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Financial Liberalization, Multinational Banks and Credit Supply: The Case of Poland

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FINANCIAL LIBERALIZATION, MULTINATIONAL BANKS AND CREDIT SUPPLY: THE CASE OF POLAND

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Abstract

Part of the Polish transformation process has been an opening of the domestic financial market to foreign entrants. While the number of MNBs rises from zero to fifteen within six years, the ratio of bank credit to private and public enterprises relative to GDP decreases continuously after 1991. In this paper, I develop an argument as to why these two trends may be connected. Further, using monthly data provided by the weekly Polish publication Gazeta Bankowa, by the National Bank of Poland, the Central Statistical Office, the BIS, and the IMF, I test the hypothesis that more MNB entry may lead to a declining credit supply during the early stages of the transition process. Multivariate regression results indicate that more MNB entry results in a lower credit supply by Polish banks during the early transition phase. This result holds regardless of the measurement of international financial competition, and regardless of a bank's history, and it is only partially affected by a bank's location. More importantly, the overall impact of increased international financial competition on the credit supply of Polish banks is strong enough to lower the total credit supply in the Polish economy. Since an earlier study has found that Polish industries operate under hard budget constraints and are finance constrained during the early stages of the transition process, a reduction in the credit supply has adverse effects on business investments (Cornelli, Portes, and Schaffer, 1996; Weller, 1999).

Keywords: Multinational banks; credit supply; financial liberalization; transition economy; Poland

JEL classifications: F36; O52; P23; P33; P34;

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I. Introduction

The prevalence of financial liberalization (FL) in less industrialized economies allows multinational banks (MNBs) greater access to less developed financial markets. While a few governments attempt - often unsuccessfully - to restrict access to MNBs, most liberalizing economies permit early MNB entry. In the transition economies of Central and Eastern Europe as elsewhere MNB entry has been an integral part of the transformation towards a more market based economic system. In Poland, for instance, the number of MNBs reached fifteen by the end of the sixth year of the transition in early 1996.

The rapid growth of MNB presence comes at a time when banks appear to be reluctant to expand credit to firms. While the number of MNBs rises from zero to fifteen within six years, the ratio of bank credit to private and public enterprises relative to GDP decreases continuously after 1991. From a high point of business loans worth 23.93% of GDP in 1991 business credit decreases to 19.76% of GDP by the end of 1995. In contrast, bank lending to the government rises rapidly from 2.36% of GDP in 1990 to 13.61% of GDP in 1995.

The combination of an increasing MNB presence and declining business credit relative to GDP seems the more surprising in light of an improving economic situation in Poland since 1993. Real GDP growth, for instance, turned positive in 1992 for the first time with 2.6%, and continues to rise thereafter at rates of 4-7%. Similarly, the unemployment rate reached its peak in 1993 with 16.4%, and has since then gradually declined. Finally, inflation rates have left the echelons of hyperinflation, and declined at a steady pace to 27.8% in 1995. In other words, the economic environment should make both lenders and borrowers more confident about the future economic prospects, and hence we would expect rising business credit levels relative to GDP.

The standard FL framework would predict rising levels of credit after deregulation and increased MNB entry. For one, the McKinnon-Shaw framework argues that greater financial market competition through easier market entry, be it domestic or foreign, should make banks more efficient, and hence raise the supply of funds. However, this argument rests on rather simplistic assumptions about the operation of banking markets. The issue, then, arises whether with alternative assumptions a possible connection between increased international financial competition and declining credit levels emerges.

A better understanding of the financial market impacts of FL has obvious policy implications. A growing number of less industrialized economies are deregulating their financial markets, including easier access for MNBs. However, if there is evidence that such a rise in international competition may have adverse effects on the supply of domestic credit, policymakers should consider countervailing actions sooner rather than later relative to MNB entry.

The remainder of this paper is organized as follows. In section II, I present an overview of the existing literature, and a brief development of the argument as to why domestic banks may be reluctant to increase their credit exposure in the face of growing international competition. This argument serves as the basis for an empirical investigation in section III using bank level data for the fourteen largest Polish banks for the period from the beginning of 1993 to the end of 1995. A few concluding remarks follow in section IV.

II. Background

Most research on MNBs addresses firm level decisions, rather than macro economic implications. Also, the traditional FL framework, which links increased market competition to the supply of credit, falls short of explaining a credit contraction with MNB entry. With more realistic assumptions, though, a coherent explanation for a credit contraction after MNB entry emerges. Most empirical studies are based upon a firm level application of the theory of multinational corporations to banking (Dunning, 1979; Gray and Gray, 1980), and hence the business decisions of these financial firms are at the core of most research. For instance, a number of studies look at the determinants of MNB entry, such as the presence of MNCs, market size of the host economy, or the demand for MNB products (Cho, 1985; Sabi, 1988), and the related issue of the timing and scale of MNB entry (Ursacki and Vertinsky, 1992). However, to understand the connection between MNB entry and the supply of credit, it is important to go beyond the pure firm level analysis.

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. In particular, MNB entry is supposed to introduce market discipline, and imports foreign expertise, banking know-how and bank capital. These improvements should result in more and better financial products and services, thereby lowering the costs of funds, raising the availability of credit, leading to more investment.

However, this benign 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.

The effect of more MNB entry on the supply of credit depends on each bank's net worth. If a bank's net worth remains *above* a safety threshold the bank will *not increase* its credit unless its net worth increases, but once its net worth falls *below* that safety threshold the bank *will increase* its loans, particularly for high risk high projects, since it stands to lose little or nothing.

The dilemma, though, is that international competition may limit banks' ability to raise their net worth, and they may restrict their loans 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 a study on the profitability of domestic banks and MNBs it is found that "an increase in the share of foreign banks leads to a lower profitability of domestic banks" (Claessens, Demirgüc-Kunt, and Huizinga, 1998), thus supporting earlier findings by Terrell (1986) that banks in economies with MNB entry have lower gross interest margins, lower pre-tax profits, and lower operating costs. Banks are, then, capital constrained as other sources for new capital, such as public capital injections or equity markets are not readily available[1].

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 raise 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

[1]Even in industrialized economies, equity markets are less a capital source than retained earnings or bank credit. Thus, it is unlikely that the Polish stock market, which had 53 stocks quoted, and a market capitalization of 3.7% of GDP by the end of 1995, is a major capital source.

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.

Domestic banks in Poland only gradually improve their capital bases. Real capital levels for the regional Polish banks reach their peak in 1991, while the specialized banks experience continuously increasing real capital levels. Adjusting, though, for the bad loan burdens which are not covered by loan loss provisions the adjusted capital to asset ratios for the specialized banks decrease, such that they turn negative for 1991 and 1992, and the adjusted capital to asset ratios for the regional banks become negative in 1992 and 1993 before slowly increasing (table 2). The stark increases in real capital levels are mainly due to the recapitalization efforts of the Enterprise and Bank Restructuring Program (EBRP) in 1993, and an additional recapitalization of BGZ 1994 (PBR, 1993, 1994; OECD, 1996; Mondshean and Opiela, 1997)[2].

Another reflection of the reorientation of bank activities under international financial competition is the growing risk aversion of domestic banks. In particular, they allocate an increasing share of their portfolios in t-bills, even though these assets generate lower revenues, sometimes even negative real rates of return. All banks in Poland invest between 15% and 30% of their assets in treasury bills. The real interest rates earned on treasury bills are consistently lower than real lending rates for prime customers (Mondshean and Opiela, 1997; NBP, various issues). Domestic banks may still increase their allocation in t-bills if the risk in commercial lending is too high. However, this does not seem to be the case since all banks regardless of their

[2]The recapitalizations of Polish banks put a strain on the $750 million Restructuring Program. Similarly, the recapitalization of the BGZ put a strain on the federal budget and was only possible in the political climate when the Polish Peasant Party provided the prime minister.

own portfolio risk show similar allocations between t-bills and commercial loans, and since the economy is gradually improving (Annual Reports; NBP, Information Bulletin, various issues).

With the reorientation of domestic bank activities away from enterprise credit in the face of more international financial competition and persistently low capital levels, it is noteworthy that less loans by domestic banks only result in an overall credit decline if MNBs are not compensating for this decrease. As MNBs are largely unfamiliar with the domestic economy they restrict themselves to lending to MNCs, or other virtually risk free activities. MNBs also limit their services to high net worth individuals. MNBs in other less industrialized economies, though, have expanded into domestic market operations, such as derivative products, stock market operations, customized financing packages for corporate clients (Brainard, 1990) or foreign currency loans (Euh and Baker, 1990) if competition increases in traditional MNB market segments. Yet, the evidence also indicates that MNBs so far still shun further branching into country-specific market segments, such as SMEs, rural producers or residential housing, mainly because of their cost disadvantage (Brainard, 1990), their unfamiliarity with the host economy, and the resulting higher risk (Euh and Baker, 1990).

As MNB operations are unlikely to compensate fully for the lending reluctance of domestic banks, and as domestic banks comprise the vast majority of the banking sector, at least in the early stages of international financial competition, total credit may fall. Again, this assumes that domestic banks have no incentive to engage in high risk, high return activities, which would be the case, for example, if their net worth is close to zero or even negative. Even though Polish banks have seen their capital levels erode, the governments as the primary owners of the large domestic banks have prevented risky credit expansions from occurring (Mondshean and Opiela, 1997). Thus, as long as the government remains a major shareholder in the domestic banks, low or negative capital levels are unlikely to pose an adverse incentive.

Obviously, there may be other factors besides MNB entry, which may have led domestic banks to be reluctant in expanding their business loans, despite an improving economy. First, domestic banks may have initially been unwilling to enforce credit repayments in the years of the economic downturn because the initiation of bankruptcy procedures on the banks' borrowers would have eliminated any chance of future repayments (Begg and Portes, 1993; Dittus, 1994; Mondshean and Opiela, 1997), leading them to enforce tighter credit policies once the economy improves. However, credit relative to GDP decreases sharpest in the first year of the transition, when the likelihood of soft budget constraints would have been highest. Further, a number of studies have found that Polish firms operated under hard budget constraints early during the transition (Dittus, 1994; Cornelli, Portes, and Schaffer, 1996; Weller, 1999c). Second, stricter enforcement of bad loan regulations may have forced banks to act on their bad loan portfolios (Mondshean and Opiela, 1997). Stricter enforcement of bad loan regulations, though, did not take place until the second half of 1993 (Mondshean and Opiela, 1997). Third, a tightened monetary stance to combat hyperinflation in the early transition period may have reduced banks' ability to expand their credit. However, aside from large dissavings in the first transition year, time deposits have continuously grown, which is also reflected in a gradually increasing ratio of M2 to GDP.

III. Empirical Evidence

My focus now turns again to the impact of international financial competition on the domestic credit supply. In this section, this impact is investigated more systematically using a multivariate, regression approach.

III. 1 Data for the Polish Banking System

The data set used here comprises balance sheet data of 20 banks - 5 specialized banks, 9 regional banks, and six private banks[3] - MNB loans and aggregate firm financials for the period from January 1993 to December 1995[4]. Data prior to 1993 is often questionable as balance sheets often did not have to be audited before publication. Further, the argument linking MNB entry to a bank's reluctance to expand its credit focuses primarily on the early stages of the transition process. Here, the end of the early transition phase is defined as the end of the sixth year of transition, or 1996. With respect to the data, each bank's balance sheet data is compiled from the monthly bank rating published in the *Gazeta Bankowa*, MNB loans are taken from the BIS' *Consolidated International Banking Statistics*, total loans are compiled from the IMF's *International Financial Statistics*, and aggregate firm financial, such as internal financial means or sales are provided by the GUS' *Statistical Bulletin*.

The twenty banks of this study comprise a representative sample of the banking sector in Poland. The 14 formerly state owned banks alone still have a credit market share of more than 70% by the end of 1995 (table 2). Further, nine of the 20 banks are located in the capital, whereas the remaining eleven banks are located in eight different cities across the country. Also, of the six private banks only three are located in Warsaw, whereas the other three are located in areas in the middle and the bottom groups (see table A.1 in the Appendix). Similarly, whereas the formerly state owned banks are the largest banks, the private banks are medium sized and smaller banks. In a ranking of 72 banks for the end of 1995, the largest private bank (in terms of total assets),

[3]The six private banks are the newly created banks traded on the WSE by the end of the investigation period: BIG SA, Kredytbank, BWR SA, PBR SA, Petrobank, and PPABank. Using only publicly traded banks ensures a minimum standard of data quality.

[4]See the Appendix for a complete list of banks.

BIG SA, was number 16, whereas the smallest private bank, PPABank, was number 39 (Gazeta Bankowa). Hence, the results for this sample should hold for the banking system as a whole.

The structure of the Polish banking system provides some insights into the possible effects of MNB entry on different banks. While the number of MNBs has rapidly increased to fourteen in early 1996, not every domestic bank may experience international financial competition to the same degree. Commercial banks located in the capitals, and in large urban industrial centers are more likely to see foreign competition than banks in smaller, less industrialized centers. Further, MNBs are entering predominantly in market segments, which are traditionally served by the export development banks, such as MNCs or large domestic corporations.

In the centrally planned economy, the NBP played a dominant role with more than 65% of business and household transactions. The remainder was provided by five specialized banks: The Bank for Food Economy (BGZ) which serviced the agricultural sector, the State Savings Bank (PKO BP), the Polish Savings Bank (PeKaO SA) which operated as the only foreign currency deposit bank, the Foreign Trade Bank (BHW), and the Export Development Bank (BRE).

Under the "The Banking Law of January 1989" and "The Act on the Narodowy Bank Polski (National Bank of Poland) of January 1989", nine regional banks were created by separating the commercial banking operations from the central banking division at the NBP. Not surprisingly, these fourteen had a market share of approximately 90% in 1990 (PBR, 1992).

A growing market share has been taken by the new private banks. Their total number rose to 75 by the end of 1990. By the end of 1995, the former state-owned banks still dominate with a credit market share of more than 70%, down from more than 90% by the end of 1990 (table 2). New entrants have obviously gained in market share. For instance, fourteen MNBs have a credit market share of more than 2.52% by the end of 1995, and almost a 6% share of all Polish bank capital (table 2)[5]. Similarly, the six private banks traded on the Warsaw Stock Exchange by the end of 1995, have a combined credit market share of 2.58%. The remainder of the Polish banking market is split between newly created private banks, and a large number of co-operative banks.

The impact of the growing MNB presence is felt differently by different banks. Polish banks which serve the traditional clients of MNBs, provide international financial services, or operate in the same geographic areas as MNBs, are possibly more affected by international financial competition than others. This holds in particular true for BHW, which has remained the leading provider of trade finance, or PeKaO S.A. which was the only bank allowed to collect foreign currency deposits. In contrast, PKO BP which in 1996, still held the largest loan portfolio of consumer credit, mortgages and loans to SMEs, or BGZ which continues to be the main provider of banking services in rural areas and the central banks for co-operative banks, are less likely to be affected by MNB entry. Similarly, as MNBs have only slowly expanded their branch networks within and beyond Warsaw (Mondshean and Opiela, 1997), regional banks, which operate outside of Warsaw are less likely to feel the impact of MNB entry than banks operating closer to the capital. Furthermore, all privately owned, and newly established Polish banks operate as universal banks, and are hence likely to experience MNB competition in such market segments as MNCs, large domestic corporations, or high net worth individuals. Again, some of the new Polish banks operate in areas, where MNBs are less likely to enter, and hence international competition may be mitigated.

The following discussion investigates two dimensions, which may affect the impact of MNB entry on each bank's behavior. First, each bank's history may matter for the credit supply of the respective bank. Thus, the data set is divided according to specialized, regional, and newly

[5]This market share has been gained over a short time period in which the government partially limited the access of MNBs and supported the large domestic banks.

created private banks. Second, not each Polish area is equally likely to see MNB entry. Since most Polish banks are geographically restricted, they may also experience MNB competition differently, depending on their location. Here, I have divided the major Polish centers into three groups, top, middle, and bottom, following a study on regional investment risks (Gdansk Institute, 1994).

III.2 Regression Analysis

To study the impact of international financial competition on the Polish credit supply during the early stages of the transformation process, I estimate a parsimonious reduced form credit supply function of the following form:

$$\frac{Credit_{it}}{Assets_{it}} = \frac{Capital_{it}}{Assets_{it}} + \frac{Deposits_{it}}{Assets_{it}} + L\left(\frac{\sum InternalFinance_j}{\sum Sales_j}\right) + \left(\frac{\sum MNBCredit_k}{TotalCredit}\right)_t$$

where each bank *i's* credit supply, *Credit/Assets,* is determined by its capital, *Capital/Assets*, and deposits, *Deposits/Assets,* as well as the current and past financial situation - hence the lag operator L - of all *j* Polish industries, *Internal Finance*, and the sum of all *k* MNBs' loans, *MNB Credit*, relative to the country's total loan amount, *Total Credit*[6].

The regression equation includes both bank level and financial market aspects of each bank's supply of credit. If banks operate in financial markets with asymmetric information, their

[6]Alternatively, I could choose a logarithmic form, which produces similar results. Using Theil's (1972) residual variance criterion I obtain an F value with 699 degrees of freedom in the numerator and the denominator of 1.031. The probability of obtaining a value larger than 1.031 is greater than 95%. Hence, since the residual variance is greater for the logarithmic specification, Theil's residual variance criterion suggests that the level specification is the correct one.

credit supply decision results in credit rationing (Stiglitz and Weiss, 1982)[7]. Hence, following a specification of a bank's credit supply under credit rationing (Greenwald and Stiglitz, 1990), the credit supply is determined by the bank's capital and deposits, as well as the level of internal finance among borrowers. Both increases of capital and deposits are expected to lead to an larger credit supply. The sign for the internal financial situation of borrowers is ambiguous, since an improved financial situation provides borrowers with more collateral, but also with less demand for expensive external financing. In addition to this specification, I have included a measure for international financial competition as a determinant of credit supply. Following the above argument, increases in international financial competition are expected to result in less credit.

I begin by studying the effects of MNB entry on credit supply for all 20 banks. Regression (1) in table 3 presents the results using Generalised Least Squares random effects, showing that a growing MNB presence lowers domestic banks' credit supply. The estimated parameter for international competition indicates that an increase of MNB credit market share to the tune of one standard deviation leads to a reduction of credit relative to assets among the 20 banks of the sample of 2.47 percentage points. Similarly, if the ratio of MNB capital to total bank capital increases by one standard deviation, credit relative to assets declines by 1.21 percentage points. Finally, an increase in the number of MNBs by two leads to a drop in the credit to asset ratio by 0.82 percentage points. Put differently, no matter how international financial competition is measured, the impact on the supply of credit by 20 domestic banks is always negative.

How serious is the impact of MNB entry for the Polish economy during the early stages of the transition process? The ratio of MNB loans relative to total credit amounted to 0.99% in January 1993, and increased to 2.42% by December 1995. Similarly, the ratio of MNB capital to

[7]Polish firms operate under hard budget constraints, and are finance constraint during the early transition years (Dittus, 1994; Cornelli, Portes and Schaffer, 1996; Weller, 1999).

total bank capital rose from 2.05% in January 1993 to 5.90% by December 1995, and the number of MNBs grew from 7 to 14 over the same period. Hence, the total credit decline amounts to 7.08 percentage points relative to assets given the first measure of international financial competition, to 4.06 percentage points with the second measure, and to 2.88 percentage points with the third measure. Considering now that the ratio of total bank assets to GDP remained stable with 56.79% and 56.60% by the end of 1992 and 1995, respectively (IMF, NBP), the growth in international competition has contributed to a decline in enterprise credit in the Polish economy.

One way to correct for the potential lack of independence over time of the error term for each bank is to control for bank fixed effects. This method has the advantage of controlling for the incidence of time-invariant omitted variables, which may be correlated with the other explanatory variables. However, using Hausman's (1978) specification test to see whether random effects are appropriate shows that they are. The test statistic for regression (1) which has a chi-squared distribution with two degree of freedom has a value of zero. The probability of obtaining a value greater than zero is equal to one. Hence, there is some evidence that the assumption of the random effects being uncorrelated with the explanatory variables is correct, and that the GLS model is correctly specified. The results, then, of a regression with bank specific dummies, regression (2), are the same as the random effects results of regression (1).

MNBs may be reluctant to expand credit beyond their traditional market segments, such as MNCs, large domestic corporations, or high net worth individuals. Hence, using the credit market share of MNBs as a measure of their competitive impact may underestimate their effect since all MNB loans are concentrated in a few market segments. Two alternative measures of international financial competition are therefore introduced, namely the ratio of the total capital held by MNBs relative to the sum of all banks' capital, and the number of MNB licenses. In both instances, the competitive impact of MNBs, however, may be overestimated due to the rather poor capitalization of domestic banks, and due to the large concentration in the Polish banking sector.

Regressions (3)-(6) present the random effects and bank fixed effects results with the alternative specifications of international financial competition. In both cases, the Hausman specification test takes on the value of zero, indicating that random effects regressions are correctly specified. An increase of MNB credit relative to total credit in Poland by one standard deviation reduces the credit exposure of regional banks by 1.62 percentage points, of specialized banks by 2.03 percentage points, and of private banks by 2.63 percentage points.

Due to the development of the Polish banking system, some banks may experience international financial competition differently than others. In particular, newly created private banks may have sufficiently capital and technology not to be adversely affected in their credit decisions by an increased MNB presence. In contrast, the regional banks may show the strongest reaction to growing international financial competition because of their low capitalization, and because of their relative inexperience in operating in a market based system. For specialized banks, the impact of MNBs depends not only on their low capitalizations, but also on the fact that all of them operate in Warsaw, and tend to serve market segments, which are favored by MNBs.

Table 4 presents the regression results for the three different groups of banks. The results indicate that the credit supply of all three groups of banks, regardless of their historical developments, is adversely affected by the growing competition from MNBs. Again, the random effects estimations are correctly specified as indicated by chi-squared values of zero or close to zero (0.43 for private banks, and zero for both other groups). As the differences between the respective coefficients are statistically insignificant, all three groups are essentially affected the same by more MNB entry. Put differently, domestic banks reduce their credit exposure in the face of international financial competition, regardless of their past experience.

While past experience may not matter for the impact of MNB entry on the credit exposure of domestic banks, their location may. In particular, the attractiveness of regions for international investments varies significantly (Gdansk Institute, 1994). Since one of the determining factors for MNB entry is the presence of MNCs, it seems reasonable to assume that regions that are less attractive for investors are also less attractive for MNBs. Banks that are located in less attractive areas should also be less affected by international competition. Following the Gdansk Institute's study on Investment Risk in Poland, I have classified the regions where the 20 banks are located into a top, middle and bottom group. According to this classification, eleven banks fall into the top group, six banks into the middle group, and three banks into the bottom group (table 2).

The results for the regressions according to the three regions are presented in table 5. Again, the Hausman specification test indicates in each instance that the GLS random effects model is correctly specified. The impact of MNB entry on the supply of credit is greatest for the bottom group (regressions (5)-(6)), whereas it is statistically insignificant for the middle group (regressions (3)-(4)). As expected the top group experiences a significant negative impact of MNB entry on its credit supply, but not as strong as the bottom group (regressions (1)- (2))[8].

The regression results indicate that more MNB entry results in a lower credit supply by Polish banks during the early transition phase. This result holds regardless of the measurement of international financial competition, and regardless of a bank's history, and it is only partially affected by a bank's location. More importantly, the overall impact of increased international financial competition on the credit supply of Polish banks is strong enough to lower the total credit supply in the Polish economy. Since an earlier study has found that Polish industries operate

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[8]The fact that the impact of MNB entry is strongest in the least attractive areas for investors may be a result of the fact that the bottom group has by far the largest credit exposure of all Polish banks with an average ratio of credits to assets of 51.80%.

under hard budget constraints and are finance constrained during the early stages of the transition process, a reduction in the credit supply has adverse effects on business investments (Cornelli, Portes, and Schaffer, 1996; Weller, 1999).

IV. Concluding Remarks

In this paper, I investigate the link between more MNBs and a decline of enterprise credit in the Polish economy during the early transition years. Under the asymmetric information assumptions, I argue that domestic banks may reduce their credit exposure when MNBs enter in order to lower their risk exposure, and to avoid bank failure. Using monthly bank level data from the weekly publication Gazeta Bankowa, and monthly market data from the NBP, the Central Statistical Office (GUS), the BIS, and the IMF, I estimate a parsimoniously reduced credit supply function for the period from January 1993 to December 1995.

The results show that early MNB entry has resulted in a reluctance of banks to expand their loans. This has contributed to the decline in enterprise credit relative to GDP in Poland in the early transition years. This result holds true regardless of whether the banks in question are former state-owned banks or newly created private banks. With respect to the real impact of the credit constraints, earlier studies on the impact of the credit supply on business investment have shown that enterprises operated under hard budget constraints early on, and that they have been finance constrained, so that the reluctance on the part of banks to lend out money has adversely affected investment (Weller, 1999; Shaffer, Portes, and Cornelli, 1996; Dittus, 1994). While it is reasonable to assume that some firms, in particular smaller and younger ones, are more likely to experience finance constraints than their older and more mature counterparts, an investigation of the impact of these finance constraints on firm financing should be part of future research.

Appendix:

A.1 Data Sources:

Banking Research in Eastern Europe (BREE), Bank Rating Reports, various issues, Cyprus: BREE

Central Statistical Office (GUS), Statistical Bulletin, various issues, Warsaw: GUS

Dabrowski, Janusz M., Zbigniew Dworzecki, Krystyna Gawlikowska-Hueckel, and Bohdan Wyznikiewicz, 1994, *Investment Risk in Poland*, Warsaw: The Gdansk Institute for Market Economics

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International Monetary Fund (IMF), International Financial Statistics, various issues, Washington D.C.: IMF

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Polski Bank Rozwoju (Polish Development Bank), 1993, The Banking System in Poland 1992/93, Warsaw: Ministry of Finance.

Polski Bank Rozwoju (Polish Development Bank), 1994, The Financial System in Poland 1993/94, Warsaw: Ministry of Finance.

A. TABLE A.1
LIST OF POLISH AND MULTINATIONAL BANKS

Name	History	Region
Bank Depozytowo-Kredytowy (BDK) SA, Lublin	Regional Bank	Bottom Group
BGZ, Warsaw	Specialized Bank	Top Group
Bank Gdanski SA, Gdansk	Regional Bank	Top Group
Bank Handlowy SA w Warszawie (BHW), Warsaw	Specialized Bank	Top Group
Bank Inicjatyw Gosp. (BIG) SA, Warsaw	Private Bank	Top Group
Bank Polska Kasa Opieki (PeKaO) SA, Warsaw	Specialized Bank	Top Group
Bank Przemyslowy-Handlowy S.A. (BPH), Krakow	Regional Bank	Middle Group
Bank Rozwoju Eksportu SA (BRE), Warsaw	Specialized Bank	Top Group
Bank Slaski S.A., Katowice	Regional Bank	Middle Group
Bank Wspolpracy Regionalnej (BWR) SA, Krakow	Private Bank	Middle Group
Bank Zachodni S.A., Wroclaw	Regional Bank	Middle Group
Kredyt Bank SA, Warsaw	Private Bank	Top Group
Petrobank SA, Lodz	Private Bank	Bottom Group
Polski Bank Rozwoju (PBR) SA, Warsaw	Private Bank	Top Group
Pomorski Bank Kredytowy SA, Szczecin	Regional Bank	Middle Group
Powszechna Kasa Oszczednsci (PKO) BP, Warsaw	Specialized Bank	Top Group
Powszechny Bank Gospodarczy S.A., Lodz	Regional Bank	Bottom Group
Powszechny Bank Kredytowy S.A., Warsaw	Regional Bank	Top Group
PPABank SA, Krakow	Private Bank	Middle Group
Wielkopolsi Bank Kredytowy S.A., Poznan	Regional Bank	Top Group

Multinational Banks	Form of Operation
Bank Amerykanski w Polsce (Amerbank) SA	Bankers Trust as large shareholder with other international investors.
Citibank Poland SA	Subsidiary of Citibank, USA
IBP Bank SA	Joint operation of ABN-AMRO, Banca Commerciale Italiana, Credit Lyonnais, IFC, BRE SA.
ING Bank Warsaw	Branch office of ING, Netherlands
Raiffeisen-Centrobank SA Warsaw	Subsidiary of Raiffeisen Zentralbank Austria AG, Austria
Creditanstalt SA Warsaw	Subsidiary of Creditanstalt Austria AG, Austria
BNP-Dresdner Bank (Polska) SA	Subsidiary of Banque National de Paris (France) and Dresdner Bank (Germany)
Westdeutsche Landesbank (Polska) SA	Subsidiary of West LB, Germany
Hypo-Bank Polska SA	Subsidiary of Bayerische Hypotheken- und Wechselbank, Germany
Bayerische Vereinsbank SA	Subsidiary of Bayerische Vereinsbank, Germany
ABN-AMRO (Polska) SA	Subsidiary of ABN-AMRO, Netherlands
Rabo-BRP Bank Polska SA	Subsidiary of Rabobank International Holding BV, Netherlands
Societe Generale	Branch office of Societe Generale, France
GE Capital SA	Subsidiary of GE Capital, USA

Note: Sources are the PBR's *The Banking System in Poland 1991-1992*, *The Banking System in Poland 1992-1993*, and *The Financial System in Poland 1993-1994*; *Gazeta Bankowa*; and a list of foreign banks supplied by the Ministry of Finance, May 1996.

A. TABLE A.2
LIST OF VARIABLES

Variable	Definition	Source
$(\text{Credit/Assets})_t$	The ratio of bank credit to the respective bank's assets	Gazeta Bankowa
$(\text{Capital/Assets})_t$	The ratio of bank capital to the respective bank's assets.	Gazeta Bankowa
$(\text{Deposits/Assets})_{t-1}$	The ratio of bank deposits to the respective bank's assets	Gazeta Bankowa
$(\text{MNB Loans/Total Loans})_t$	The sum of all loans made by MNBs relative to the total amount of credit	BIS, Consolidated International Banking Statistics; IMF, International Financial Statistics
$(\text{MNB Capital/Total Capital})_t$	The sum of all MNB capital relative to the total amount of bank capital	Gazeta Bankowa; PBR; IMF, International Financial Statistics
$(\text{Number of MNBs})_t$	The number of MNB licenses	PBR; MoF
$(\text{Internal Finance/Sales})_t$	The sum of all internal finance positions of Polish industries relative to the sum of all sales across Polish industries	GUS, Statistical Bulletin

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C. Tables

TABLE 1
MACRO AND FINANCIAL DATA FOR POLAND 1990-1995

Year	Real GDP Growth	Unemployment	Inflation	Deposits/GDP	M1/GDP	M2/GDP	Total Credit/GDP	Enterprise Credit/GDP	Government Credit/GDP
1990	-11.6	6.3	585.8	16.10	16.82	34.02	19.46	21.10	2.36
1991	-7.0	11.8	70.3	18.06	13.33	32.27	34.88	23.93	9.20
1992	2.6	13.6	43.0	21.79	13.02	35.76	38.20	21.65	10.47
1993	3.8	16.4	35.3	23.28	12.61	35.90	40.65	21.36	12.38
1994	5.2	16.0	32.2	23.69	13.05	36.74	39.17	19.92	13.02
1995	7.0	14.9	27.8	23.18	12.97	36.15	34.27	19.76	13.61

Note: All figures are given in percentages. Sources are Business Central Europe (BCE), *Key Data 1990-1998*, and the IMF's *International Financial Statistics*.

TABLE 2
BANKING SECTOR DATA FOR POLAND 1990-1995

Year	Domestic Banks						Multinational Banks		
	Specialized Banks		Regional Banks		Private Banks				
	Credit Market Share (%)	Adj. Capital/Asset Ratio (%)	Credit Market Share (%)	Adj. Capital/Asset Ratio (%)	Credit Market Share (%)	Adj. Capital/Asset Ratio (%)	Credit Market Share (%)	MNB Capital/Total Capital (%)	Number of MNBs
1990	43.86	1.66	44.66	2.35	0.40	6.66	NA	NA	0
1991	45.29	-1.20	38.70	3.63	0.91	25.91	NA	NA	6
1992	48.43	-3.21	35.85	-1.74	1.16	15.82	0.93	2.09	7
1993	46.95	1.38	32.28	-0.10	1.54	10.65	1.49	1.74	7
1994	43.09	4.75	32.54	2.17	1.89	20.39	2.02	2.27	7
1995	40.03	4.77	34.44	3.75	2.58	15.74	2.42	5.90	7

Note: All values are given as means in percentages. Sources are Gazeta Bankowa, the BIS' Consolidated International Banking Statistics, and the IMF's International Financial Statistics.

TABLE 3
SUMMARY STATISTICS

Variable	Overall	Regional Banks	Specialized Banks	Private Banks	Top Group	Middle Group	Bottom Group
($Credit_{it}$/$Assets_{it)}$	37.72 (17.64)	39.65 (12.24)	36.62 (16.14)	35.60 (24.70)	32.44 (5.85)	38.18 (6.29)	51.80 (35.75)
($Capital_{it}$/$Assets_{it}$)	12.07 (16.44)	8.70 (16.52)	8.44 (5.35)	20.77 (19.48)	7.91 (3.02)	11.93 (20.78)	17.77 (28.05)
($Deposits_{it}$/$Assets_{it}$)	63.99 (27.67)	57.33 (13.54)	58.61 (16.18)	79.86 (42.89)	59.84 (6.56)	67.62 (16.94)	55.51 (58.12)
(∑Internal $Finance_j$/∑$Sales_{j)t}$	67.90 (5.70)	67.90 (5.70)	67.90 (5.70)	67.90 (5.70)	67.90 (5.70)	67.90 (5.70)	67.90 (5.70)
(∑MNB $Loans_k$/Total $Credit)_t$	1.90 (0.50)	1.90 (0.50)	1.90 (0.50)	1.90 (0.50)	1.90 (0.50)	1.90 (0.50)	1.90 (0.50)
(∑MNB $Capital_k$/Total $Capital)_t$	2.39 (1.15)	2.39 (1.15)	2.39 (1.15)	2.39 (1.15)	2.39 (1.15)	2.39 (1.15)	2.39 (1.15)
Number of MNBs	8.00 (2.00)	8.00 (2.00)	8.00 (2.00)	8.00 (2.00)	8.00 (2.00)	8.00 (2.00)	8.00 (2.00)

Note: All values are given as means in percentages. Standard deviations are reported in brackets. Sources are Gazeta Bankowa, the GUS' Statistical Bulletin, the BIS' Consolidated International Banking Statistics, and the IMF's International Financial Statistics.

TABLE 4
CREDIT SUPPLY OF ALL DOMESTIC BANKS WITH MNB ENTRY

Variable Name	(1) Random Effects	(2) LSDV	(3) Random Effects	(4) LSDV	(5) Random Effects	(6) LSDV
$(\text{Capital/Assets})_t$	0.089*** (0.024)	0.082*** (0.024)	0.105*** (0.023)	0.098*** (0.022)	0.098*** (0.025)	0.091*** (0.025)
$(\text{Deposits/Assets})_{t-1}$	0.495*** (0.015)	0.503*** (0.015)	0.455*** (0.014)	0.464*** (0.014)	0.476*** (0.016)	0.484*** (0.015)
$(\text{MNB Loans/Total Loans})_t$	-4.936*** (0.678)	-5.021*** (0.665)	-	-	-	-
$(\text{MNB Capital/Total Capital})_t$	-	-	-1.056*** (0.346)	-1.229*** (0.340)	-	-
$(\text{Number of MNBs})_t$	-	-	-	-	-0.412*** (0.157)	-0.423*** (0.154)
$(\text{Internal Finance/Sales})_t$	-0.109 (0.067)	-0.109* (0.066)	-0.137** (0.071)	-0.136** (0.069)	-0.218*** (0.068)	-0.219*** (0.067)
$(\text{Internal Finance/Sales})_{t-1}$	0.031 (0.066)	0.030 (0.065)	-0.034 (0.072)	-0.029 (0.071)	-0.023 (0.068)	-0.025 (0.067)
Constant	19.718*** (4.514)	19.486*** (3.806)	21.281*** (4.863)	19.281*** (4.240)	25.709*** (4.546)	25.581*** (3.847)
Bank Fixed Effects	No	Yes	No	Yes	No	Yes
No. of Observations	699	699	551	551	699	699
F-statistic	-	350.87	-	360.96	-	318.04
Chi-Square-Statistic	1663.27	-	1690.80	-	1510.14	-

Note: * denotes 10% level of significance, ** denotes 5% level of significance, and *** denotes 1% level of significance

TABLE 5
CREDIT SUPPLY OF REGIONAL, SPECIALIZED AND PRIVATE BANKS WITH MNB ENTRY

Variable Name	(1) Random Effects	(2) LSDV	(3) Random Effects	(4) LSDV	(5) Random Effects	(6) LSDV
Bank Group	Regional Banks		Specialized Banks		Private Banks	
$(\text{Capital/Assets})_t$	0.008 (0.024)	0.010 (0.023)	0.162 (0.161)	0.116 (0.159)	0.740*** (0.042)	0.783*** (0.079)
$(\text{Deposits/Assets})_{t-1}$	0.833*** (0.063)	0.948*** (0.062)	0.674*** (0.054)	0.693*** (0.054)	0.272*** (0.020)	0.236*** (0.033)
$(\text{MNB Loans/Total Loans})_t$	-3.236*** (0.893)	-3.372*** (0.840)	-4.052*** (1.010)	-4.048*** (0.991)	-5.254*** (1.512)	-5.098*** (1.489)
$(\text{Internal Finance/Sales})_t$	-0.165* (0.081)	-0.156* (0.087)	-0.011 (0.083)	-0.012 (0.081)	-0.108 (0.143)	-0.106 (0.122)
$(\text{Internal Finance/Sales})_{t-1}$	-0.025 (0.079)	0.023 (0.086)	-0.026 (0.081)	-0.025 (0.079)	0.010 (0.141)	0.024 (0.120)
Constant	4.916 (4.913)	0.594 (5.901)	5.757 (8.153)	4.916 (4.913)	15.407** (8.183)	16.030** (7.000)
Bank Fixed Effects	No	Yes	No	Yes	No	Yes
No. of Observations	324	324	178	178	197	197
F-statistic	-	51.48	-	36.34	-	345.62
Chi-Square-Statistic	194.33	-	168.99	-	1470.90	-

Note: * denotes 10% level of significance, ** denotes 5% level of significance, and *** denotes 1% level of significance

TABLE 6
CREDIT SUPPLY OF BANKS IN DIFFERENT REGIONS WITH MNB ENTRY

Variable Name	(1) Random Effects	(2) LSDV	(3) Random Effects	(4) LSDV	(5) Random Effects	(6) LSDV
Bank Group	Top Group		Middle Group		Bottom Group	
$(\text{Capital/Assets})_t$	0.364*** (0.130)	0.344*** (0.130)	-0.005 (0.015)	-0.004 (0.015)	0.222 (0.182)	0.233 (0.184)
$(\text{Deposits/Assets})_{t-1}$	0.460*** (0.040)	0.467*** (0.040)	0.134*** (0.025)	0.138*** (0.025)	0.392*** (0.088)	0.519*** (0.078)
$(\text{MNB Loans/Total Loans})_t$	-5.112*** (0.601)	-5.125*** (0.599)	-0.752 (0.739)	-0.791 (0.742)	-9.207* (5.414)	-6.747** (3.101)
$(\text{Internal Finance/Sales})_t$	0.081 (0.065)	0.082 (0.065)	0.008 (0.069)	0.008 (0.069)	-0.643 (0.534)	-0.521* (0.295)
$(\text{Internal Finance/Sales})_{t-1}$	0.046 (0.065)	0.046 (0.064)	0.061 (0.068)	0.060 (0.068)	0.323 (0.527)	0.200 (0.293)
Constant	6.187 (6.597)	5.764 (4.108)	25.865*** (4.750)	25.950*** (4.013)	66.116*** (30.217)	54.091*** (16.786)
Bank Fixed Effects	No	Yes	No	Yes	No	Yes
No. of Observations	313	313	207	207	98	98
F-statistic	-	32.10	-	7.81	-	142.03
Chi-Square-Statistic	156.88	-	38.04	-	165.69	-

Note: * denotes 10% level of significance, ** denotes 5% level of significance, and *** denotes 1% level of significance

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