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MULTINATIONAL BANKS AND DEVELOPMENT FINANCE

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Abstract

Financial market recommendations for less industrialized economies, particularly in the wake of the recent financial crises, have included a push for more international financial competition. The entry of multinational banks (MNBs) into developing economies is supposed to create more market discipline for domestic banks, thus making them more efficient, and enhancing financial stability. Using data from the BIS and the IMF, we look at the determinants of MNB presence, at MNB activities, and their impact on credit supply and on financial stability. With respect to the determinants of MNB presence, we find that lower asset prices, a ready market and competition with other MNBs matter more than economic fundamentals of the host economy. In line with these results, MNBs focus their activities predominantly on serving MNCs, and on providing services that domestic banks cannot offer to domestic corporations, and high net worth individuals. Thus, we also find that domestic banks lower their total credit exposure by reducing their commercial loans in response to increased competition, particularly in serving MNCs, domestic corporations, or high net worth individuals, which may lead to real implications for less industrialized economies, particularly lower business investment.

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I. Introduction

Financial policy recommendations for developing economies, particularly in the wake of the recent financial crises, have included a push for more international financial competition. By the end of the 1997, one of the most comprehensive agreements on trade in financial services, which covers multinational banks (MNBs), the General Agreement on Trade in Services (GATS) has been negotiated at the WTO. Consequently, while both international and multinational banking have grown in recent decades, banks in industrialized economies have increasingly emphasized lending within over cross-border lending to less industrialized economies. By mid-1998, banks in BIS member countries lent a total of $850 billion abroad, whereas loans of their branches and subsidiaries amounted to $242 billion. Not surprising, then, MNB activities in less industrialized economies have grown on average by double or even triple digit rates in all areas of the world since the mid-1980's, leading to a sizable market share for MNBs, e.g. close to 20% of banking market assets in Chile and Argentina.

With respect to the supply of credit, and the closely connected issue of financial stability, a number of different positions regarding MNBs exist. Proponents of more financial competition assert that MNB entry increases market discipline, the efficiency of domestic banks, and thereby financial intermediation, and the supply of credit (Fry, 1995; BIS, 1988). Due to a growing efficiency in loan allocation, the banking system should become more stable, as banks become better at evaluating borrowers. Others, however, argue that a growing MNB presence may indeed induce domestic banks to lend more, but for riskier projects as they become less prudent in their activities under mounting competitive pressures (Demirguc-Kunt and Detragiache, 1998). In this view, expanding loan exposure of domestic banks The opposite argument, namely that domestic banks tend to lend less if they are facing more international financial competition as one would expect with an “infant industry”, has also been put forth (Weller, 1999). By virtue of a reduced credit exposure, banks in emerging economies should become more stable as the most stable banks are the ones that do not lend. In this paper, we will attempt to disentangle the different views regarding credit supply and financial stability as they relate to the presence of MNBs.

To understand the impact of a growing MNB presence on less industrialized economies, we provide first some background on the determinants of MNB presence in section II, and on their activities in section III, before discussing the effects on credit supply and financial stability in section IV. Finally, a few concluding remarks follow in section V.

II. Background

II.1 The Recent Growth of MNBs

MNBs are understood here as banks, which establish operations in more than one country. Hence, MNBs are also sometimes referred to as foreign banks or are comprised in the general category of foreign direct investment (FDI) in financial services. In contrast, international banks are banks, which operate across international borders, but which do not establish a physical presence in other countries. MNB operations can come in different forms, namely as branch offices, as subsidiaries, as joint ventures, or as strategic partnerships. Branch offices, for instance, are an integral part of the mother company, that is, they have no capital of their own. Subsidiaries, however, are their own corporate entities, which are fully owned by the mother company, but chartered in the host economy. Similarly, joint ventures are separate corporate entities owned jointly by more than one mother company. For instance, Dresdner Bank and Banque National de Paris have been establishing a number of joint ventures in emerging economies over the past few years. Finally, MNBs may establish a strategic partnership by buying a majority stake of an already existing domestic bank. The main difference between the various operational forms of MNBs is their regulatory treatment, as banks, which are domestic corporate entities may receive a different treatment than banks which are not, similar to banks which are majority foreign owned compared to banks, which have only a minority foreign ownership share.

Most research on MNBs are hampered by their limited scope as they tend not to include more than two or three countries, and are mainly focused on the US, Japan or other Asian economies. So far, consistent data across countries has been lacking which would allow for a comparison of MNB presence. The BIS' *Consolidated International Banking Statistics* is therefore an improvement as it includes semi-annual data on international as well as multinational bank developments for a total of 184 countries and territories from 1985 to the present[1]. What is, however, gained in compatibility across countries has to be traded off against the drawback that the BIS provides only aggregated data for each economy without distinguishing by originating economies. Similarly, the data do not allow us to distinguish between the aforementioned different forms of MNB operations. Thus, while our study offers a comprehensive

[1] Developed economies are not included, and neither are offshore banking centers due to the peculiar nature of their financial systems.

view of a large sample of emerging economies, its scope in investigating the determinants of MNB presence or its impact on host economies is limited by the aggregated nature of the data.

Figures compiled from the BIS' *Consolidated International Banking Statistics* highlight the growth in MNBs across different regions (table 1). By the end of 1998, 107 emerging economies and territories out of 167 reported MNB credit operations. The largest recipient of MNB credit is Latin America. Further, while Asia has experienced a steady continuous growth of MNB loans between 1985 to 1997, this trend holds for the Middle East and Africa only for the 1990's[2]. Their growth rates pale, though, compared to the growth of MNB credit in Latin America and in Eastern Europe in the 1990's (table 2). Not only has MNB credit grown rapidly, it is also expanding faster than MNB deposit taking, thereby making MNBs mostly net importers of capital (table 1). Between 1985 and 1997, MNBs have also grown in their importance relative to international banking (table 2). By the end of 1998, international loans to less industrialized countries amounted to $706 billion, while local currency MNB loans totaled about one third of that with $239 billion. While MNB loans have grown faster than international bank credit in all areas, MNB loans still remain small on average, below 10% in Eastern Europe and the Middle East, below 20% in Asia and Africa, and at around 22% in Latin America. The ratio of MNB credit to international bank credit is highest in Latin America with $143 billion in MNB credit to $288 billion in international bank loans by the end of 1998. In contrast, the ratio of MNB credit to international bank credit is lowest in the Middle East with $ 8 billion in MNB loans and $63 billion in international bank credit.

One important policy issue should be kept in mind. In some cases, the growth rate of NBs has been so rapid that within a short time span MNBs have gained a sizable market share, and sometimes even a majority share of the domestic banking sector. This has been the particularly the case in Central and Eastern Europe, where MNBs gained a double digit market share often in little over five years after their first entry. At the end of 1997, MNBs had a credit market share of 11% in the Czech Republic, 12% in Poland and 14% in Romania. Further, by the end of 1995, the majority of large Hungarian banks was already foreign owned. Considering that the presence of MNBs is not only a matter of domestic banking development, but also of international trade,

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[2] MNB loans and deposits reported by the BIS include only foreign currency positions, and hence exclude any foreign currency denominated loans expanded by MNBs in their host economies. In other words, where MNBs are allowed to lend in foreign currency, the loan figures reported here are underreporting the actual size of MNB operations.

implementing financial policy measures, which may affect MNBs, may be complicated by bilateral or multilateral agreements, such as GATS, especially in financial markets where MNBs play a major role. As the latest multilateral agreements, in particular the GATS, have meant greater mobility for MNBs, their presence is likely to grow further in the near future, which makes especially smaller economies more vulnerable to adverse decisions in trade disputes if they want to implement restrictions on MNB activities (Brown, 1999)[3].

II.2 The Determinants of MNB Presence

While the numbers reveal a growing interest of MNBs in less industrialized economies, the question remains as to whether the recent growth in MNB operations can be attributed to some of the same factors found in earlier studies[4]. Most earlier research is based upon an application of the theory of multinational corporations (MNCs) to banking (Dunning, 1979; Gray and Gray, 1980). Based on this framework, which allows for the inclusion of economic factors beyond the firm specifics, earlier research has found a number of motivational factors for the entry of MNBs. Among these determining factors some host economy characteristics have been found to be significant, such as current account balances (Terrell, 1979; Goldberg and Saunders, 1981; Sabi, 1988, 1994), interest rate differentials (Khoury, 1979), the exchange rate (Goldberg and Saunders, 1981), market size (Terrell, 1979; Khoury, 1979), demand for MNB products (Cho, 1985), servicing MNCs (Fieleke, 1977; Goldberg and Saunders, 1981; Khoury, 1981), underdeveloped banking markets (Terrell, 1979; Khoury, 1979; Guillen and Tschoegl, 1999), the presence of other MNBs (Ball and Tschoegl, 1982; Engwall and Wallenstäl, 1988; Jacobsen and Tschoegl, 1998; Guillen and Tschoegl, 1999), real economic growth (Sabi, 1988, 1994), or country risk (Sabi 1988, 1994). Similarly, some characteristics of the originating economy seem to matter for MNBs to expand operations abroad, such as the market size of the originating economy (Terrell, 1979; Khoury, 1979), or saturated home markets (Guillen and Tschoegl, 1999).

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[3] In the case of Hungary, the large and growing presence of FDI, particularly in the banking sector, has been found to limit the government's public policy scope (Dancs, 1999).

[4] Multilateral agreements, such as GATS, have made it easier for MNBs to move abroad. A greater ability to internationalize operations, however, should not be conflated with a greater willingness of MNBs to do so, as this depends on economic factors as well as regulatory aspects.

Finally, firm level characteristics appear to play a significant role, too, such as an MNB's knowledge of international operations and of the host economy (Ball and Tschoegl, 1982; Ursacki and Vertinsky, 1992), or its reserve ratio (Terrell, 1979; Goldberg and Saunders, 1981).

To analyze MNB presence across a large sample of countries more systematically, we estimate a reduced form equation of the following form:

$$\left(\frac{MNBCredit}{GDP}\right)_t = a + b_1\left(\frac{CurrentAccount}{GDP}\right)_t + b_2\left(\frac{\Delta FDI}{GDP}\right)_t + b_3\Delta e_t + Population_t + b_4\left(\frac{MNBCredit}{GDP}\right)_{t-1} + b_5\Delta\left(\frac{Gdp}{Population}\right)_t + b_6\Delta\left(\frac{Gdp}{Population}\right)_{t-1} + b_7\left(\frac{BankCredit}{BankDeposits}\right)_t + m_t \quad (1)$$

with *MNBCredit* as total loans of MNBs, *GDP* as nominal GDP, *Gdp* as real GDP, *Population* as population, *FDI* as foreign direct investment, *Current Account* as the current account balance, *Bank Credit* as the sum of bank loans to private and public enterprises and of loans to the government, *Bank Deposits* as the sum of time and demand deposits at banks, and *e* as the real exchange rate and μ as the error term.

The ratio of MNB credit to GDP is chosen here, rather than MNB credit to total credit, as the dependent variable for two reasons. First, there is some evidence that a growing presence of MNBs has an adverse effect on the total credit supply (Weller, 1999). Hence, relating these two measures would overstate the presence of MNBs. There is no such negative connection between MNB loans and GDP. Second, since our interest here is to establish the importance of less industrialized economies for MNBs, their operations should be related to the economy and not the financial market. As MNBs are entering underdeveloped financial markets their presence should be seen in relationship to the potential share of the economy they could serve, and not the probably much smaller share of the economy, which the financial sector actually serves.

The choice of explanatory variables reflects the earlier findings[5]. The ratio of the current account balance relative to GDP is expected to measure an economy's need for international capital, with a decline in the current account balance resulting in more MNB loans. The ratio of FDI flows to GDP is added as a larger MNC presence may increase the demand for MNB

[5] Only host economy characteristics can be accounted for due to the aggregated nature of the data, which does not allow to include characteristics of the originating economy or of the MNB itself.

services. The change in the real exchange rate is included as MNBs may repatriate part or all of their income, where a decline in the real exchange rate, which signals an appreciation, should result in a greater MNB presence. However, a real exchange rate depreciation may also increase MNB presence as the value of domestic assets has declined, and as it hence may become more profitable for MNBs to enter strategic partnerships. Further, each country's population is taken as the potential market size, with a growing population also resulting in a larger MNB presence. Also, the past value of the dependent variable is included to account for the possibility that MNBs enter a market or expand their operations because other MNBs do so, too[6]. Thus, a larger MNB presence in the previous period should lead to a growing presence in this period. The growth rate of real per capita GDP is used to measure the economic performance for each economy, where it is assumed that MNBs want to increase their presence in better performing economies. Finally, the ratio of bank credit to bank deposits proxies for the market opportunities for new entrants, where it is expected that larger market opportunities should result in a greater MNB presence.

As changes in credit may be endogenously related to MNB presence, the regression is estimated using two stage least squares, with the lagged ratio of credits to deposits as instrument. We begin our analysis of the determinants of MNB presence by including country fixed effects only. The results are presented in regression (1) in table 4, showing that the presence of MNBs increases with increasing FDI flows, depreciating real exchange rates, declining GDP per capita growth, and past increases in MNB credit. These results hold also if we add time fixed effects, as regression (2) shows. In other words, the economic performance of less industrialized economies seems to matter less than the ready markets, lowered asset prices, or past MNB presence.

Apparently, MNBs increase their presence in response to the existence of a ready market as illustrated by the estimated parameter for FDI flows relative to GDP. In particular, an increase in FDI inflows relative to GDP by one standard deviation results in a growing MNB presence to the tune of 0.92 percentage points relative to GDP. It seems important here to address the issue of causality between MNB and MNC presence, though. Sabi (1988, 1994), for instance, suggests that MNBs follow their clients into the host economy. This, however, contrasts with Ursacki and Vertinsky's (1992) findings that MNBs may actually pave the way for their MNC clients. Due to the short time period covered by the data, the usefulness of Granger causality analysis is reduced, which leaves us to first regress the presence of MNBs relative to GDP on its own value lagged

[6] The lagged value of the dependent variable also controls for omitted variables in the regression.

twice, and on FDI inflows lagged twice, and then to regress FDI flows on its own value lagged twice and on MNB presence lagged twice. The regression results in table 5 show that FDI inflows are a better predictor of MNB presence than the other way around.

Further, the results indicate that MNBs increase their presence in response to a depreciating real exchange rate. A depreciation of one standard error results in an increase of a local MNB presence of 1.95 percentage points relative to GDP[7]. This illustrate hence a trend that has been observed in a number of economies, namely that MNBs increase their presence after a currency crisis has occurred. After the Mexicon peso crisis in 1995, for instance, MNB presence grew with 1.14% relative to GDP more than twice as fast as its average growth for Mexico of 0.48%. Even more impressive is the 1.87% increase in MNB presence in Korea in 1997, which compares to an average growth of 0.04%. Put differently, the fact that prices of domestic assets have dropped for international investors seems to matter more than the fact that an economy may be temporarily in a recession. This may also help to explain the unexpected sign for per-capita-GDP, which indicates that MNBs increase their presence in response to a lower growth rate.

Finally, MNBs appear to increase their presence significantly, where they are already operating. If MNB loans relative to GDP increase by one standard deviation in the previous period, their loans also increase by 4.40 percentage points relative to GDP in the current period. However, whether this means that MNBs widen their base where they are already operating, or whether older entrants attract more MNBs cannot be detected due to the aggregated data.

Clearly, the determinants of MNB presence may vary from region to region due to location, historical ties, or cultural similarities. Hence, we estimate the equation for Latin America, Asia, and Africa separately. The results shown in regressions 3-8 in table 4 show that only one variable, namely previous MNB presence is significant in all three cases. Further, the results illustrate some interesting differences[8]. In the case of Latin America, for instance, only changes of the real exchange rate are an additional determining factor of MNB presence, suggesting that the rapid growth of MNBs in the region is connected to a number of currency depreciations in the recent past. In the case of Asia, changes of the real exchange rate are also

[7] It should be noted that MNB loans include only their local currency positions. Thus, the data does not include fluctuations in MNB credit, which result merely from exchange rate revaluations.

[8] A F-test has a critical value of F(9; 391) equal to 1.31 showing that the data for the three regions should be considered jointly.

significant determinants, as are FDI flows and market opportunities, thus also supporting earlier findings that profit opportunities and the presence of MNCs determine MNB presence in Asian countries. Finally, in Africa, only past values of MNB presence are significant, suggesting that factors not included here play a more important role in determining MNB presence in Africa.

Our results show that host country characteristics, such as real per capita GDP growth, population, size of the banking sector or current account balances are not significant in determining MNB presence, but that lower asset prices, a ready market and competition with other MNBs may matter more than economic fundamentals in attracting MNBs.

II.3 Activities of MNBs

After having examined the determinants of MNB presence, we now turn to MNB activities. Generally, MNB activities are more limited in their scope than the activities of local banks, and they tend to remain more restricted. In the early stages of MNB operations in a host economy, their operations are limited by a few factors, such as small capital base, insufficient physical and human capital, and unfamiliarity with the host economy. Over time, all these hurdles may be overcome, but in most cases, this leads MNBs to only expand in market segments, where they are already active, with the possible exception of strategic partnerships.

The market segments served by MNBs are areas where MNBs have a clear competitive advantage. One of the main reasons for MNBs to enter a new economy is to provide services to MNCs which are already their customers in other parts of the world. Further, MNBs provide services that other banks are either less familiar with or that they cannot provide. Such services include foreign currency loans, acceptances and guarantees related to international trade, or syndicated loans (Brainard, 1990; Euh and Baker, 1990). Due to the nature of these services, large domestic corporations become MNB clients, whereas SMEs are less likely to require these services. Finally, MNBs offer their services to high net worth individuals to attract new deposits and to provide consumer finances. Such retail banking services include brokerage services, savings products, mortgages, credit cards or consumer loans (Brainard, 1990).

The evidence suggests that in most cases, MNBs have rarely expanded their activities beyond these market segments. For instance, when competition in traditional MNB market segments increased in Korea in the 1980's, some MNBs shut down their operations, while others

expanded their activities where competition were not as fierce, in this case services to high net worth individuals, customized financing packages for corporate clients, or foreign currency loans (Brainard, 1990; Euh and Baker, 1990).

Market segments which have so far been largely ignored by MNBs are only getting a second look lately, and then only thanks to the fact that MNBs have increasingly obtained minority or majority market shares of domestic banks. For instance, since 1995 Banco Santander SA, Banco Bilbao Vizcaya SA, and Banco Central Hispano have bought large shares of almost 30 large banks in more than ten countries in Latin America, predominantly in order to offer banking services to formerly underbanked markets, such as SMEs and lower income individuals (WSJ, September 10, 1997; Guillen and Tschoegl, 1999).

The evidence of MNB activities confirms some of the findings on the determinants of MNB presence. In particular, MNBs appear to serve mainly three market segments, namely MNCs, large domestic corporations and high net worth individuals, thereby especially supporting the finding that FDI flows are a significant determinant for MNB presence. The evidence further suggests that MNBs occasionally expand their activities beyond these three market segments, particularly if they obtain minority or majority shares in domestic banks. In discussing the results on the determinants of MNB presence, we have already speculated that this may be the case in the wake of a financial crisis in less industrialized economy, as MNBs increase their presence significantly in response to a currency depreciation.

III. Multinational Banks, Finance Constraints and Financial Stability

What is the impact of MNB entry and MNB operations on the domestic economy in less industrialized countries? In the previous section, we found that MNBs focus their activities on three market segments, which raises the question whether this concentration of MNBs has any effect on the behavior of domestic banks? Does it force them to become more efficient to compete with MNBs? Or does it leave them with less premium clients, and therefore more exposed to default risk? How does this impact the supply of credit and financial stability?

Based on the financial liberalization (FL) framework, it is often recommended that more foreign entrants will enhance the efficiency of domestic banks. In McKinnon's (1973) and Shaw's (1973) discussion to address the apparent excess demand for credit in less industrialized

economies, a number of measures to deregulate financial markets are proposed, among them the elimination of market entry restrictions. MNB entry is particularly welcome, since it supposedly introduces market discipline, and imports foreign expertise, banking know-how and bank capital.

However, the standard FL view of international competition ignores the crucial value of information for financial firms. If borrowers and lenders do not have perfect information about each other, borrowers cannot obtain the necessary amount of finance for their investments (Stiglitz and Weiss, 1982; Gertler, 1988; Bernanke 1993). With respect to the effect of international financial competition on banks, a number of different outcomes are now possible that can effect the supply of credit, and possibly the stability of the domestic banking system.

The effect of a greater MNB presence on the credit supply by domestic banks depends on a bank's net worth. If a bank's net worth remains *above* a safety threshold the bank will *not increase* its lending unless its net worth increases, but once its net worth falls *below* that safety threshold the bank *will increase* its lending, particularly for high risk high projects, since it stands to lose little or nothing. The dilemma, though, is that financial competition may further limit banks' ability to raise their net worth, and hence they may restrict their lending given that their net worth is above their safety threshold.

In liberalizing economies, domestic banks are newcomers to an unregulated market environment, and hence should be seen as an infant banking industry with large capital needs. New capital is necessary to compete, especially with MNBs, whereas the presence of MNBs limits the options to raise new capital. Specifically, more competition lowers interest rate spreads and retained earnings, and thus the most important source for new capital. In one of the most comprehensive study on the profitability of domestic banks and MNBs the authors find that "an increase in the share of foreign banks leads to a lower profitability of domestic banks" (Claessens, Demirgüc-Kunt, and Huizinga, 1998). Thus, earlier findings by Terrell (1986) are supported, who found that banks in economies, which allow MNB entry, have lower gross interest margins, lower pre-tax profits, and lower operating costs. This limits the ability of domestic banks to raise their capital as other sources, such as public capital injections or equity issues are not readily available.

When faced with more competition and less access to capital, domestic banks may reduce their lending as long as their net worth remains above their safety threshold. Without a reduction in lending, greater competition and less access to capital should rise the chance of bank failure. This risk can be contained by emphasizing less risky loans over riskier ones, or by reducing lending overall. Credit to MNCs, for instance, or to large domestic corporations, is clearly less

risky than to others, such as to rural producers, to small and medium-sized enterprises (SMEs), or to start-up companies. However, MNBs possess already a competitive advantage in serving less risky market segments, such as MNCs, due to their reputation or their international orientation. By virtue of their competitive disadvantages, domestic banks are then left more exposed to riskier market segments than without international competition. Consequently, few alternatives remain for sufficiently capitalized domestic banks to reduce their risk than to reduce their loans.

Credit decreases in connection with more international competition have been observed in Korea (Euh and Baker, 1990), Poland (Weller, 1999a), or Hungary (Weller, 1999b). In particular, the fear that some sectors are more affected than others led Korean policy makers to require that MNBs lend 35% of their loans to SMEs (Euh and Baker, 1990). Similar lending requirements have not been introduced in Hungary where the majority of the country's banks are foreign owned, real credit has declined by 35% from 1989 to 1994 (Weller, 1999c), and the financial constraints of some Hungarian borrowers are a growing concern (Anderson and Kegels, 1998; Abel, Szekely and Siklos, 1998). Finally, the case of Poland is the only one for which MNB presence has been linked to credit supply (Weller, 1999a). It is found that both newly created and privatized Polish banks reduce their loans in response to a growing MNB presence, thereby also lowering total credit in Poland during the early transition years.

With a decline of enterprise credit by domestic banks in the face of greater MNB presence, it is noteworthy that less loans by domestic banks only result in an overall credit decline if MNBs are not compensating for this decrease. MNBs focus their activities on serving MNC clients, large domestic corporations, and high net worth individuals. Further, MNBs are unlikely to enter more market segments, where domestic banks are reducing their loans due to MNBs' lack of country specific knowledge. Thus, as MNB operations are unlikely to compensate for the reluctance of domestic banks, and as domestic banks comprise the majority of the banking sector in most less industrialized economies (table 2), total enterprise credit may fall.

Up to now, we have focussed on the possibility that MNB entry may lead to a credit contraction. Alternatively, MNB entry may also result in a credit expansion, possibly for unsustainable, speculative purposes, such as excess real estate financing. While it is argued that more international competition forces banks to become more efficient, a destabilizing role of MNB entry has lately been suspected (BIS, 1997; Kaminsky and Reinhart, 1996; Demirgüc-Kunt and Detragiache, 1998). The BIS (1997:13) argues, for instance, that "financial institutions ...

often lack the experience to manage risks, and in the face of stronger competition, institutions will tend to be pushed towards riskier investments". Though, why banks that are stable without international competition become more prone to risk taking with it is so far unclear. MNB entry may raise the chance of a crisis because of competitive pressures, or because poor capitalization of domestic banks, or because of a "deregulation euphoria".

Obviously, MNB entry raises the number of banks, and thus the competitive pressures for domestic banks. To maintain their market share, domestic banks may extend credit to borrowers or projects of lesser quality, thus increasing automatically the default risk in their portfolios (Darity and Horn, 1988). While such a behavior is conceivable in the early stages of international financial competition, it appears unreasonable once MNBs have achieved a sizable market share. Domestic banks, which have less capital or know-how than MNBs should reduce their credit and risk exposure - as long as their net worth is above their safety threshold.

Domestic banks, which are plagued by low or even negative net worth may extend their loans to riskier market segments once international competition heats up, regardless of competitive pressures. Such banks simply stand to lose little or nothing in the case of a bank failure because they are de facto bankrupt. The mechanism that may push banks with relatively low net worth into seeking out high risk, high return projects is the same that induces lower lending by better capitalized banks, namely a decline in retained earnings. Banks' franchise value declines with lower profitability, and thus should lessen the expectations of poorly capitalized banks to improve their situation without increasing their portfolio risk.

Finally, financial instabilities could arise from a "deregulation euphoria". By this, we mean that banks may become overly optimistic about borrower quality, and subsequently extend their loans to include less credit worthy projects. MNB entry is part of FL, as are the elimination of interest rate ceilings, the reduction of lending restrictions, capital account liberalization, and domestic deregulation. Sectors that were previously credit constrained may now receive funding because higher real interest rates promise more profits to banks. More credit might in turn increase business investment, both for productive as well as speculative projects. Real and financial expansions should attract overseas investors, which may lead to a real appreciation, attracting even more capital. However, rather than a stable equilibrium, changes in economic fundamentals may merely produce periods of tranquility (Minsky, 1986). The initial boom may already lay the foundation for later instabilities. For instance, internal liberalization may aid short-term speculative finance, thereby raising the chance of borrower default. Similarly, a continuously

overvalued currency hurts exporters, and may lead to a deterioration in the current account balance. With less funds going into productive investments, and more funds going into speculation and consumption, real and financial sector may grow apart. Thus, borrower default may rise, and currency depreciation and bank instabilities may follow suit.

The role of MNBs in a destabilizing cycle may be that it increases the optimism among lenders, and thereby fuels an unsustainable credit expansion. The presence of overseas capital may be seen by domestic banks as a "stamp of approval" for the economic success of an economy. In other words, domestic investors may interpret more financial service FDI as a signal of sound economic fundamentals, thereby inducing them to lend more than they otherwise would.

The entry of MNBs can impact the credit supply in either direction as more international financial competition may induce a credit contraction, and increase the propensity for banks to engage in more risky projects. The implications of this dual effect are that while credit contractions may dominate in the early stages of FL, credit expansion may become dominant over time as MNBs grow and as banks and regulators become more confident with the new situation.

The entry of MNBs can impact both credit supply and financial stability in either direction. On the one hand, domestic banks may want to reduce their risk exposure by lowering their loan exposure, on the other hand, domestic banks may want to raise their expected revenue streams by lending more for riskier activities. The implication of our discussion is that while credit contractions may dominate in the early stages of FL, credit expansion may become dominant over time as banks and regulators become more confident with the new situation.

III.1 Empirical Analysis

The figures in table 2 indicate that credit contractions continue after MNB entry. The measures used here are enterprise credit - the sum of credit to private and public enterprises - and total credit. After MNB entry credit growth relative to GDP tends to be higher, except for Latin America, where credit declines at about 5%. Moreover, in the Middle East and Eastern Europe total credit relative to GDP is still shrinking after the entry of MNBs, at -1.62% and -0.62%, respectively. Further, even though total credit is growing in Africa, it is one out of two areas, the other being Latin America, where enterprise credit is shrinking, while MNBs are present.

While the credit supply seems to be improving in the presence of MNBs, the issue remains whether MNB presence can be linked to the credit supply. In 24 out of 88 countries, total credit is positively correlated with MNB presence. However, in 19 out of 88 countries, the credit supply is negatively correlated with MNB presence. Hence, we cannot infer any conclusions from the simple descriptive statistics about the connection between MNB presence and credit supply.

Part of the reason for the conflicting evidence may be that while MNB presence may initially result in less credit supply, it may also induce riskier loans in later periods. Thus, we should be able to observe a growth in the likelihood of banking crises, the longer MNBs are present in less industrialized economies. The data set is therefore split, so that we can get a sense on the link between MNB presence and crises. A year is qualified as a crisis year if its banking system is showing either significant problems or experiences a crisis (Garcia, Lindgren and Saal, 1996). There are 95 different events that are classified as banking crises up to 1996, during the majority of which, 52, MNBs have been present. Thus, observations are classified as occurring when MNBs are present, or when MNBs are not present. Further, MNBs are considered present either if there is any MNB credit, or if MNBs have at least a 1%, a 2%, or a 3% credit market share. The chance of a crisis is then calculated for the first five years, the second five years, and any years beyond the first ten years of MNB presence. Table 6 shows that MNB presence is loosely connected with the occurrence of a crisis. While the probability of a bank crisis hovers around 4% for the first 5 years of MNB presence, it increases to 6% for the second 5 years, before it declines to 4-5% for the years after the first ten years. In other words, there is some reason to suspect that the presence of MNBs may have initially a stabilizing impact on domestic financial systems, while international financial competition may become destabilizing over time.

We can also find some support for MNB growth as part of a “deregulation euphoria”. In

particular, MNB presence grows above average in the year leading up to a crisis (table 7)[9]. While the growth rate of MNB loans is on average 32.46 percentage points below their mean during tranquil periods two years prior to a crisis, it is 40.41 percentage points higher one year prior to a crisis. Further, MNB credit market share grows above its tranquil period average in the year just before a crisis, which indicates that MNBs are expanding their loans faster than domestic banks.

The fact that MNBs are expanding their loans faster than domestic banks prior to a crisis may raise the overall default risk, thus increasing the chance of a crisis (Kaminsky and Reinhart, 1996; Demirgüc-Kunt and Detragiache, 1998). The main link between more credit and instability are overly optimistic expectations resulting in the expansion of credit to market segments of lower quality. Such optimistic expectations may be aided by a growing MNB presence, possibly because domestic lenders see the activities of MNBs as "stamp of approval" for the performance of the domestic economy. Thus, while MNBs may initially raise stability by inducing banks to reduce credit, they may also help to raise lenders' expectations and to foster imprudent lending practices.

III.2 Regression Analysis

So far, the figures indicate no clear link between MNBs and credit supply, while there is some indication that less industrialized economies may become more unstable the longer MNBs are present, and the more they grow. To investigate the impact of MNBs on credit supply and on stability, we use a credit supply function derived from a standard credit supply model under credit rationing (Greenwald and Stiglitz, 1990).The estimation equation, then, looks as follows:

$$\left(\frac{EnterpriseCredit}{GDP}\right)_t = a + b_1\left(\frac{Capital}{GDP}\right)_t + b_2\left(\frac{Deposits}{GDP}\right)_t + b_3\Delta\left(\frac{Gdp}{Population}\right)_t + b_4\left(\frac{EnterpriseCredit}{GDP}\right)_{t-1} + b_5\left(\frac{MNBCredit}{GDP}\right)_t + b_6\left(\frac{MNBCredit}{GDP}\right)^2_t + b_7\left(\frac{TotalCredit}{GDP}\right)_{t-1} + e_t \quad (2),$$

[9] The figures in table 7 are calculated by first defining the two years prior to a crisis year, the actual crisis year, and the two years after a crisis as crisis periods. Then, the average for the non-crisis periods is taken. Finally, the difference of a variable and its mean during non-crisis periods is calculated. The mean of this difference for the crisis periods is reported in table 7.

where *Enterprise Credit* is the credit supply to private and public firms, *Bank Capital* is the total bank capital, *Deposits* are all bank deposits, *GDP* is nominal GDP, *Gdp* is real GDP, *Population* is the current population, *MNB Credit* is the credit lent out by all MNBs, and ε is the error term.

As our argument pertains predominantly to the commercial lending behavior of domestic banks, our dependent variable is enterprise credit, which is the sum of bank credit to private and public enterprises. We further include the lagged value of enterprise credit relative to GDP as explanatory variable, which allows us to also control for possible omitted variables. In a second step, we reestimate the regression using total credit as the dependent variable, where its lagged value is used as explanatory variable instead. Since the majority of total credit is enterprise credit (table 3), the effect of international financial competition on enterprise credit may be large enough to have a significant impact on the total credit supply.

In its basic form, bank credit is supposed to depend on a bank's capital, its deposit base, and on the performance of its borrowers in the previous period. Consequently, we expect that the credit supply depends positively on changes in bank capital and deposits, and on increases in real per capita GDP. Due to the fact that the data set comprises aggregate data, the deposit variable also controls for changes in a country's monetary stance, and real per capita GDP growth accounts for the performance of each economy's real sector. Further, to model the ambiguous effect that MNB presence may have on credit supply, we include both a linear and a quadratic term for MNB presence. With a growing MNB presence, domestic lenders' expectations may become more optimistic as greater MNB activity may be perceived as "stamp of approval" for the performance of the local economy. Thus, we would expect MNB presence to affect credit supply negatively when MNBs are small, and increasingly more positively as MNBs grow.

To analyse the impact of MNB presence on credit supply in less industrialized economies, we begin by estimating the regression using least squares with dummy variables to control for country fixed effects. Since deposits may be endogenously related to the credit supply, we estimate the regression by using two stage least squares, where the lagged value of deposits serves as instrument. The results in regression (1) in table 8 show that all variables have either the expected sign or are insignificant. Most importantly for our purposes, the MNB variables are both significant with the right sign, suggesting that MNBs lower the supply of credit as long as they are small, and eventually have a positive influence on the supply of credit to enterprises. Thus, enterprise credit reaches its lowest point when MNB credit is equal to 15.9% of GDP. Looking

at it differently, if MNB presence is at its average of 3.25% of GDP (table 3) and increases by 2 percentage points relative to GDP, the supply of enterprise credit declines by 1.01 percentage points relative to GDP. Only if MNB presence grows beyond 15.9% of GDP, which is the case for 10 countries out of 112, does its impact on the supply of enterprise credit turn positive.

In recent years a number of multilateral agreements have made it easier for MNBs to enter less industrialized economies. For instance, the completion of the Uruguay round on the General Agreement on Tariffs and Trade (GATT) in 1994, and the subsequent ratification of the GATS in 1997 were two such events that have eased access for MNBs into a wide array of economies. To control for such global changes, we add time fixed effects, with the results in regression (2) of table 8 showing our estimates largely unchanged, both with respect to significance and size of the explanatory variables.

Aside from changes over time that affect all economies, countries may undergo shifts in their policies regarding MNBs at times separate from changes in other economies. Such individual policy changes, often in the form of more financial liberalization, are not captured by time fixed effects, and may only be partially accounted for by the inclusion of deposits and real per capita GDP growth in the regression. Hence, we add a time trend for each country individually, starting with the year when MNB credit is first reported. As such a trend measures a country's response to international financial competition, and presumably other related liberalization measures, it seems only reasonable to assume that as institutions become more adept to the new, more competitive environment, their responses become gradually less pronounced. In other words, such a trend may not be in a linear form, but rather a logged form. Adding this logged time trend to the previous regressions, provides us with regression (3) of table 8. The regression results show, that the previous estimates are robust, still indicating a U-shaped response to MNB loans, with the strongest negative impact when MNB credit amounts to 18.1% of GDP in the previous period.

Another way of looking at the robustness of the results is to reestimate the equation employing a logarithmic specification, instead of the specification with levels, that we have used so far. Obviously, the squared term of international financial competition disappears in this specification, which shows again an overall negative response in enterprise credit to MNB credit. Also, all other results reappear in this specification. However, using Theil's (1972) residual variance criterion on the larger residual sum of squares for the logarithmic model and the smaller residual sum of squares for the levels model, we obtain a test value of 2.08, which is F distributed with 210 degrees of freedom in both the numerator and the denominator suggesting that the levels

model is the more appropriate specification at the 1% level.

Given that there is a negative effect of MNB loans on the supply of enterprise credit, the issue arises whether this translates into an overall decline of credit. Similar to our proceeding with respect to enterprise credit, we estimate the impact of MNB presence on the supply of total credit in regressions (1) through (4) in table 9. Our results show only a negative response to MNB credit, indicating that for each increase of MNB credit relative to GDP in the previous period to the tune of one standard deviation results in a decline of total credit by 3.13 percentage points relative to GDP, when country and time fixed effects as well as country specific trends are accounted for[10]. Put differently, the negative response in enterprise credit to MNB credit seems to be strong enough to lower total credit, while the positive impact of larger MNB market shares on the supply of enterprise credit does not appear to translate into more total credit.

Considering that in the majority of economies the impact of MNB loans has been to lower the amount of either enterprise credit or total credit, it is hard to see how international financial competition could result directly in more fragile banking systems. On the contrary, because of their overall negative impact on the credit exposure of domestic banks, MNBs may help to stabilize the local banking systems, at least so far. The fact that we observe an increasing likelihood of banking crises the longer MNBs are present in less industrialized economies, may therefore be simply correlated to other macro economic trends, such as unsustainable overvaluations, large international short-term debt positions, or persistent current account deficits.

Aside from possibly helping to stabilize the domestic banking systems, there may be other implications of the lower credit exposure of domestic banks. For instance, there is some evidence that the supply of credit has a positive impact on growth in less industrialized economies (Calvo and Corricelli, 1993; Odedokun, 1996), which suggests that a growing MNB presence in most less industrialized economies may have put a damper on growth. This possible negative impact on growth may be largely attributable to the negative impact of declining credit on business investment. It has been well established that business investment in less industrialized economies depends positively on the supply of bank credit. The question, however, is whether all firms are likely to experience finance constraints to the same degree. Domestic banks can reduce their loans

[10] Again, calculating Theil's residual variance criterion to compare the logarithmic specification with the levels specification, generates a test statistic, which is F distributed of 6.18 with 392 degrees of freedom in the numerator and 401 degrees of freedom in the denominator. Thus, the levels specification is again the more appropriate one at the 1% level.

to all their borrowers to the same degree, or they can reduce their loans to some more than others. Given that loans to some borrowers are less costly, and often also less risky, it is likely that domestic banks will reduce these loans to a lesser degree than more costly loans. Arguably, loans to smaller borrowers are more costly and often riskier, when compared with loans to MNCs or large domestic corporations. Hence, small- and medium sized enterprises, or start-up companies are more likely to experience finance constraints than larger, more established firms. This seems to have been the case in Hungary, for example, where by 1995, the majority of domestic banks has already been foreign owned. Subsequently, finance constraints for SMEs and start-up companies have been recognized in recent studies (Anderson and Kegels, 1998; Abel, Siklos, and Szekely, 1998). Given that Hungary is cited by the WTO as one of six less industrialized economies, which have become increasingly integrated in the world's financial markets, our results shed an interesting light on what may lie ahead for others.

IV. Conclusion

In this paper, we have studied the presence of MNBs in less industrialized economies for the period from 1985 to 1998, and its impact on credit supply and financial stability. With respect to the determinants of MNB presence, we find that lower asset prices, a ready market and competition with other MNBs matter more than economic fundamentals of the host economy. In line with these results, MNBs focus their activities predominantly on serving MNCs, and on providing services that domestic banks cannot offer to domestic corporations, and high net worth individuals. Thus, we also find that domestic banks lower their total credit exposure by reducing their commercial loans in response to increased competition, particularly in serving MNCs, domestic corporations, or high net worth individuals, which may lead to real implications for less industrialized economies, particularly lower business investment. The limited evidence that is available suggests that SMEs and start-up companies may be particularly affected by growing finance constraints in the face of a larger MNB presence. Finally, given that MNBs tend to lower the total credit exposure, as well as the enterprise credit exposure of domestic banks, these should also become more stable. In other words, banks reduce their credit exposure to lower their risk exposure in the face of more international financial competition, thereby increasing the stability of the banking system as a whole.

As the overall impact of MNB presence seems to be to lower enterprise credit and total credit in less industrialized economies, other reasons for the entry of MNBs need to be compelling enough to compensate for the drawbacks of international financial competition. For instance, our results indicate that MNBs follow MNCs into less industrialized economies. It is therefore conceivable, that MNBs may aid MNC operations, and that they lead to more FDI growth in the long run than without MNB presence. As much as MNCs are desirable partners in economic development this connection between MNBs and MNCs should be weighed against the possibly dampening effect on business investment. Further, in the wake of the recent financial crises, FDI flows, and among them FDI in financial services, may be considered more stable than short term portfolio flows, although the experience of Thailand casts some doubt on this contention. As far as less industrialized economies depend on international capital for their development, MNB entry may be a desirable alternative to portfolio investment. While there may be compelling reasons to attract MNBs into less industrialized economies, policymakers may want to consider regulatory actions that help to lower the adverse effects of MNB entry. For instance, recent studies on MNB presence suggest that MNBs, which have entered joint ventures or strategic partnerships with domestic banks are more likely to serve typically finance constrained market segments, such as start-up companies or SMEs. Hence, encouraging or requiring such partnerships may help to lower the drawbacks of MNB entry.

TABLE 1: SUMMARY STATISTICS FOR MULTINATIONAL BANKS BY YEAR AND GEOGRAPHICAL AREA

Year	Total MNB Lending (Mn. US$)					Net Imports (MNB Loans- MNB Deposits) (Mn. US$)				
	Eastern Europe	Latin America	Middle East	Africa	Asia	Eastern Europe	Latin America	Middle East	Africa	Asia
1985	77	9773	2608	3499	15130	0	2332	-15	298	6022
1986	275	12728	2960	3397	14454	72	2199	-32	-4	3691
1987	367	14308	3152	3696	17308	32	2474	-109	71	6516
1988	365	14358	3345	4478	17454	18	-807	-58	20	6164
1989	379	13420	1582	3852	23332	69	2028	58	18	6910
1990	420	15312	1908	4525	27472	55	2302	227	-67	9345
1991	708	16668	1932	3953	30461	-28	3160	52	-16	10570
1992	518	21385	2246	4054	36395	156	5700	106	-131	13327
1993	1358	24908	4368	4732	45417	526	6128	-133	-375	14822
1994	7818	30357	4852	6575	51836	3457	7804	-6	-899	17227
1995	8295	44276	5393	8180	56517	2901	10649	508	-91	18446
1996	15849	64089	5615	6862	64949	5538	16245	568	714	21158
1997	24499	123040	6836	6988	73260	7562	24530	-1505	502	16093
1997 MNB	14.27	16.93	0.41	9.13	4.63	-	-	-	-	-

Sources: BIS, Consolidated International Banking Statistics; IMF, International Financial Statistics.

TABLE 2: MULTINATIONAL AND INTERNATIONAL BANKING STATISTICS BY GEOGRAPHICAL AREA FROM 1985 TO 1997

Variable	Eastern Europe		Latin America		Middle East		Asia		Africa	
Average Growth of MNBs (%)[ac]	739.50		133.38		34.75		31.16		140.26	
Average Credit Market Share of MNBs (%)[b]	2.11		8.02		1.6		2.96		2.79	
Average Deposit Market Share of MNBs (%)[b]	2.41		9.26		2.81		3.4		7.52	
Average Growth of International Bank Loans (%)[b]	10.65		7.44		17.17		16.74		2.15	
Average Ratio of MNB Credit to International Bank Credit (%)[b]	9.15		21.6		6.5		12.14		17.65	
	Without MNBs	With MNBs	Without MNBs	With MNBs	Without MNBs	With MNBs	Without MNBs	With MNBs	Without MNBs	With MNBs
Average Growth of Enterprise Credit/GDP (%)[a]	-4.79	-0.85	-3.03	-3.8	-0.76	0.69	-0.16	4.52	0.20	-1.14
Average Growth of Total Credit/GDP (%)[a]	-2.28	-0.62	1.57	-5.05	-2.18	-1.67	0.16	2.51	-0.81	0.02

Sources: BIS, Consolidated International Banking Statistics; IMF, International Financial Statistics.

Notes: [a] all averages are GDP weighted averages.

[b] averages calculated only if MNB lending is present in the same period.

[c] MNB loan growth rates are calculated after loans are re-converted into domestic currency.

TABLE 3: SUMMARY STATISTICS FOR REGRESSION ANALYSES

	All Countries	Eastern Europe	Middle East	Latin America	Asia	Africa
Δ (Gdp/Population)$_t$	1.639	0.103	0.211	4.435	3.387	-0.292
	(21.856)	(13.121)	(20.933)	(5.660)	(5.660)	(12.249)
(Current Account/GDP)$_t$	-4.985	-3.760	-2.695	-6.625	-3.087	-5.233
	(13.656)	(6.880)	(24.910)	(14.551)	(7.488)	(11.759)
(Bank Credit/Bank Deposits)$_t$	123.59	136.127	102.004	135.073	136.495	112.654
	(106.949)	(62.131)	(44.026)	(154.114)	(147.062)	(55.322)
Δ (Real Exchange Rate)$_t$	10.170	7.978	24.380	20.453	1.538	5.117
	(172.111)	(54.984)	(226.077)	(308.027)	(15.405)	(31.632)
Δ (FDI/GDP)$_t$	1.736	1.453	0.579	2.723	1.367	1.451
	(5.878)	(2.098)	(1.112)	(4.411)	(1.832)	(8.304)
(MNB Credit/GDP)$_t$	3.248	1.166	1.863	5.308	2.168	2.41
	(5.11)	(1.883)	(2.920)	(6.423)	(1.881)	(4.957)
(Bank Capital/GDP)$_t$	4.894	4.811	7.508	5.116	5.894	2.547
	(4.250)	(3.925)	(6.130)	(4.169)	(3.992)	(3.149)
(Deposits/GDP)$_t$	29.442	25.442	53.548	33.221	34.354	20.755
	(19.402)	(15.875)	(24.515)	(17.777)	(16.187)	(13.160)
(Total Credit/GDP)$_t$	41.907	43.409	64.892	51.480	44.776	28.795
	(36.390)	(26.064)	(36.471)	(50.343)	(25.929)	(22.904)
(Enterprise Credit/GDP)$_t$	25.096	28.030	30.876	34.136	29.406	12.874
	(18.528)	(20.648)	(15.238)	(16.513)	(24.295)	(8.001)

Note: All figures in percent. Standard deviation in parentheses.

TABLE 4: DETERMINANTS OF MNB PRESENCE

	All Countries		Latin America		Asia		Africa	
	(1) LSDV	(2) LSDV	(3) LSDV	(4) LSDV	(5) LSDV	(6) LSDV	(7) LSDV	(8) LSDV
$(\text{Current Account/GDP})_t$	0.0394	0.0348	0.0426	0.0339	0.0138	0.0098	0.0336	0.0265
	(0.0251)	(0.0251)	(0.0424)	(0.0431)	(0.0263)	(0.0334)	(0.0563)	(0.0578)
$(\Delta\text{FDI/GDP})_t$	0.1571***	0.1415**	0.1166	0.0858	0.2163***	0.1991**	0.2048	0.2061
	(0.0563)	(0.0577)	(0.0734)	(0.0774)	(0.0263)	(0.0839)	(0.2001)	(0.2069)
$\Delta(\text{Real Exchange Rate})_t$	0.0113***	0.0110***	0.0158***	0.0154***	0.0151***	0.0180***	0.0051	0.0057
	(0.0038)	(0.0038)	(0.0060)	(0.0059)	(0.0039)	(0.0068)	(0.0126)	(0.0134)
Population_t	6.36e-09	6.08e-09	1.09e-07	4.12e-08	1.203e-09	6.07e-10	-2.03e-07	-6.25e-08
	(1.33e-08)	(1.41e-08)	(1.18e-07)	(1.32e-07)	(3.80e-09)	(4.69e-09)	(1.59e-07)	(2.24e-07)
$(\text{MNB Credit/GDP})_{t-1}$	0.2987***	0.3029***	0.3441***	0.3359***	0.6883***	0.6917***	0.2536***	0.2662***
	(0.0458)	(0.0461)	(0.0783)	(0.0780)	(0.0808)	(0.0864)	(0.0896)	(0.0941)
$\Delta\ (\text{Gdp/Population})_t$	-0.0239*	-0.0256*	-0.0343	-0.0315	-0.0151	0.0024	-0.0202	-0.0275
	(0.0138)	(0.0140)	(0.0245)	(0.0252)	(0.0218)	(0.0237)	(0.0284)	(0.0300)
$\Delta\ (\text{Gdp/Population})_{t-1}$	-0.0114	-0.0117	-0.0145	-0.0165	0.0131	0.0210	-0.0182	-0.0355
	(0.0115)	(0.0117)	(0.0177)	(0.01815)	(0.0182)	(0.0199)	(0.0251)	(0.0274)
$(\text{Bank Credit/Bank Deposits})_t$	-0.0055	-0.0047	-0.0028	0.0024	0.0262***	0.0298***	-0.0205	-0.0321
	(0.0059)	(0.0062)	(0.0069)	(0.0070)	(0.0081)	(0.0090)	(0.0200)	(0.0223)
Constant	-3.2619	5.2791	1.9554	1.9127	-2.9563**	-3.1514	4.7222	8.5679
	(11.4952)	(5.2219)	(4.5433)	(4.7812)	(1.2308)	(4.3703)	(4.7719)	(23.3010)
Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	No	Yes	No	Yes	No	Yes	No	Yes
No. of Observations	475	475	179	179	92	92	145	145
R-squared	0.8752	0.8803	0.9125	0.9217	0.8988	0.9128	0.7807	0.7973
F-statistics	37.36	33.71	53.58	41.93	36.48	23.84	12.05	9.67

Note: Standard errors in parentheses below coefficients. For test statistics, probability of falling below critical value in parentheses.* denotes significance at the 10% level, ** significance at the 5% level, and *** significance at the 1% level. For LSDV regression, the F-Statistics are reported, while the Chi-squared statistics are reported for GLS random effects.

TABLE 5 :

SOME EVIDENCE ON CAUSALITY BETWEEN MNBS AND BUSINESS FDI

Dependent Variable	$(MNB/GDP)_t$			$(\Delta FDI/GDP)_t$		
	(1) Random Effects	(2) LSDV	(3) LSDV	(4) Random Effects	(5) LSDV	(6) LSDV
$(MNB/GDP)_{t-1}$	0.550***	0.253***	0.261***	0.055	0.027	0.021
	(0.041)	(0.041)	(0.041)	(0.034)	(0.038)	(0.038)
$(MNB/GDP)_{t-2}$	0.309***	0.101**	0.105**	-0.005	-0.056	-0.064
	(0.040)	(0.041)	(0.041)	(0.033)	(0.039)	(0.039)
$\Delta(FDI/GDP)_{t-1}$	0.035	0.050	0.036	0.540***	0.293***	0.261***
	(0.048)	(0.047)	(0.048)	(0.040)	(0.089)	(0.045)
$\Delta(FDI/GDP)_{t-2}$	0.072	0.119**	0.113**	0.193***	0.089**	0.061
	(0.044)	(0.048)	(0.049)	(0.038)	(0.044)	(0.044)
Country Fixed Effects	No	Yes	Yes	No	Yes	Yes
Year Fixed Effects	No	No	Yes	No	No	Yes
F-Statistics	2044.24	21.83	44.20	932.47	18.86	13.89
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Hausman Test		2024.85			890.62	
		(0.000)			(0.000)	

Note: Standard errors in parentheses below coefficients. For test statistics, probability of falling below critical value in parentheses. * denotes significance at the 10% level, ** significance at the 5% level, and *** significance at the 1% level. For LSDV regression, the F-Statistics are reported, while the Chi-square statistics are reported for GLS random effects.

TABLE 6:

LIKELIHOOD OF BANKING CRISES IN THE PRESENCE OF MNBS FOR THE PERIOD FROM 1985 TO 1998

MNBs have less than...	MNBs Present			
	MNBs have...	First 5 Years with...	Second 5 Years with...	Third 5 Years and Beyond with...
...no minimum credit market share.				
0.056	0.045	0.037	0.061	0.032
...at least 1% credit market share.				
0.059	0.051	0.043	0.058	0.051
...at least 2% credit market share.				
0.058	0.050	0.040	0.062	0.046
...at least 3% credit market share.				
0.060	0.049	0.042	0.054	0.051

Sources: BIS, Consolidated International Banking Statistics; IMF, International Financial Statistics.

TABLE 7: MNB GROWTH AND MNB MARKET SHARE IN YEARS PRIOR TO BANKING CRISES (DEVIATION FROM NON-CRISIS PERIODS)

	Deviation from average during non-crisis times	
	MNB Market Share Growth	MNB Lending Growth
2 years prior to crisis year	-2.37	-32.46
1 year prior to crisis year	0.95	40.41

Sources: BIS, Consolidated International Banking Statistics; IMF, International Financial Statistics.

TABLE 8

ENTERPRISE CREDIT SUPPLY WITH MNB PRESENCE

	(Enterprise Credit/GDP)$_t$			Memorandum Item: Logarithmic Specification
	(1)	(2)	(3)	(4)
	LSDV	LSDV	LSDV	LSDV
(Bank Capital$_i$/GDP)$_t$	1.6666***	1.6536***	1.7230***	0.2251***
	(0.1925)	(0.1930)	(0.2007)	(0.0440)
(Deposits/GDP)$_t$	0.0185	0.0271	0.0022	-0.3083
	(0.1165)	(0.1170)	(0.1254)	(0.2607)
(Gdp/Population)$_{t-1}$	0.1509***	0.1547***	0.1665***	0.2786***
	(0.0225)	(0.0239)	(0.0246)	(0.0871)
(Enterprise Credit/GDP)$_{t-1}$	0.5406***	0.5479***	0.5535***	0.8717***
	(0.0474)	(0.0483)	(0.0494)	(0.1221)
(MNB Credit/GDP)$_{t-1}$	-0.5406**	-0.5663**	-0.5703**	-0.0268*
	(0.2212)	(0.2235)	(0.2345)	(0.0154)
(MNB Credit/GDP)$_{t-1}^2$	0.0170*	0.0167*	0.0158*	N/A
	(0.0091)	(0.0092)	(0.0094)	
Logged Time Trend	N/A	N/A	3.9589	0.0899
			(5.8842)	(0.2491)
Constant	-41.5759***	-42.9744***	-34.4382**	-0.1585
	(7.1684)	(7.7939)	(18.7875)	(0.3966)
Country Dummies	Yes	Yes	Yes	Yes
Year Dummies	No	Yes	Yes	Yes
No. of Observations	275	275	260	259
Adj. R-squared	0.9447	0.9447	0.9452	0.9139
F-statistic	124.15	96.31	319.06	1508.83

Note: Standard errors in parentheses below coefficients. * denotes significance at the 10% level, ** significance at the 5% level, and *** significance at the 1% level.

TABLE 9

TOTAL CREDIT SUPPLY WITH MNB PRESENCE

	(Total Credit/GDP)$_t$			Memorandum Item: Logarithmic Specification
	(1)	(2)	(3)	(4)
	LSDV	LSDV	LSDV	LSDV
(Bank Capital$_i$/GDP)$_t$	2.2208***	2.2631***	2.3105***	0.1544***
	(0.2569)	(0.2405)	(0.1748)	(0.0233)
(Deposits/GDP)$_t$	-0.5493***	-0.3394**	-0.2946*	0.0542
	(0.1601)	(0.1615)	(0.1748)	(0.0849)
(Gdp/Population)$_{t-1}$	0.1151***	0.1084***	0.1099***	0.1767***
	(0.0306)	(0.0284)	(0.0307)	(0.0543)
(Total Credit/GDP)$_{t-1}$	0.6803***	0.6227***	0.5981***	0.6512***
	(0.0426)	(0.0435)	(0.0457)	(0.0403)
(MNB Credit/GDP)$_{t-1}$	-0.7003**	-0.7444**	-0.6131*	-0.0293***
	(0.3491)	(0.3221)	(0.3379)	(0.0097)
(MNB Credit/GDP)$_{t-1}^2$	-0.0147	0.0156	0.0126	N/A
	(0.0120)	(0.0111)	(0.0126)	
Logged Time Trend	N/A	N/A	-13.1471**	-0.2519
			(5.3887)	(0.1027)
Constant	-10.6046	-39.4429***	76.5135	0.4112**
	(7.2558)	(12.0485)	(19.5644)	(0.1958)
Country Dummies	Yes	Yes	Yes	Yes
Year Dummies	No	Yes	Yes	Yes
No. of Observations	515	515	478	467
Adj. R-squared	0.9042	0.9193	0.9227	0.9253
F-statistic	77.77	255.47	75.96	3193.50

Note: Standard errors in parentheses below coefficients. * denotes significance at the 10% level, ** significance at the 5% level, and *** significance at the 1% level.

Appendix

A. List of Countries

Country	MNB Loans by Mid-1998	Banking Crisis From 1985 and 1996	Market Share of MNBs when Banking Crisis Occurred
Eastern Europe			
Bulgaria	23	1995	
Czech Republic	5103	1994	4.82
Slovakia	599	1991	
Hungary	4363	1987	
Poland	7512	1991	8.05
Romania	286	1990	
Armenia	511	1994	
Estonia	50	1992	
Kazakhstan	64	1991	
Latvia	12	1995	
Russia	2356	1992	
Ukraine	21	1994	
Uzbekistan	8	1993	
Latin America			
Argentina	20327	1989; 1995	n.a.; 5.42
Belize	65		
Bolivia	90	1986, 1994	n.a.; 0.17
Brazil	61965	1994	5.26
Chile	12120		
Colombia	5140		
Costa Rica	81	1994	0.53
Dominica	56		
Dominican Rep.	298	1992	12.79
Ecuador	185	1995	2.07
El Salvador	264	1989	0.55
Grenada	42		
Guatemala	41		
Guyana	31	1993	
Haiti	88	1994	21.63
Honduras	33		
Jamaica	1442	1994	96.11
Mexico	18889	1994	1.81
Paraguay	611	1995	15.08
Peru	1268		
St. Lucia	178		
St. Vincent	53	1994	34.78
Suriname	35		2.03
Trinidad/Tobago	770		

Country	MNB Loans by Mid-1998	Banking Crisis From 1985 and 1996	Market Share of MNBs when Banking Crisis Occurred
Turks/Caicos	35		
Uruguay	1434		
Venezuela	6411	1994	1.93
Middle East			
Egypt	919	1994	0.23
Iran	3		
Israel	95	1989	0.56
Oman	532		
Qatar	116		
Saudi Arabia	29		
United Arab Emirates	4988		
Yemen	50		
Africa			
Algeria	1083	1990	0.75
Angola	546	1991	
Benin	40	1988	1.05
Botswana	8	1994	
Burkina Faso	25	1988	
Burundi	18	1994	0.53
Cameroon	101	1989, 1996	1.91; 12.08
Cape Verde	1	1995	
Chad	3	1992	
Comoros	1		
Congo	42	1994	0.32
Congo, Dem. Rep.	46		3.73
Ivory Coast	335	1988	2.29
Djibouti	43	1991	
Ethiopia	47	1994	
Gabon	135	1995	4.97
Gambia	6	1985	
Ghana	395		
Guinea	63		
Kenya	267	1993	
Lesotho	107	1988	
Madagascar	82	1988	
Malawi	3		
Mali	27	1987	
Mauritania	36	1991	
Mauritius	133	1996	
Morocco	1202		
Mozambique	8	1988, 1994	0.49; n.a.

Country	MNB Loans by Mid-1998	Banking Crisis From 1985 and 1996	Market Share of MNBs when Banking Crisis Occurred
Namibia	6		
Niger	11		
Nigeria	329	1991	0.54
Rwanda	7	1991	0.77
Senegal	159		
Somalia	2	1990	
South Africa	3573	1985, 1989	1.21
Sudan	26		
Swaziland	3	1995	
Tanzania	27	1988	0.63
Togo	7	1989	
Tunisia	428	1991	0.50
Uganda	4	1990	
Zambia	73	1994	
Zimbabwe	255	1995	1.32
Asia			
Bangladesh	120	1987	
Brunei	839	1986	
China	1196		
Fiji	55	1995	
French Polynesia	439		
India	9642	1991	4.44
Indonesia	2327	1992	2.79
South Korea	10399	1986	5.76
Macao	98		
Malaysia	5413	1985	9.15
Nepal	27		
New Caledonia	445		
Pakistan	2723		
Papua New Guinea	62	1989	
Philippines	3381		
Sri Lanka	156	1992	2.14
Taiwan	11999		
Thailand	7296		
US Pacific Islands	95		
Vietnam	384		

Sources: BIS, Consolidated International Banking Statistics; IMF, International Financial Statistics; Lindgren, Garcia and Saal, 1996.

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