3	0.05	-0.07	-0.34	-0.11	-0.23	0.02	-0.12	-0.01	0.22
	(0.95)	(0.21)	(-0.35)	(-1.62)	(-0.55)	(-1.02)	(0.12)	(-0.70)	(-0.09)	(1.37)
17. BILATERAL(IJ)	-1.4	0.56	-1.82	-1.29	-1.19	-0.67	-0.88	-1.15	0.20	0.05
	(-1.94)***	(0.87)	(-3.00)*	(-3.33)*	(-3.52)*	(-1.95)***	(-2.01)**	(-2.91)*	(0.66)	(0.19)
18. APEC(IJ)	0.67	-0.84	0.03	0.06	0.25	0.43	0.91	0.77	0.47	0.31
	(1.66)	(-1.48)	(0.08)	(0.17)	(0.82)	(1.11)	(2.40)**	(2.26)**	(1.37)	(1.05)
19. NAFTA(IJ)				0.32	0.62	0.66	-0.17	-0.65	1.10	-0.08
				(0.32)	(0.66)	(0.78)	(-0.21)	(-0.90)	(1.15)	(-0.09)
20. EUONSHASIA	0.27	0.47	0.18	0.2	0.58	1.02	1.24	1.08	0.88	0.88
	(0.52)	(1.21)	(0.50)	(0.61)	(1.89)***	(2.72)*	(3.31)*	(3.16)*	(2.61)*	(2.80)*
21. EUONSHAFRICA	0.9	-0.24	0.53	0.19	-0.05	1.07	1.32	0.85	0.90	0.66
	(0.94)	(-0.38)	(0.82)	(0.35)	(-0.09)	(2.41)**	(3.35)*	(2.42)**	(2.57)**	(1.94)***
22. EUONSHLATIN	0.42	0.89	0.78	0.91	0.99	0.74	1.09	0.74	1.13	0.79
	(0.99)	(2.23)**	(2.27)**	(2.87)*	(3.37)*	(2.01)**	(3.24)*	(2.39)**	(3.81)*	(2.89)*
23. EUONSHEASTEU	-0.87	-0.97	-1.1	0.13	0.66	1.38	1.85	1.20	1.03	0.50
	(-1.21)	(-1.53)	(-1.96)***	(0.28)	(1.41)	(2.53)**	(3.73)*	(2.73)*	(2.4)**	(1.24)
24. USONSHASIA	-0.63	-0.26	-0.77	-0.76	-0.94	-1.06	-1.51	-1.58	-1.18	-1.36
	(-1.11)	(-0.51)	(-1.84)***	(-1.98)**	(-2.53)**	(-2.29)**	(-3.49)*	(-4.04)*	(-2.94)*	(-3.71)*
25. USONSHAFRICA	-0.69	-1.21	-1.26	-1.85	-1.78	-1.23	-1.12	-1.85	-1.21	-1.31
	(-1.31)	(-2.64)*	(-3.22)*	(-4.93)*	(-4.73)*	(-2.86)*	(-2.86)*	(-5.00)*	(-3.49)*	(-3.84)*
26. USONSHLATIN	-0.35	-0.73	-0.71	-0.4	-0.25	-1.19	0.01	-0.52	0.35	-0.01
	(-0.68)	(-1.37)	(-1.50)	(-0.94)	(-0.62)	(-2.51)**	(0.02)	(-1.26)	(0.91)	(-0.04)
27. USONSHEASTEU	0.11	0.23	-1.23	-1.49	-0.98	-1.16	-0.49	-0.9	-1.27	-1.31
	(0.14)	(0.33)	(-2.35)**	(-2.97)*	(-1.98)**	(-2.06)**	(-0.95)	(-1.89)***	(-2.77)*	(-2.98)*
28. JPNONSHASIA	0.22	0.23	-0.2	-0.01	-0.29	-0.48	-0.64	-0.90	0.16	0.11
	(0.32)	(0.42)	(-0.42)	(-0.03)	(-0.71)	(-0.95)	(-1.15)	(-1.78)***	(0.33)	(0.24)
29. JPNONSHAFRICA	-1.41				-1.58	-2.83				
	(-1.25)				(-1.72)***	(-2.50)**				
30. JPNONSHLATIN	1.29	1.54	1.08	0.98	0.14	-0.82	-0.54	-0.78	-0.29	-0.20
	(2.29)**	(2.76)*	(2.10)**	(2.01)**	(0.32)	(-1.16)	(-0.93)	(-1.47)	(-0.56)	(-0.4)
31. JPNONSHEASTEU	1.73	2.01	1.19	1.22	1.05	0.8	1.16	0.85	0.21	-0.08
	(2.36)**	(2.97)*	(1.74)***	(1.89)***	(1.65)	(0.99)	(1.16)	(0.93)	(0.23)	(-0.10)
32. EUOFFSHASIA	2.47	2.46	1.78	1.69	1.83	2.47	2.93	2.54	2.28	2.13
	(4.59)*	(5.45)*	(3.75)*	(3.54)*	(4.02)*	(4.82)*	(6.02)*	(5.81)*	(5.71)*	(5.51)*
33. EUOFFSHLATIN		4.38	3.79	2.85	2.51	2.61	3.76	3.13	3.17	2.62
		(4.48)*	(4.02)*	(3.17)*	(2.82)*	(2.29)**	(3.61)*	(3.37)*	(3.44)*	(3.03)*
34. JPNOFFSHASIA	2.43	2.77	2.51	2.58	2.14	2.48	1.86	1.24	2.11	1.34
	(2.96)*	(3.85)*	(3.38)*	(3.71)*	(3.14)*	(2.98)*	(2.34)**	(1.73)***	(2.88)*	(1.99)**
35. JPNOFFSHLATIN	4.53	4.18	3.98	2.71	1.74	2.66	3.72	2.87	3.60	2.71
	(3.74)*	(3.68)*	(3.61)*	(2.54)**	(1.69)***	(2.2)*	(3.41)*	(2.88)*	(3.78)*	(2.96)*
No. of Obs.	115	108	152	160	174	189	195	197	203	201
R^2	0.78	0.78	0.76	0.80	0.80	0.73	0.79	0.81	0.80	0.79

Note: Numbers in parentheses are t-statistics. Signs of *, **, *** are at 99%, 95%, and 90% statistical significance levels, respectively.

Table 10: Regression with Lagged FDI and East Asia Regional Dummies

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1. Constant	5.12	3.60	40.58	1.08	14.43	7.64	-79.12	-2.06	-7.02	-4.27
	(1.80)***	(1.25)	(1.31)	(0.37)	(0.91)	(1.28)	(-0.18)	(-0.76)	(-3.10)*	(-1.58)
2. LOGGNP(IJ)	0.62	0.51	0.49	0.43	0.38	0.73	0.56	0.62	0.55	0.36
	(4.65)*	(4.55)*	(4.69)*	(4.65)*	(4.10)*	(6.18)*	(6.04)*	(7.16)*	(6.71)*	(4.44)*
3. LOGGNPPC(IJ)	0.08	0.22	0.2	0.33	0.23	0.25	0.37	0.34	0.20	0.25
	(0.45)	(1.50)	(1.71)***	(3.58)*	(2.48)**	(2.18)**	(3.09)*	(3.00)*	(1.56)	(1.88)***
4. LOGTRAD(IJ)	0.12	0.14	0.15	0.14	0.23	0.04	0.13	0.06	0.15	0.17
	(0.91)	(1.16)	(1.35)	(1.65)	(2.90)*	(0.68)	(1.68)***	(0.89)	(2.39)**	(2.42)**
5. LOGFDI(IJ)	0.27	0.29	0.19	0.15	0.57	0.13	0.11	0.30	0.08	0.17
	(1.90)***	(2.40)**	(1.36)	(0.66)	(2.10)**	(1.86)***	(2.06)**	(3.33)*	(1.24)	(3.34)*
6. LOGODA(IJ)	-0.06	0.03	0.07	0.11	0.09	0.02	0.09	0.11	0.06	0.1
	(-0.92)	(0.50)	(1.40)	(2.36)**	(2.02)**	(0.38)	(1.93)***	(2.48)**	(1.31)	(2.22)**
7. LOGDIST(IJ)	-1.17	-1.18	-1.03	-0.66	-0.31	-0.25	-0.39	-0.58	-0.09	-0.14
	(-3.83)*	(-4.20)*	(-3.98)*	(-2.88)*	(-1.41)	(-0.96)	(-1.75)***	(-2.91)*	(-0.51)	(-0.85)
8. LANGUAGE(IJ)	0.15	0.15	0.02	0.33	-0.03	-0.36	-0.17	-0.25	-0.17	-0.27
	(0.54)	(0.48)	(0.08)	(1.32)	(-0.13)	(-1.24)	(-0.68)	(-1.11)	(-0.76)	(-1.26)
9. LOGRATING(J)	-0.07	0.45	0.43	1.14	0.70	0.66	0.19	0.55	1.28	1.43
	(-0.19)	(0.92)	(1.02)	(3.35)*	(2.28)**	(1.38)	(0.37)	(0.94)	(2.93)*	(3.70)*
10. LOGEXCHVOL(IJ)	0.02	-0.01	0.02	0.02	0.02	0.03	0.02	0.01	0.01	0.02
	(1.10)	(-0.55)	(1.24)	(1.39)	(1.73)***	(1.82)***	(1.37)	(0.59)	(0.70)	(1.37)
11. LOGREALINTERD(IJ)	0.05	0.05	-4.6	-0.39	-2.42	-1.69	8.40	-0.02	-0.04	-0.37
	(0.53)	(0.57)	(-1.20)	(-1.06)	(-1.22)	(-2.25)**	(0.17)	(-0.10)	(-0.36)	(-0.79)
12. LOGAREARS(J)	0.02	0.06	0.05	0.11	0.08	0.19	-0.01	0.05	0.05	0.05
	(0.33)	(1.47)	(1.12)	(3.04)*	(2.45)**	(3.56)*	(-0.31)	(1.21)	(1.31)	(1.75)***
13. LOGCORRUPT(J)	0.51	0.1	0	-0.45	0.23	-0.33	-0.89	-0.40	0.13	-0.14
	(0.98)	(0.21)	(-0.02)	(-1.22)	(0.66)	(-0.73)	(-2.34)**	(-1.06)	(0.40)	(-0.43)
14. FINLIBERAL(J)	0.66	0.33	0.75	0.02	-0.32	0.75	0.06	-0.10	-0.44	-0.38
	(1.83)***	(1.05)	(2.72)*	(0.07)	(-1.13)	(2.25)**	(0.23)	(-0.44)	(-2.06)**	(-1.8)***
15. IMFPROG(J)	0.38	0.62	-0.11	0.49	0.22	-0.13	-0.45	0.09	0.31	0.21
	(1.41)	(2.10)**	(-0.44)	(2.43)**	(1.10)	(-0.45)	(-1.84)***	(0.38)	(1.86)***	(1.38)
16. DEPINSUR(J)	0.38	0.17	0.04	-0.24	-0.04	-0.08	0.03	-0.15	-0.06	0.17
	(1.22)	(0.70)	(0.17)	(-1.11)	(-0.20)	(-0.32)	(0.15)	(-0.81)	(-0.37)	(1.04)
17. BILATERAL(IJ)	-1.4	0.72	-1.69	-1.14	-1.06	-0.57	-0.72	-0.98	0.15	0.06
	(-1.92)***	(1.15)	(-2.75)*	(-2.99)*	(-3.12)*	(-1.63)	(-1.62)	(-2.41)**	(0.50)	(0.24)
18. APEC(IJ)	0.86	-0.99	0.04	0.03	0	-0.23	0.73	0.62	0.74	0.24
	(1.75)***	(-1.76)***	(0.07)	(0.06)	(-0.01)	(-0.50)	(1.68)***	(1.60)	(2.05)**	(0.75)
19. NAFTA(IJ)				0.55	0.92	1.23	0.32	-0.19	1.08	-0.01
				(0.54)	(0.94)	(1.34)	(0.38)	(-0.24)	(1.11)	(-0.01)
20. EUONSHEASTASIA	0.41	0.6	0.46	0.55	0.77	0.95	1.61	1.46	1.27	1.10
	(0.93)	(1.85)***	(1.33)	(1.85)***	(2.63)*	(2.62)*	(4.36)*	(4.25)*	(3.84)*	(3.47)*
21. EUONSHAFRICA	0.82	-0.35	0.58	0.25	0.02	1.00	1.56	1.13	1.16	0.87
	(0.91)	(-0.61)	(0.91)	(0.47)	(0.04)	(2.38)**	(3.91)*	(3.14)*	(3.41)*	(2.58)**
22. EUONSHLATIN	0.48	0.93	0.94	1.08	1.04	0.72	1.37	1.09	1.37	0.98
	(1.19)	(2.54)**	(2.86)*	(3.58)*	(3.70)*	(2.01)**	(4.07)*	(3.48)*	(4.75)*	(3.53)*
23. EUONSHEASTEU	-1.14	-1.15	-1.13	0.15	0.68	1.37	1.92	1.29	1.16	0.55
	(-1.62)	(-1.89)***	(-2.01)**	(0.34)	(1.52)	(2.56)**	(3.74)*	(2.81)*	(2.70)*	(1.33)
24. USONSHEASTASIA	-0.64	0.24	-0.08	0.08	-0.07	0.39	-0.17	-0.28	-0.36	-0.63
	(-1.02)	(0.43)	(-0.16)	(0.17)	(-0.16)	(0.69)	(-0.31)	(-0.58)	(-0.76)	(-1.34)
25. USONSHAFRICA	-0.58	-1.16	-1.02	-1.59	-1.55	-1.05	-0.64	-1.30	-0.87	-0.95
	(-1.23)	(-2.80)*	(-2.84)*	(-4.58)*	(-4.31)*	(-2.57)**	(-1.69)***	(-3.64)*	(-2.66)*	(-2.88)*
26. USONSHLATIN	-0.38	-0.68	-0.53	-0.16	-0.01	-0.93	0.38	-0.11	0.56	0.19
	(-0.79)	(-1.30)	(-1.17)	(-0.40)	(-0.03)	(-2.07)**	(0.84)	(-0.26)	(1.48)	(0.53)
27. USONSHEASTEU	0.07	0.15	-1.05	-1.26	-0.86	-1.04	-0.22	-0.61	-1.01	-1.14
	(0.09)	(0.22)	(-2.04)**	(-2.58)**	(-1.72)***	(-1.85)***	(-0.42)	(-1.24)	(-2.20)	(-2.52)**
28. JPNONSHEASTASIA	-0.18	0.12	-0.12	0.44	0.48	0.50	0.03	-0.26	0.14	0.35
	(-0.25)	(0.23)	(-0.18)	(0.76)	(0.97)	(0.77)	(0.05)	(-0.47)	(0.25)	(0.69)
29. JPNONSHAFRICA	-1.32				-1.44	-2.72				
	(-1.20)				(-1.55)	(-2.37)**				
30. JPNONSHLATIN	1.41	1.63	1.34	1.24	0.35	-0.39	-0.04	-0.24	-0.12	0.10
	(2.51)**	(3.03)*	(2.59)**	(2.55)**	(0.80)	(-0.55)	(-0.08)	(-0.44)	(-0.23)	(0.20)
31. JPNONSHEASTEU	1.77	2.02	1.4	1.44	1.13	0.89	1.32	1.14	0.51	0.09
	(2.43)**	(3.09)*	(2.06)**	(2.27)**	(1.76)***	(1.08)	(1.29)	(1.19)	(0.55)	(0.10)
32. EUOFFSHASIA	2.52	2.5	1.93	1.97	1.88	2.31	3.01	2.59	2.40	2.14
	(4.63)*	(5.60)*	(3.91)*	(4.04)*	(3.84)*	(4.19)*	(5.95)*	(5.63)*	(5.81)*	(5.34)*
33. EUOFFSHLATIN		4.34	3.87	2.98	2.67	2.95	3.90	3.35	3.32	2.70
		(4.46)*	(4.03)*	(3.30)*	(2.94)*	(2.50)**	(3.61)*	(3.44)*	(3.53)*	(3.02)*
34. JPNOFFSHASIA	2.17	2.71	2.6	2.92	2.58	3.20	2.18	1.52	1.88	1.35
	(2.59)**	(3.78)*	(3.26)*	(3.99)*	(3.64)*	(3.66)*	(2.59)**	(1.99)**	(2.47)**	(1.91)***
35. JPNOFFSHLATIN	4.59	4.2	4.12	3.12	1.99	3.06	3.85	3.06	3.81	2.78
	(3.78)*	(3.69)*	(3.76)*	(2.93)*	(1.88)***	(2.44)**	(3.39)*	(2.93)*	(3.90)*	(2.93)*
No. of Obs.	115	108	152	160	174	189	195	197	203	201
R²	0.78	0.78	0.76	0.79	0.80	0.71	0.77	0.79	0.79	0.77

Note: Numbers in parentheses are t-statistics. Signs of *, **, *** are at 99%, 95%, and 90% statistical significance levels, respectively.

Appendix: Data Sources

Variable	Periodicity	Source
Bank Loans	annual	BIS
GNP	annual	IMF, IFS
Population	annual	IMF, IFS and http://www.census.gov/
Bilateral Trade Flows	annual	IMF, Direction of Trade and http://www.eiit.org/
ODA	annual	OECD and http://www.oecd.org/dac/
FDI	annual	(1) OECD, International Direct Investment Statistics Yearbook 1993-1999; (2) Eurostat, European Union Direct Investment Yearbook 1999; US Department of Commerce, Survey of Current Business 1993-2000, (3) US Bureau of Economic Analysis; (4) Online database of Ministry of Finance of Japan and De Nederlandsche Bank
Distance		http://www.indo.com/
Interest Rate	annual	IMF, IFS
IMF programs and Arrangements	annual	IMF, Annual Report 1986-1998
Exchange Arrangements & Exchange Restrictions	annual	IMF, Annual Report on Exchange Arrangements and Exchange Restrictions 1986-1998
Interest and Principal Payment Arrears	annual	World Bank, Global Development Finance (GDF)
Credit Rating	annual	Institutional Investors
Trade Arrangement Dummies	annual	Compiled from various sources by authors.
Financial Liberation	annual	Hanohan (2000)
Corruption Indexes	annual	Political Risk Group
Explicit Deposit Insurance	annual	Demirguc-kunt and Detragiache (2000)
Bilateral exchange rate volatility	annual	Kawai and Akiyama (2000)