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Banking Market Liberalization and Bank Performance:
the Role of Entry Modes

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Abstract

This paper analyzes the evolution in bank performance following the removal of legal restrictions on the entry of foreign banks in three transition economies: the Czech Republic, Hungary, and Poland. Two modes of foreign bank entry are considered: entry by Greenfield investments, and by foreign mergers and acquisitions of domestic banks. For this purpose, we construct a panel data of banks from the three countries over the period 1994-2004. We determine the dates on which liberalization occurred in each country. Bank performance is reflected by accounting measures of profitability, net interest margin, and operating costs. The results show a very limited effect of the entry of Greenfield banks on domestic banking market in the early transition period. In contrast, the foreign entry by mergers and acquisitions of domestic banks exerts significant impacts on bank performance. Indeed, we observe significant declines in banks' profits and net interest margins, and a significant increase in operating costs. Our results have important policy implications for those emerging and transition economies still hesitant to liberalize their banking markets.

1. Introduction

Over the past two decades, the world of banking has experienced an unprecedented trend towards internationalization. One aspect of this increasing financial integration is the dramatic change in foreign participation in emerging markets' banking systems, especially since the second half of the 1990s. Central and Eastern Europe is a region that has seen a particularly stunning increase in international banking presence. Indeed, foreign presence here rose from around 10% at the end of 1994 to around 50% of total banking system assets at the end of 1999 (Mathieson & Schinasi, 2000), and are now major players in these markets.

There were two waves of foreign bank entry into these economies – first, by setting up de novo investments in the host countries, and second, by acquiring (generally sizable state-owned) domestic banking institutions. These entries have been made possible by gradual relaxation of restrictions on both modes of entry by foreign banks. Given one of the main objectives of these countries in liberalizing their banking systems is to promote banking efficiency, it is useful to assess whether this policy has been effective.

So far, the most commonly adopted approach to assess the effect of foreign bank entry on bank performance is to conduct a comparative analysis of bank performance between foreign and domestic banks. Findings for emerging and transition economies generally show that foreign banks fare significantly better than their domestic counterparts even when different types of performance measures are taken into account. These findings are taken to represent positive effects of foreign bank entry on bank performance. In our opinion, this type of evidence is, to a certain degree, questionable, because the better performance of foreign banks may raise the average performance of the whole banking system, but this does not mean that foreign bank entry has helped improving the performance of domestic banks. Yet, the objectives of governments in liberalizing foreign entry are not only to admit good performers to their markets, but also to provide domestic banks with a means to improve their own performance.

A more direct test on the effects of foreign bank entry on bank performance has been to investigate the relationship between the change in the degree of foreign bank presence and host markets' bank performance. This relationship has been found to be positive and significant, which has been interpreted as another evidence on the benefits that foreign banks bring to host countries' banking markets.

In this paper, we propose another direct approach for testing the effects of foreign bank entry on bank performance by using a variance of the event study methodology. Indeed, we investigate whether bank performance changes following the removal of legal restrictions separately on each mode of entry of foreign banks, i.e. greenfield investments versus foreign mergers and acquisitions of domestic banks[1]. To the best of our knowledge, this represents the first attempt to do so in the context of transition economies. Moreover and most importantly, we are the firsts to focus on the differential impact of the two modes of foreign entry on host countries in an empirical setting.

The results show a very limited effect of the entry of Greenfield banks on domestic banking market in the early transition period. In contrast, the foreign entry by mergers and acquisitions of domestic banks exerts significant impacts on bank performance. Indeed, we observe significant declines in banks' profits and net interest margins, and a significant increase in operating costs.

Our paper is related to two strands of literature: the theoretical literature on foreign bank entry, and the empirical literature on the effects of foreign ownership on bank performance.

Theoretical analysis on foreign bank entry has been scarce. (Buch C. M., 2003) sets up a theoretical model on foreign bank entry and demonstrates empirically that large information barriers discourage the entry of foreign banks. (Hauswald & Marquez, 2003) shows that information spillovers from incumbent banks to potential entrants lead to a decrease in interest rates and profitability of banks. (Kaas, 2004) constructs a model of spatial loan competition and concludes that foreign bank entry is generally too low in comparison with the socially optimum level. (Sengupta, 2007) considers the consequences of asymmetric information on foreign bank entry, and demonstrates that both better information ex-ante and better creditor protection ex-post facilitates the entry of outside competitors with a cost advantage.

Of particular interest to our paper are the three studies that have taken into account the impact of the entry modes of foreign banks on host countries' banking markets. Indeed, (Claeys & Hainz, 2006) investigates the impact of entry modes on local credit markets, in particular on domestic banks' interest rates. It has been shown that de novo entry intensifies

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[1] We define foreign banks as those in which foreign owners (Companies + Individuals) hold at least 50% of total share capital. A greenfield investment involves the establishment of an institution from scratch, whereas a merger and acquisition implies the purchase of a firm's (here a bank's) shares or other form of capital. In this paper, we are exclusively interested in a control acquisition, i.e. the purchase of equal to or more than 50% of a bank's capital.

competition, and consequently domestic banks' interest rates decrease. (Van Tassel & Vishwasrao, 2007) studies entry mode choices by foreign banks, and their impact on host countries. The results show that foreign banks prefer de novo entry to acquisition entry in order to capture target banks' informational advantages. On the other hand, it is most likely that credit allocations will improve when foreign banks enter by acquiring target banks with a relatively high proportion of good clients. With regard to de novo entry, this intensifies competition, and consequently leads to a decrease in market interest rates. (Lehner & Schnitzer, 2008) finds that de novo entry intensifies competition, and consequently leads to a decrease of banks' interest rates and market shares. This lessens the incentives of banks to investigate in screening technology. Thus, the authors conclude that domestic banks' incentives to invest in screening technology are stronger with acquisition entry than with de novo entry. Our paper contributes to this literature by providing empirical evidence on the differential impact of entry modes by foreign banks on bank performance.

Our paper is directly related to the empirical literature addressing the effect of foreign ownership on bank performance. There are two main approaches to the topic. The first one is to directly consider the impact of a change in regulatory conditions or a change in the level of foreign bank participation on bank performance. General results indicate that foreign bank entry is associated with an increase of competition in domestic banking markets, which leads to an improvement in bank performance.[2] The United States, Latin America, and Asia are geographical areas that this line of literature has focused on[3]. No study has been carried out on transition economies using this approach.

The second approach is to conduct a comparative analysis of bank performance between foreign and domestic banks. The methodology used within this approach is on the whole similar. Most of them first calculate the indicators of bank performance based on data on financial statements of individual banks. Typically, three sets of indicators are used to measure bank performance. First are standard measures of financial performance, namely Return on Assets (ROA) and Return on Equity (ROE). Second are accounting measures of operating performance and third are efficiency and productivity measures constructed through frontier estimation techniques or data envelopment analysis. Then, these studies regress these indicators on a set of explanatory variables, especially ownership variables, in order to assess the importance of various determinants of bank performance. A limited

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[2] See (Barajas et al., 2000) (Claessens et al., 2001) (Denizer, 2000) (Unite & Sullivan, 2003) amongst others.
[3] See (Chong, 1991) (Schranz, 1993) (DeYoung et al., 1998) (Jayaratne & Strahan, 1998) for US, (Ghosh et al., 2008) (Denizer, 2000) (Isik & Hassan, 2003) (Unite & Sullivan, 2003) for Asia, (Barajas et al., 2000) (Clarke et al., 1999) for Latin America, and (Claessens et al., 2001) (Bayraktar & Wang, 2004) for cross-country studies.

number of studies have taken into account the impact of the modes of entry of foreign banks on bank performance.

Most geographical areas have been taken into account: United States, Western Europe, Latin America, Eastern Europe in transition, and Asia including China. The results are contradictory for developed and developing economies. Indeed, in developed economies, foreign banks are found to be less efficient than their domestic peers. However, some banking organizations, particularly from the United States, are found to consistently operate at or above the efficiency levels of domestic banks (Berger, DeYoung, Genay, & Udell, 2000). By contrast, empirical evidence on developing economies points out that foreign banks are more efficient than domestic banks. In particular, in line with the broader case, studies focusing on transition economies also find a positive relationship between foreign involvement, foreign ownership, as denoted by different levels of participation of foreign banks in domestic banks, and bank performance (Bonin, Hasan, & Wachtel, 2005b). Moreover, with respect to the role played by the modes of entry of foreign banks, while Greenfield banks are found to outperform both M&As and domestic banks, the comparative performance between M&As and domestic banks remains unclear (Havrylchyk, 2006) (Vo Thi & Vencappa, 2008).

Thus, we contribute to this literature by directly considering the impact of foreign bank entry on bank performance using an *event study methodology*. To the best of our knowledge, this represents the first attempt to do so in the context of transition economies. Moreover and most importantly, we are the firsts to focus on the differential impact of the two modes of foreign entry on host countries in an empirical setting. Indeed, theoretical literature on foreign direct investment is mostly concerned by the determinants of enterprises' choice of entry modes. Little is said on their implications for host countries. This paper therefore represents a step towards analyzing the welfare effects of different modes of FDI into banking.

Our paper is organized as follows. Section 2 gives a brief account of banking sector reforms and the associated entry of foreign banks into the Czech Republic, Hungary, and Poland. Section 3 describes the data and the variables used in the empirical analysis. Section 4 discusses about the results. Conclusion follows.

2. Banking Sector Reforms and the Entry of Foreign Banks

The aim of this section is to give the reader an account of banking sector reforms and the associated liberalization to foreign bank entry in the three countries that serve as field studies for this paper: the Czech Republic, Hungary, and Poland. We will draw on major themes and discuss common and divergent features for these countries.

2.1. Banking at the beginning of the transition, and first wave of foreign bank entry by Greenfield investments

As is the case for other former communist economies, in the Czech Republic, Hungary, and Poland, the transition towards a market-based banking system starts with the break-up of the mono-bank system into a two-tier banking system with the former mono-bank assuming central bank functions, and its separated entities assuming commercial bank functions. The number and types of units into which the commercial operations of the mono-banks were divided vary across countries.

Czech Republic
In the Czech Republic, the break up led to the creation of one bank, Komercní Banka, which inherited a loan portfolio consisting of almost all of the Czech Republic's commercial loans as well as the Czech component of the mono-bank's payments system. Moreover, there are four specialized banks: Cˇeskaˊ Sporˇitelna (CS), the savings bank; Investicd nıB Banka (IB) specialized in development and investments involving foreign companies; Cˇeskoslovenskaˊ ObchodnıB Banka (CˇSOB), the foreign trade bank; and Zˇ ivnostenskaˊ Banka (Zˇ B) specialized in foreign currency deposits.

Hungary
In Hungary, three nation-wide banks were created (the Hungarian Credit Bank - MHB, the Commercial and Credit Bank - K&H, and Budapest Bank - BB) and specialized by sectors, i.e., industry, agriculture, and small business and utilities. In addition, there are four specialized banks: the National Savings Bank (OTP), the Hungarian Foreign Trade Bank (MKB), the General Banking & Trust (ÁÉB), and Postabank which was established by government initiative in 1988 (Majnoni, Shankar & Várhegyi, 2003).

Poland

In Poland, the new nine commercial banks are specialized by region, and effectively have control of the region's financial services in the short run. In addition, there are five specialized banks: Bank Handlowy w Warszawie S.A. (BH), the foreign trade merchant bank; Bank Polska Kasa Opieki S.A. (Pekao), a savings bank specialized in collecting retail deposits in foreign currency and handling foreign currency transactions involving private persons; Powszechna Kasa Oszcze¸dnos´ci- Bank Pan´stwowy (PKO BP), another savings bank specialized in zloty household deposit-taking and in financing housing construction; Bank Gospodarki Z° ywnos´ciowej S.A. (BGZ), a national umbrella bank for local cooperative banks involved in the financing of agriculture and food processing; and Bank Rozwoju Eksportu S.A. (BRE) specialized in export financing (Abarbanell & Bonin, 1997).

Each of the above approaches to carving out commercial banks from the former mono-bank represents a trade-off between short-run franchise value derived from monopoly power and long-run franchise value derived from efficiency in the banks. In fact, the minimal restructuring in the Czech Republic and Hungary endowed the commercial banks with strong market positions, thus enhancing their financial stability in the early reform period. However, the absence of real competition does not provide these banks with the incentives to increase their efficiency in the longer run term. The more extensive restructuring in Poland generated banks with less market power and with portfolios more vulnerable to the economic conditions in their regions. While some of these banks became insolvent or need government intervention, others developed stronger portfolios, contributing to faster improvement in the provision of banking services (Meyendorff & Snyder, 1997).

In parallel with the break-up of the mono-bank, banking acts were adopted allowing the entry of new banks. Together with private domestic banks, foreign banks have taken this opportunity to enter these countries. At this stage, their entries often take the form of Greenfield investments.

Czech Republic

Indeed, in the Czech Republic, the Act on Banks was passed in February 1992 which allowed the licensing of foreign banks. Between 1989 and 1993, several foreign-owned banks were set up, all specialized in investment banking and services to companies and high-revenue households. They were created as either subsidiaries or branches of foreign banks (Weill, 2003).

Hungary

In Hungary, before the start of the transition in 1987, foreign banks were already present in the forms of offshore banks or joint-ventures with domestic banks. In the new era, liberal bank licensing policies encouraged new bank entry in the market. Most of the *de novo* entries of foreign banks are via wholly-owned subsidiaries. Moreover, foreign owners have bought out the Hungarian partners in the early joint ventures. The Banking Act of December 1991 allowed foreign banks to have more than 10% of equity share in domestic banks.

Poland

In Poland, the Act on Banking voted in January 1989 effectively opened up the market to foreign investors. During the first two years of transition (1990−1991), four foreign banking institutions were established of which three under their brand names, namely Raiffeisen-Centrobank (established together by Raiffeisen Zentralbank Osterreich AG and Centro Internationale Handelsbank AG), Creditanstalt and Citibank. ING Bank N.V. and Societe Generale established branches in Warsaw. Seven other foreign banks were established in the years 1990−1993 by a number of other foreign banks, investment funds, foreign companies and, in some cases, with a small participation of Polish state-owned banks or enterprises and state agencies (Balcerowicz & Bratkowski, 2001).

2.2. Banking crises and restructuring

Like in other transition countries, most of the state-owned commercial banks (SOCBs) in the Czech Republic, Hungary, and Poland started with extensive non-performing loans. A larger part of these troubled loans were inherited from the past communism. The other part was created during the transition process due to the legacy of non-market-based allocations of credits. By 1992, bad loans were estimated to vary from 2.4-19% to 50-66% of total loans in the Czech Republic, to approximate 20.7% in Hungary, and 30% in Poland[4] (Tang, Zoli, & Klytchnikova, 2000), thus constituting one of the most critical obstacles to the operation of the banking systems in the three countries.

In order to deal with these solvency crises, a number of actions have been taken to clean up banks' balance sheets, whose nature and frequency vary.

Czech Republic

In the Czech Republic, in 1991, a consolidation program was initiated to clean up state-owned banks' balance sheets and to strengthen their capital. The program included the

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[4] These numbers should be taken as indicative.

following operations: (i) transfer of assets to Konsolidační Banka, a state institution aimed at acquiring, administering, and amortizing the four state-owned banks' communist-era bad loans; (ii) write-off of loss loans from the National Property Fund's resources; (iii) increases in the capital of the banks split off from the State Bank of Czechoslovakia and of Ceskoslovenska Obchodni Banka (CSOB); and (iv) transfer of credits and guarantees from ČSOB to Česká Inkasní (ČI), a state institution created in 1993 to take over debt obligations of foreign trade companies to facilitate privatization of CSOB. The net cost of this program has been estimated at about CZK 100 billion (Tuma, 2002). The results were not satisfactory as non-performing loans continued to be consistently high throughout the 1990s due to persistent unsound lending practices and because of external events such as the May 1997 Krone crisis, the floods and investments in Russian derivatives (Bonin & Wachtel, 1999). There are two more consolidation and stabilization programs in 1996-1997 to address liquidity crises in small private banks. Moreover, a so-called London approach to loan recovery was also adopted, consisting of a set of rules for reaching out-of-court settlements between the banks and debtor enterprises.

Hungary

In Hungary, in 1991, the Hungarian government formally guaranteed about half of the stock of recognized non-performing loans in the three major state-owned commercial banks. Then, in 1992, with a significant growth in new bad loans, a loan consolidation program was initiated, aiming at transferring substantial portions of the commercial banks' non-performing loans to the Hungarian Development and Investment Company in exchange for government bonds. Next, in the following year, this program was expanded both to encourage enterprise restructuring and to promote the sale by banks of their bad debts to companies that specialized in collections and workouts. As part of the program, the banks received nearly Ft 80 billion in state funds for recapitalization of the banks (Meyendorff & Snyder, 1997). Moreover, in the case of MHB, the "good bank/ bad bank" approach was used as its bad assets were transferred to a subsidiary, Risk Kft in july 1995, which was to be wounded up in three years while the good bank was successfully privatized. The second recapitalization ultimately proved to be successful because soon afterwards Hungary adopted a policy of privatizing state banks by selling controlling shares to strategic foreign investors. Nevertheless, there are two more recapitalization rounds to address solvency problems in the state-owned agricultural bank (Agrobank) in 1995, and in the second largest retail bank (Postabank) in 1997.

Poland

In Poland, from 1989 to 1992, a significant part of the original bad loans were swept by Poland's hyper-inflation. After plans for restructuring enterprises and privatizing banks were adopted, an Enterprise and Bank Restructuring Program was launched with an aim to recapitalize and resolve the problem of nonperforming loans prior to the privatization of state-owned banks. Using the Polish Bank Privatization Fund supported by the World Bank, the Polish government decided to proceed with a one-time recapitalization of the banks, based on the value of the portfolio of bad debts at the end of 1991. However, as a condition for participating in the program, banks were obliged to create work-out units and actively pursue collection through several instruments, and were required to resolve all their non-performing loans at the end of 1994. Nine state-owned banks were affected by this reform. The outcome of the restructuring program is generally considered as positive: the share of non-performing loans in loan portfolios of the eleven major banks was reduced from 30% in 1992 to 9 percent in 1996 (Meyendorff & Snyder, 1997) (Weill, 2003).

Thus, the measures adopted to resolve bad loans problem in the Czech Republic and Hungary represent a combination of a centralized approach (i.e. transferring of bad debts to a "loan hospital") and a decentralized one (i.e. non-performing loans remaining on the bank's books, and work-out units being created within the banks to pursue the recovery of these non-performing loans). In contrast, Poland adopted solely a decentralized approach. Moreover, in Hungary and the Czech Republic, banking crises resolution was characterized by repeated rounds of recapitalization, which calls into question the government's commitment not to bail out failed banks, and setting up moral hazard problems. In contrast, Poland has pursued a more credible no-bailout policy with its one-time recapitalization program. The end results were more successful for Hungary and Poland as the shares of troubled loans declined subsequently to restructuring programs. By contrast, in the Czech Republic, these were consistently high throughout the 1990s as noted above.

2.3. The Need for Privatization: Second Wave of Foreign Bank Entry by Acquiring Former State-Owned Banks

However, removing troubled loans from banks and recapitalizing them were far from enough to improve bank efficiency and prevent recurrence of other banking crises, so far as banks continue to be dependent on the government and its directed lending policies, and to perpetuate links with poorly performing state-owned enterprises. The Czech experience has shown that early recapitalizations were of little benefits because soft lending practices

continued and future bailouts became necessary. By contrast, the repeated recapitalizations in Hungary were ultimately successful because privatization to an independent, usually foreign, owner followed rapidly. The point here is that following recapitalization and restructuring, the corporate governance problem in banks was to be addressed so that an independent banking sector was developed, freed from non market-based practices. The key to a corporate governance reform is to transfer bank ownership to private hands. Effectively, this was these privatization processes that drew a second wave of foreign bank entries through mergers and acquisitions of domestic banks.

Czech Republic

Indeed, the Czech Republic was involved in two waves of privatisation of state-owned banks. The large Czech banks were transformed into joint-stock companies in 1992 and three out of the largest four state-owned banks were partially privatized within the first wave of voucher privatization. CSOB was excluded because of its unique involvement in foreign financial markets[5]. The state, nevertheless, kept controlling stakes in these banks, in line with the state applied principles adopted in 1991 according to which the state would retain control of at least 40-50% of the basic capital, foreign participation would be held to a 25% maximum, and no single foreign investor would be permitted more than a 10% stake (Simonson, 2001). The exception was Zivnostenka Banka, which was sold to foreign investors in 1992 (Weill, 2003) (Pruteanu-Podpiera, Weill, & Schobert, 2008).

Inadequate governance and lack of effective corporate restructuring led to a fragile banking system with relatively low foreign participation. This meant that the first wave of privatization proved to be a failure in resolving structural problems of banks. By 1998, Czech government stakes were 65.7% in CSOB, 45% in CS, 36.3% in IPB, and 48.7% in KB (Simonson, 2001, p. 201). The weaknesses of the state-owned banks with large holdings of non-performing loans, and the goal of accession to the European Union has pushed the newly elected government to adopt a new privatization program in April 1997 with the aim of accelerating state-controlled banks' privatization. In 1998, the government sells its stakes in IPB to Normura (Bekaert & Harvey, 2004). The privatization process gathered speed in the second half of 1999 with the sale of CSOB to Belgium's second largest. In February 2000, Austria's second-largest banks agreed to buy a 52% stake in CS, bringing foreign participation to about 54% (Mathieson & Schinasi, 2000). Also in 2000, Komercni Banka was successfully privatized to Societe Generale of France.

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[5] The government feared that voucher privatization might alter CSOB's viability and have negative effects on monetary stability (Simonson, 2001, p. 201).

Hungary

In Hungary, the privatization program was launched in 1994 following two recapitalization schemes. The first significant privatization took place with the partial sale of Hungarian Foreign Trade Bank (MKB) in the summer of 1994 to EBRD (financial investor with a share of 16, 68%) and Bayerische Landesbank (strategic investor with a 25,01% share) whose stake increased two years later (in January 1996) when the state sold its 25 percent share. The same scheme characterized the sale of Budapest Bank in 1995 to GE Capital (27.5% of shares) and the European Bank for Reconstruction and Development (EBRD) (32.5%). During 1996-97 MHB, K&H and other commercial banks were sold to strategic foreign investors, according to the basic scheme of the Hungarian bank privatization that privileged the pursuance of a strategic foreign presence. A second scheme was followed by the Hungarian authorities with the partial sale in the summer of 1995 of the largest retail bank, National Savings and Commercial Bank (OTP). The transaction involved a private placement of Global Depositary Receipts representing approximately 20% ownership in OTP in international capital market and a domestic placement of approximately 15%. The government retained approximately 50% ownership stake and asserts control through the Board (Kormendi & Schnatterly, 1996). By forbidding the presence of strategic investors and by promoting a prevalent domestic ownership, the Government wished to create a diversified proprietary structure, dominated by institutional investors. Overall, the privatization of the Hungarian banking system was practically completed by the end of 1997. By that time state ownership had dropped to 21 per cent of bank capital while the foreign stake had increased to over 60%. At the end of 2000 state ownership had dropped to 19% while the foreign stake had increased to over 66% (Majnoni, Shankar, & Varhegyi, 2003).

Poland

In Poland, the whole privatization process can be divided into two phases. The first phase, from 1993 to 1997, is the one of delayed privatization, with foreign investors being allowed to participate, but entitled only to minority shares. The second phase, from 1997 to 2000, can be characterized as fast privatization, with all state-owned banks being privatized, most of them to foreign strategic investors.

On March 16, 1993, the first step towards privatizing Wielkopolski Bank Kredytowy (WBK) was carried out with an announcement on an issue of new shares to obtain a capital injection of 28.5% of the augmented share base. EBRD purchased the entire new issue due to absence of interest from a foreign strategic investor. The State Treasury retained a vast share in equity (44.3%). In March 1995, Allied Irish Bank (AIB) participated in a second new share

issue by WBK and acquired a 16.26% stake. The new issue reduced EBRD's stake to 24% and AIB signed an agreement with the EBRD to purchase its stake at a future date. Later AIB increased its stake to 36% by purchasing an additional 20% of the shares from the Treasury's holding (Abarbanell & Bonin, 1997). In 1996, AIB increased its stake to 60.2% in WBK by exercising its option to buy the EBRD's stake (Balcerowicz & Bratkowski, 2001).

In June 1993, a second commercial bank, Bank Slaski (BSK) was privatized. After some difficulties, a strategic foreign investor, ING, has been attracted to the bank with a 25.92% stake. The State Treasury retained 33.16% in equity. In July 1996, ING purchased additional shares from the state to bring its total shareholdings to 54.1%, the government retained only a 5% stake.

In January 1995, the third commercial bank, Bank Przemyslowo-Handlowy (BPH) was put to sale exclusively in a public offer. Due to a limited demand, the EBRD as the major underwriter of the IPO was left with a 15.6% ownership stake. ING and BSK each took 5% of the shares, a stake that the group increased subsequently to 12%. The state retained a 47% stake in BPH after privatization while the remainder of the shares are widely held (Abarbanell & Bonin, 1997).

In December 1995, the fourth commercial bank, Bank Gdañski (BG) was privatized with a two-tier IPO: 33% of the shares to be sold to foreign portfolio investors using global depository receipts and a 33% stake to domestic investors. A 4% stake was reserved to employees and 30% to the state. Bank Inicjatyw Gospodarczch (BIG), a Polish private bank, and two of its subsidiaries took a 24.1% stake in the domestic tranche and subsequently increased this to 31% while the state retains ownership of 40% of the shares in BG (Abarbanell & Bonin, 1997).

In October 1995, an "Outline of the Program of Consolidation and Privatization of State-Owned Banks" was prepared, marking a shift in the privatization process. The emphasis of the program was on two mergers of large banks. The main objective of the program was to prevent a further foreign capital involvement in the privatization of financial institutions in Poland. In fact, Polish banks were considered to be too small in size to survive the invasion of foreign banks when entry restrictions are relaxed according to the association agreement with the European Union (Bonin & Leven, 1996). However, due to a strong opposition of managers of some state-owned banks, the program was revised. Instead of merging banks, in July 1996 a decision was taken to form a banking group. Three commercial banks that had been finally chosen- Bank Depozytowo Kredytowy (BDK), Powszechny Bank Gospodarczy (PBG) and Pomorski Bank Kredytowy (PBKS)- formed a bank group together with PEKAO

S.A. The latter bank was to be a dominant partner for the other three subordinate banks. At the same times, two banks - PBK and BH - prepared their own privatization plans. In the first half of 1997, the minority of shares of PBK was sold to 3 domestic financial institutions with a 39% stake altogether. The State Treasury retained over 50% of shares. In the case of BH, the State Treasury sold 25.96% of shares to three foreign investors (J.P. Morgan, Swedbank and Zurich Insurance Company) and 59% was sold by IPO. The State Treasury kept only 7.9% of votes at the general assembly of shareholders and 28−30% of shares via convertible bonds (Balcerowicz & Bratkowski, 2001).

The second wave of privatization in Poland came after the election of the new pro-reform coalition government in September 1997. The main concept of the privatization policy adopted at that time was to choose reputable foreign strategic investors in order to achieve a good governance structure in banks and receive capital and technology injections. An additional aim was to collect substantial privatization revenues. On 1st January 1999, Poland removed restrictions applied formerly to foreign banks concerning purchases of bigger stock blocks, opening new branches and receiving a license to establish a bank in Poland. This liberalization was a consequence of commitments undertaken by Poland when joining OECD.

Bank PEKAO was sold in 1998 by IPO (15%) and in 1999 to a strategic investor: Uni-Credito Italiano (52.09% together with Allianz). The last-standing state-owned commercial Bank Zachodni was sold to Allied Irish Banks with a 80% stake. The remaining shares of the State Treasury in already partly privatized banks were sold to dominant shareholders. Finally, PBK was taken over by Bank Austria Creditanstalt, while BH was bought in 2000 by Citibank (Balcerowicz & Bratkowski, 2001).

Overall, a salient feature can be drawn from the privatization experiences of the three countries as described above with regard to the role of foreign investors. Indeed, Hungary was earliest and smooth in allowing entries of strategic foreign investors. As a result, they ended up with the strongest banking system in the region. By contrast, although the Czech Republic and Poland started the privatization processes very early (even earlier than Hungary), political deterrence and a general defiance vis-à-vis foreign acquisitions of state-owned banks due to fear of foreign control of domestic banking systems have considerably retarded the transformation of banks into independent economic agents, and as a result the improvement of banking efficiency.

3. Data

3.1. Sample

For the greenfield entry sample, we wish to thank S. Claessens from the International Monetary Fund for generously providing us with the data. His data is taken from Bureau van Dijk's BankScope database, and originally run from 1987 to 1996. We first delete the years 1987 and 1996 due to their having too little observations. Because we control for reforms other than liberalization to foreign entry, and data for these reforms are available only from 1989, the year 1988 is also naturally excluded from the sample. The final sample is unbalanced, consisting of 9 banks at a minimum in 1989, and 75 banks at a maximum in 1994. Only commercial banks are taken into account. We would have liked to distinguish between foreign and domestic banks, but the data doesn't allow us to do this.

For the acquisition entry sample, we also obtained data from BankScope, version 2006. As it is commonly known by academic researchers and professionals, the data for banks from less developed and transition countries require substantial editing before a reliable sample can be constructed. We therefore carefully review our data to avoid double counting of institutions, to exclude non-bank financial institutions from the sample. We also exclude banks that are not commercial, cooperative and savings banks to ensure that we are estimating performance based on a relatively homogeneous group of banks. With respect to the type of account, we prefer unconsolidated accounts to consolidated ones wherever available. Once the type of account chosen, we take the account following the international financial reporting standards (IFRS) wherever available. If not, we take the account with local accounting standards. Nevertheless, sometimes, IAS data are available for only one or two years while longer time series are available in local standards. In such cases we use local standards. Thus, our final sample is unbalanced, consisting of 34 banks at a minimum in 1994, and 98 banks at a maximum in 1999 and 2000. The period under study runs from 1994 to 2004. The distribution of banks by ownership and mode of entry is given in table 4.2. While BankScope has a very large coverage of banks over the world, this database provides information on bank ownership only for the current calendar year. Thus, we have had to track the evolution in the ownership of each bank over time through several sources, including banks' official publications and Zephyr (Bureau Van Dijk)[6]. This enabled us to differentiate

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[6] We are grateful to R.d. Haas and I.v. Lelyveld from de Nederlandsche Bank for kindly sharing data on bank ownership for the years 1994 to 2001.

between foreign and domestic banks, and, amongst foreign banks, between greenfield investments and merger and acquisition entries.

For both samples, we select the three most advanced countries in Central Europe, i.e. the Czech Republic, Hungary, and Poland for reasons discussed in the introduction.

3.2. Variables

Bank performance. To measure bank performance, we use two conventional indicators of the well-being of firms: accounting measures of profitability and costs. Banks' profits are measured by the ratio of profits before tax over total assets. Banks' costs are measured as overhead over total assets. We also look at a specific measure of banking performance: banks' interest margins.

Liberalization Dates. We determine the dates on which a text was passed by legislation allowing entry by greenfield banks, and purchases of domestic banks by foreign banks in the Czech Republic, Hungary, and Poland. Choosing these dates is arduous, and sometimes requires judgements. For the acquisition entry date, in case there are multiple such dates, we choose that on which foreign banks were allowed to acquire a majority ownership stake in domestic banks.

Indeed, in the Czech Republic, the Act on Banks was passed in February 1992, which allowed the licensing of foreign banks. Therefore, we choose 1992 as the greenfield entry date for the Czech Republic.

In Hungary, although foreign banks were already present before 1987, and the break-up of the mono-bank system occurred in 1987, we do not choose this year as the greenfield entry date because at this time, the country was still under centralized economy. In 1991, the banking Act was passed, and the influx of foreign banks began in this year (see section 2.1). Therefore, we choose 1991 as the greenfield entry date for Hungary.

In Poland, the Act on Banking voted in January 1989 effectively opened up the market to foreign investors. Therefore, 1989 is the greenfield entry date for Poland.

We now discuss the choices of liberalization dates for the acquisition entry sample. In the Czech Republic, there were two waves of privatization. The first wave of privatization by voucher led to diffuse ownership in banks, with the government retaining a controlling stake, and foreign participation being limited to a maximum of 25% stake. The second wave began in 1997 with the adoption of a new privatization program aiming at accelerating state-

controlled banks' privatization. Subsequently, foreign banks entered by acquiring a majority ownership stake in partially privatized domestic banks. Although Zivnostenka Banka was completely sold to foreign investors in 1992, we consider this as an exceptional case rather than the beginning of a movement which can have impacts on the banking sector (see section 2.3). Therefore, we choose 1997 as the acquisition entry date for the Czech Republic.

For Hungary, things are much clearer as the privatization program adopted in 1994 was the unique program precluding a privatization process that quickly completed by the end of 1997 (see section 2.3). Therefore, 1994 is the acquisition entry date for Hungary.

In Poland, as in the Czech Republic, there were two waves of privatization. The first wave was initiated in 1991 when a program of privatization of state-owned banks was adopted. It led to partial privatizations as foreign banks were allowed to participate with only a small stake while the government still kept a substantial part in banks. The second wave began in 1999 with the removal of restrictions applied formerly to foreign banks concerning purchases of bigger stock blocks, thus enabling them to acquire a majority ownership stake in domestic banks (see section 2.3). Therefore, 1999 is chosen as the acquisition entry date for Poland.

Bank Characteristics. We take into account the following characteristics of banks: bank size, as denoted by log of total assets; loans over total assets, which reflects a bank's asset structure[7]; equity ratio equal to equity over total assets, which reflects the risk preferences of banks; operating costs as measured by overheads over total assets.

Banking Sector Structure Variables. We include three proxies for banking sector structure: market share as measured by the share of a bank's assets over the banking system's total assets; Herfindahl index as denoted by the sum of squares of banks' market shares; and two dummies for foreign takeover and domestic banks.

Other Reform Variables. To control for the possibility that the evolution in bank performance measures is the results of other reforms rather than the liberalization to foreign bank entry, we take into account indexes of banking, price and enterprise reforms obtained from EBRD.

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[7] One argument that could justify the control for the structure of assets can be drawn from (Havrylchyk, 2006) for the case of Poland "During the analyzed period the structure of assets underwent a drastic change. Previous easy sources of income, such as Treasury bonds and loans to blue-chip companies, were exhausted. The banks had to tap new and riskier segments of the market, such as households and small and medium enterprises».

Macroeconomic Environment Variables. We control for the following standard macroeconomic environment characteristics as in a number of studies on operating performance[8]: growth rate of real GDP per capita, inflation, and short-term interest rate of deposits. Nevertheless, we don't include these variables in the regressions on Greenfield entry as the data available for the Czech Republic start only from 1992, which greatly reduce the length of the period under study. Instead, we include country-fixed effects.

Table 1 summarizes variable definitions, and table 4 reports descriptive statistics of the main variables. When one looks at the figures carefully, a few quick conclusions can be drawn. First, contrary to common beliefs on transition economies, the average net interest margins of banks in our samples are comparable to western standards (4,4% for the Greenfield entry sample, and 3,7% for the acquisition entry sample). However, for 10% of the banks in the Greenfield entry sample, the margins are over 8%, and for 1% of them, they are over 10%. With regard to the acquisition entry sample, for 5% of the banks, the margins are over 8% and for 1% of them, they are over 16%. Second, loans occupy a major part of the overall portfolio, in the order of 42.17% for the Greenfield entry sample, and 44.9% for the acquisition entry sample. Of course, we are aware of data problems that are relevant for all transition countries. Therefore, when analyzing the findings of our research, we should keep this bias in mind.

4. Results

In this section, we discuss the results of the empirical tests. In the case of liberalization to entry of greenfield banks, we examine the evolution in performance of the whole sample of banks due to lack of data on ownership as discussed earlier. With regard to the entry of takeover banks, we consider the evolution in performance of two sub-samples: the whole sample of banks composed of domestic, greenfield, and takeover banks, and the sample of domestic banks alone.

We find a significant drop in banks' profits in the order of approximately 10% following the liberalization to the entry of Greenfield banks (table 5). No significant effect is observed on interest margins nor on overhead cost. The drop in bank profitability seems large. However, we also observe a similar decrease of bank profitability in the order of 11% due to other banking reforms. This might be explained by the fact that domestic banks may have to modify their behavior in response to the entry of Greenfield banks by upgrading their

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[8] See, for example, (Claessens, Demirgüç-Kunt, & Huizinga, 2001), (Barajas, Steiner, & Salazar, 2000).

practices and technologies, which incurs non negligible cost. At the same time, attempts to rationalize cost through reorganization and hardening of budget constraints take time to implement. We don't believe that the drop in bank profitability is due to increased competition from greenfield banks because if this was the case, we would also observe a decrease in interest margins. Moreover, stylized facts on transition banking often indicate that, at the start of the transition, Greenfield banks operated on different market segments and did not compete with domestic banks[9].

With regard to the entry of foreign banks by acquiring domestic banks, bank profitability has also dropped significantly following liberalization. The magnitude of the decrease in profitability is greater for domestic banks than for the whole sample of banks (2,5% vs. 1,6%). The reason might be that of the three types of banks, greenfield banks – included in the whole sample – is least affected by liberalization. Indeed, we've run regressions on the sample of solely greenfield banks, and found that the profitability of these banks dropped by approximately 0.5%, but at a non-significant level[10]. These results are consistent with a number of studies, such as (Claessens, Demirgüç-Kunt, & Huizinga, 2001) for a pool of 80 countries, and (Denizer, 2000) for Turkey. In addition, (Clarke G. R., Cull, D'Amato, & Molinari, 1999), in a study on Argentina, find decreased profitability only for banks which engage in lending to manufacturing sectors, a market segment where foreign banks are strongly present. (Unite & Sullivan, 2003) found the same result for Philippine banks affiliated to a family group.

Looking at the results for interest margins in table 9, it is again evident that these have dropped significantly following liberalization. Again, the magnitude of the change in interest margins is greater for domestic banks than for the whole sample of banks (1.04% vs. 0.54%). These results are in contrast with (Claessens, Demirgüç-Kunt, & Huizinga, 2001) and (Denizer, 2000) which don't find any significant impact of foreign bank entry on intermediation costs. However, they are consistent with (Barajas, Steiner, & Salazar, 2000) for Colombia, (Clarke G. R., Cull, D'Amato, & Molinari, 1999) for Argentina, and (Unite & Sullivan, 2003) for the Philippines.

How to explain the significant drop in banks' profitability and interest margins following the removal of barriers to entry of foreign banks by acquiring domestic banks?

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[9] According to an account by (Abarbanell & Bonin, 1997, p. 36) for the case of Poland, the presence of foreign banks in the early years of transition has not engendered much competition for domestic banks. They have mainly followed their own clients into Poland, and generally limited their activities to servicing their clients' banking needs.

[10] Results are available from the author upon request.

Indeed, bank regulators may influence bank efficiency by affecting the degrees of current and potential competition in banking markets with their policies on new bank formation and bank mergers. In our case, the removal of legal barriers to entry of foreign banks first influences the potential competition in the market because it creates a threat of entry by potential competitors. It can also affect the degree of current competition if entries effectively take place following liberalization, which is the case in the three countries in question in this paper. Indeed, a look at the evolution of the Herfindahl index in each country does indicate an intensified competition as these indices for the Czech Republic and Hungary bounced exceptionally in 1996 and 1997 respectively, then dropped substantially, and stabilized from 1998 onwards. The index for Poland dropped constantly between 1994 and 1997, and then stabilized. Competition dissipates monopoly profits of large commercial banks, and also drives down interest margins.
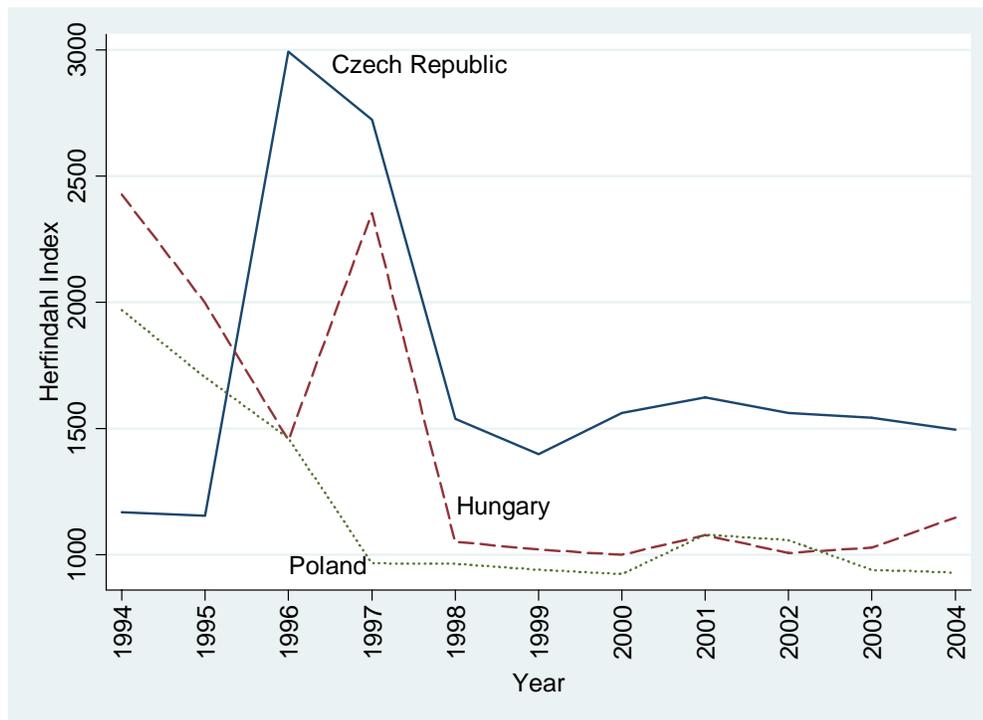
Figure 1: *Evolution of the Herfindahl Index* (Source: author's own calculation)

The results for operating costs are shown in table 4.10. It can be observed that cost rises significantly for both samples following liberalization. Once again, the magnitude of the increase in cost is more important for domestic banks than for the whole sample (3.54% vs. 2.17%). These results are in stark contrast with (Claessens, Demirgüç-Kunt, & Huizinga, 2001) and (Denizer, 2000), but consistent with (Clarke G. R., Cull, D'Amato, & Molinari,

1999) who finds a significant increase in administrative cost for banks concentrating on mortgages lending where the presence of foreign banks is increasing.

How to explain the increase in operating costs following entry of takeover banks? In principle, microeconomics and corporate governance theories would suggest drops in banks' cost. Indeed, the threat of entry by potential stronger competitors from abroad following the removal of legal barriers to foreign entry would force domestic bank managers to give up their "quiet life" and to exert greater effort to reach cost efficiency. On the other hand, the removal of legal barriers to the entry of foreign banks by acquiring domestic banks creates a market for corporate control, which, according to corporate governance theories, may serve as a means to discipline bank managers. In theory, one of the major benefits of corporate takeovers is that the threat of a takeover provides management with the incentive to maximize firm value. Otherwise, the firm may be acquired by another economic agent to be transformed into a more efficient entity, and as a result, the current management is replaced. The consequence of such a threat is that incentives exist for managers to efficiently run their firms.

However, in our case, the decrease in cost resulting from disciplining effects on bank managers may not be large enough to offset the increase in operating cost stemming from the fact that merged and acquired banks need substantial restructuring which incurs non negligible cost. Moreover, domestic banks may also need considerable new investment, especially on information technology infrastructure, to withstand the challenge from foreign competitors.

Turning into control variables, we observe that size is significantly and positively related to profitability, but negatively related to operating cost. This might indicate some scale effects which allows banks to achieve higher performance, and at the same time to reduce cost. Banks with higher capital asset ratios tend to enjoy significantly higher profitability and interest margins, which might be explained by the existence of depositor discipline in transition banking. Indeed, well-capitalized firms face lower expected bankruptcy cost for themselves and for their customers, thus can get a reduction of their cost of funding (Berger A. N., 1995). This represents a form of depositor market discipline which has been confirmed by empirical evidence (Goldberg & Hudgins, 2002) and (Park & Peristiani, 1998) for the U.S. savings and loan associations, and by (Karas, Pyle, & Schoors, 2006) for Russia. (Martinez Peria & Schmukler, 1999) finds evidence that market discipline more generally exists in developing countries, even in the presence of deposit insurance. In

Central and Eastern Europe, the recurrent asset quality problems and bank failures episodes would induce depositors to act prudently and to avoid deposits in under-capitalized banks.

Portfolio composition, as reflected by the *loan* variable, is significantly and positively related to net interest margins in both the Greenfield and acquisition entry cases, which indicates that banks with a higher proportion of loans in their portfolio tend to have higher margins. Since loans are often the most risky asset[11], this finding indicates that banks have integrated the risk factor in their loan pricing, and consequently, lending results in wider margins. Operating costs tend to reduce significantly domestic banks' profitability in the acquisition entry sample, but increase significantly interest margins in both entry cases. This lends support to the efficient-structure hypothesis which suggests that differences in banks' profitability and interest margins are attributable, in opposite ways, to differences in operational efficiency.

Concerning banking structure variables, M&As and domestic banks tend to have lower profitability than Greenfield banks, which is consistent with existing findings in the literature pointing to a superior performance of Greenfield banks. The negative coefficients on both *merger* and *domestic* in the *net interest margin* regression indicate that these types of banks also experience lower interest margins than Greenfield banks. These results corroborate previous results by (Demirguc-Kunt & Huizinga, 1999) (Barajas, Steiner, & Salazar, 2000), and might reflect the fact that the better reputation and superior banking expertise and services of Greenfield banks may allow them to borrow funds at lower rates while at the same time lending at higher rates than their counterparts.

The coefficients on *herfin* are positively and significantly related to profitability and interest margins in the Greenfield entry case, a finding that lends support to the traditional structure-conduct-performance (SCP) hypothesis according to which banks in more concentrated markets earn higher profitability and interest margins due to a non-competitive pricing behavior. However, the Herfindahl index is negatively and significantly related to both profitability and interest margin in the acquisition entry sample, although the magnitude of the impact seems very small. This result, though unexpected, corroborates those obtained by (Claeys & Vander Vennet, 2004) for a sample of Eastern European countries, and might be a reflection of the rapid development of bank lending in these countries in the latter part of the 1990s. Market share is negatively related to profitability and interest margin for the whole

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[11] (Havrylchyk, 2006) offers indications of augmented risks in lending for the case of Poland "During the analyzed period the structure of assets underwent a drastic change. Previous easy sources of income, such as Treasury bonds and loans to blue-chip companies, were exhausted. The banks had to tap new and riskier segments of the market, such as households and small and medium enterprises».

sample of banks in the acquisition entry sample. This result does not corroborate the relative-market-power hypothesis[12] and means that ceteris paribus, larger banks are not able to reap the benefices of their market power in pricing.

Amongst other reforms, enterprise reform appears to exert most significant impact by increasing banks' profitability, and reducing margins in the acquisition entry sample. With respect to the macroeconomic environment, inflation and interest rates affect profitability and interest margins positively. We don't observe any effect of the business cycle as denoted by the *growth* variable on bank performance.

In summary, the liberalization to entry of greenfield banks has had a limited effect on bank performance. By contrast, bank performance has significantly improved following the liberalization to foreign mergers and acquisitions of domestic banks. These results therefore confirm the differential implications of the two types of foreign entry as suggested by theoretical analysis on foreign bank entry.

5. Conclusions

This paper has investigated the effects of the two modes of entry of foreign banks – Greenfield investments vs. mergers and acquisitions of domestic banks - in an empirical setting. The results show a very limited effect of the entry of Greenfield banks on domestic banking market in the early transition period. In contrast, the foreign entry by mergers and acquisitions of domestic banks exerts significant impacts on bank performance. Indeed, we observe significant declines in banks' profits and net interest margins, and a significant increase in operating costs. These results therefore confirm the differential implications of the two types of foreign entry as suggested by theoretical analysis on foreign entry.

Our results have important policy implications. Indeed, they show that the liberalization to the entry of *de novo* banks is not sufficient to bring significant changes to the domestic banking market. Real benefits come mainly with foreign acquisitions of domestic banks. These conclusions contribute to shed light on the decisions to be made by those emerging and transition countries still hesitant to engage in this way.

The policy implications of our analysis should, nevertheless, be treated with caution. We have investigated the effect of the liberalization to entry of *de novo* banks in a period where the scope of activities of these banks was rather limited. This may bias our results. It

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[12] This theory suggests that banks with higher market shares are able to exercise power in pricing, and consequently earn higher market share.

would be preferable to extend the period studied into the one in which Greenfield banks started being interested in looking for local business opportunities.

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Tableau 1: *Definitions of variables*

Name	Definition	Source of data
Dependent variables		
profit	ratio of profits before tax to total assets; in percentage. It denotes a bank's profitability.	BankScope
irmargin	ratio of net interest revenue to total assets; in percentage. It denotes a bank's net interest margin.	BankScope
oper_cost	ratio of overheads to total assets; in percentage. It denotes a bank's operating costs.	BankScope
Liberalization variables		
greenfield	dummy variable indicating liberalization to entry of Greenfield banks; 1 for the years following the liberalization, and 0 otherwise.	Author's own research
takeover	dummy variable indicating liberalization to foreign acquisition of domestic banks; 1 for the years following liberalization, and 0 otherwise.	Author's own research
Bank-specific variables		
size	log of total assets. It denotes bank size.	BankScope
equity	ratio of equity to total assets; in percentage. It denotes the risk preferences of banks.	BankScope
loan	ratio of loans to total assets; in percentage. It denotes a bank's portfolio composition.	BankScope
Banking sector structure variables		
merger	dummy variable for foreign takeover bank.	R.d. Haas, I.v. Lelyveld & author's own research
domestic	dummy variable for domestic bank.	R.d. Haas, I.v. Lelyveld & author's own research
herfin	Herfindahl index; sum of squares of banks' market shares. It is an index of market concentration.	BankScope
sharemar	ratio of a bank' assets to total banking system's assets; in percentage. It denotes a bank's market share of assets.	BankScope
Reform variables		
bank	index of banking reform.	EBRD
enter	index of enterprise reform.	EBRD
price	index of price liberalization.	EBRD
Country-specific control variables		
lgdp	log of real gdp per capita.	PWT 6.2
inflation	annual inflation of the GDP deflator.	WDI
irate	for the Czech Republic and Hungary: average rate weighted by volume on the three-month Treasury bills sold at auctions (Line 60C.ZF); for Poland: discount rate (end of period) (Line 60.ZF).	IFS

Tableau 2: *Distribution of banks by ownership and modes of entry, Acquisition entry sample*

	Czech Republic	Hungary	Poland	Total
1994				
domestic	6	5	13	24
greenfield	5	3	2	10
mergers				
Total	11	8	15	34
1995				
domestic	6	6	14	26
greenfield	5	4	3	12
mergers				
Total	11	10	17	38
1996				
domestic	9	6	20	35
greenfield	5	6	3	14
mergers		1		1
Total	14	13	23	50
1997				
domestic	9	6	28	43
greenfield	10	6	6	22
mergers		3	3	6
Total	19	15	37	71
1998				
domestic	11	7	26	44
greenfield	11	10	13	34
mergers	2	9	3	14
Total	24	26	42	92
1999				
domestic	11	6	26	43
greenfield	12	13	14	39
mergers	4	9	3	16
Total	27	28	43	98
2000				
domestic	10	6	21	37
greenfield	12	14	14	40
mergers	5	9	7	21
Total	27	29	42	98
2001				
domestic	8	7	15	30
greenfield	11	11	16	38
mergers	7	8	8	23
Total	26	26	39	91
2002				
domestic	6	9	12	27
greenfield	10	12	17	39
mergers	9	8	10	27
Total	25	29	39	93
2003				
domestic	6	8	13	27
greenfield	10	12	17	39
mergers	9	7	12	28
Total	25	27	42	94
2004				
domestic	6	7	12	25
greenfield	10	14	16	40
mergers	8	7	12	27
Total	24	28	40	92

Tableau 3: *Liberalization dates*

Country	Liberalization Type	Year
Czech Republic	Greenfield Entry	1992
	Acquisition Entry	1997
Hungary	Greenfield Entry	1991
	Acquisition Entry	1994
Poland	Greenfield Entry	1989
	Acquisition Entry	1999

Tableau 4: *Descriptive statistics*

Greenfield Entry Sample*

Variable	Observations	Mean	S.D	Min	Max
profit	311	1.91	5.21	-49.69	12.21
irmargin	310	4.40	2.77	-8.23	14.76
lnassets	315	8.87	2.20	2.42	12.87
loan	315	42.17	19.64	0.00	94.75
equity	315	13.08	12.82	-3.47	82.48
sharemar	315	6.67	11.90	0.03	100.00
oper_cost	292	4.14	7.42	0.07	99.30

Acquisition Entry Sample*

Variables	Observations		Mean		S. D		Min		Max	
	Wh. Sample	Domestic	Wh. Sample	Domestic	Wh. Sample	Domestic	Wh. Sample	Domestic	Wh. Sample	Domestic
profit	859	360	0.80	0.06	4.35	6.05	-39.18	-39.18	14.52	14.52
irmargin	857	360	3.72	3.80	2.76	2.48	-8.06	-8.06	21.56	21.56
lnassets	861	361	6.52	6.58	1.48	1.53	1.71	2.48	10.29	10.29
loan	861	361	44.90	42.11	20.62	19.73	0.00	0.00	98.01	96.91
equity	861	361	12.68	11.80	13.53	14.54	-55.56	-55.56	98.41	84.47
sharemar	861	361	3.83	5.08	6.34	8.18	0.01	0.04	51.93	51.93
oper_cost	856	359	4.63	5.07	5.79	5.06	-1.88	-1.88	129.17	60.63

*All variables are in percentage, except *lnassets*.

Tableau 5: *Changes in Bank Profitability following Greenfield Entry*

Independent variables	Whole sample
greenfield	-9.605
	(3.643)***
size	0.811
	(0.518)
loan	0.024
	(0.015)
equity	0.159
	(0.055)***
sharemar	0.015
	(0.039)
oper_cost	0.041
	(0.060)
herfin	0.004
	(0.002)**
bank	-11.814
	(4.644)**
enter	-2.075
	(1.173)*
price	0.526
	(0.507)
country_2	2.221
	(2.398)
country_3	10.205
	(3.355)***
year_2	-46.416
	(19.399)**
year_3	-40.393
	(16.915)**
year_4	-26.266
	(10.745)**
year_5	-14.641
	(5.823)**
year_6	-1.620
	(0.890)*
year_7	0.424
	(0.611)
Constant	30.403
	(14.557)**
Observations	287
Number of banks	77
R-squared	0.19

NOTES: Panel data econometrics techniques are used in doing regressions. Indeed, an Hausman test indicates that a random-effects specification is appropriate. A Breusch-Pagan test for group-wise heteroskedasticity, and the Wooldridge (2002) test for serial correlation indicate the presence of heteroskedasticityin the residuals. We therefore choose the random-effects regression with robust standard errors. Sample period: 1989-1995. Robust standard errors are in parentheses. * denotes a significant level at 10% level; ** at 5%; and *** at 1%.

Tableau 6: *Changes in Banks' Net Interest Margin following Greenfield Entry*

Independent variables	Whole sample
greenfield	-1.359
	(1.902)
size	0.467
	(0.160)***
loan	0.034
	(0.007)***
equity	0.029
	(0.019)
sharemar	-0.044
	(0.021)**
oper_cost	0.140
	(0.027)***
herfin	0.002
	(0.001)**
bank	-3.054
	(2.144)
enter	-1.045
	(0.670)
price	0.516
	(0.274)*
country_2	2.943
	(0.805)***
country_3	5.999
	(0.962)***
year_2	-14.459
	(9.073)
year_3	-12.690
	(8.001)
year_4	-7.484
	(5.169)
year_5	-4.004
	(2.844)
year_6	-0.638
	(0.468)
year_7	0.003
	(0.275)
Constant	3.931
	(8.417)
Observations	286
Number of banks	77
R-squared	0.40

NOTES: Panel data econometrics techniques are used in doing regressions. Indeed, an Hausman test indicates that a random-effects specification is appropriate. A Breusch-Pagan test for group-wise heteroskedasticity, and the Wooldridge (2002) test for serial correlation indicate the presence of both

heteroskedasticity and autocorrelation of order 1 in the residuals. We therefore choose the Prais-Winsten regression with heteroskedastic panels corrected standard errors and an AR(1) process in the error terms. Sample period: 1989-1995. Robust standard errors are in parentheses. * denotes a significant level at 10% level; ** at 5%; and *** at 1%.

Tableau 7: *Changes in Banks' Operating Costs following Greenfield Entry*

Independent variables	Whole sample
greenfield	-3.021
	(3.833)
size	-0.691
	(0.470)
loan	-0.022
	(0.017)
equity	0.226
	(0.127)*
sharemar	0.107
	(0.059)*
herfin	0.002
	(0.002)
bank	-5.618
	(4.381)
enter	-2.938
	(2.425)
price	-0.730
	(0.523)
country_2	5.782
	(2.259)**
country_3	0.239
	(2.528)
year_2	-34.975
	(20.762)*
year_3	-29.742
	(18.081)*
year_4	-18.866
	(11.736)
year_5	-11.539
	(6.872)*
year_6	-2.356
	(1.367)*
year_7	-0.949
	(0.734)
Constant	36.193
	(18.489)*
Observations	287
Number of banks	77
R-squared	0.20

NOTES: Panel data econometrics techniques are used in doing regressions. Indeed, an Hausman test indicates that a random-effects specification is appropriate. A Breusch-Pagan test for group-wise heteroskedasticity, and the Wooldridge (2002) test for serial correlation indicate the presence of both heteroskedasticity and autocorrelation of order 1 in the residuals. We therefore choose the Prais-Winsten

regression with heteroskedastic panels corrected standard errors and an AR(1) process in the error terms. Sample period: 1989-1995. Robust standard errors are in parentheses. * denotes a significant level at 10% level; ** at 5%; and *** at 1%.

Tableau 8: *Changes in Banks' Profitability Following Liberalization to Foreign Acquisition of Domestic Banks*

Independent variables	(1) Whole sample	(2) Domestic banks
takeover	-1.619	-2.535
	(0.640)***	(1.266)**
size	3.277	1.944
	(0.956)***	(1.329)
loan	0.006	-0.021
	(0.015)	(0.024)
equity	0.176	0.150
	(0.043)***	(0.056)***
sharemar	-0.094	0.029
	(0.055)*	(0.068)
oper_cost	-0.204	-0.635
	(0.158)	(0.085)***
merger	-2.873	
	(1.009)***	
domestic	-3.450	
	(0.596)***	
herfin	-0.003	-0.005
	(0.001)***	(0.001)***
bank	-0.361	0.178
	(1.108)	(2.188)
enter	3.641	11.547
	(1.856)**	(3.456)***
price	10.453	14.971
	(4.365)**	(7.486)**
growth	0.211	0.316
	(0.183)	(0.354)
inflation	0.306	0.525
	(0.073)***	(0.148)***
irate	0.089	0.294
	(0.061)	(0.100)***
Observations	854	368
Number of banks	148	77
R-squared	0.34	0.60

NOTES: Panel data econometrics techniques are used in doing regressions. Indeed, a Hausman test indicates that a fixed-effects specification is appropriate for both cases. A modified Wald test for group-wise heteroskedasticity, and the Wooldridge (2002) test for serial correlation indicate the presence of both heteroskedasticity and autocorrelation of order 1 in the residuals in both cases. We therefore choose the fixed-effects models with Newey-West standard errors and an AR (1) process in the error terms for both samples. Year dummies are included in the regressions but not reported here. Country dummies are also included but dropped due to colinearity. Sample period: 1994-2004. Robust standard errors are in parentheses. * denotes a significant level at 10% level; ** at 5%; and *** at 1%.

Tableau 9: *Changes in Banks' Interest Margin Following Liberalization to Foreign Acquisition of Domestic Banks*

Independent variables	(1) Whole sample	(2) Domestic banks
takeover	-0.539	-1.037
	(0.333)*	(0.518)**
size	0.541	0.116
	(0.288)*	(0.132)
loan	0.018	0.021
	(0.006)***	(0.008)***
equity	0.092	0.081
	(0.016)***	(0.016)***
sharemar	-0.049	0.015
	(0.020)**	(0.020)
oper_cost	0.100	0.067
	(0.024)***	(0.022)***
merger	-3.861	
	(1.332)***	
domestic	-3.767	
	(1.318)***	
herfin	-0.000	-0.001
	(0.000)*	(0.000)***
bank	-0.258	-0.557
	(0.497)	(0.715)
enter	-2.451	-2.540
	(0.826)***	(1.544)*
price	-1.367	0.154
	(1.664)	(2.049)
growth	0.020	0.019
	(0.078)	(0.120)
inflation	0.011	0.144
	(0.036)	(0.041)***
irate	-0.041	0.053
	(0.027)	(0.032)*
Constant		8.621
		(8.025)
Observations	852	369
Number of banks	147	78
R-squared	0.36	0.46

NOTES: Panel data econometrics techniques are used in doing regressions. Indeed, an Hausman test indicates that a fixed-effects specification is appropriate for (1), and a random-effects specification for (2). A modified Wald test for group-wise heteroskedasticity for (1), a Breusch-Pagan test for (2), and the Wooldridge (2002) test for serial correlation for both indicate the presence of both heteroskedasticity and autocorrelation of order 1 in the residuals in both cases. We therefore choose the fixed-effects model with Newey-West standard errors and an AR (1) process in the error terms for (1), and the Prais-Winsten regression with heteroskedastic panels corrected standard errors and an AR(1) process in the error terms for (2). Year dummies are included in the regressions but not reported here. Country dummies are also

included but dropped due to colinearity. Sample period: 1994-2004. Robust standard errors are in parentheses. * denotes a significant level at 10% level; ** at 5%; and *** at 1%.

Tableau 10: *Changes in Banks' Operating Costs Following Liberalization to Foreign Acquisition of Domestic Banks*

Independent variables	(1) Whole sample	(2) Domestic banks
takeover	2.168	3.544
	(1.316)*	(1.845)**
size	-3.470	-1.222
	(0.651)***	(0.325)***
loan	-0.036	-0.044
	(0.024)	(0.023)*
equity	0.013	-0.037
	(0.085)	(0.065)
sharemar	0.091	0.037
	(0.066)	(0.051)
merger	-1.000	
	(1.290)	
domestic	-0.935	
	(0.898)	
herfin	0.002	0.002
	(0.001)*	(0.001)**
bank	-2.973	-1.833
	(2.711)	(2.091)
enter	-3.870	5.097
	(4.241)	(5.666)
price	-17.090	-8.269
	(11.174)	(6.498)
growth	-0.408	0.191
	(0.326)	(0.330)
inflation	-0.077	-0.012
	(0.100)	(0.059)
irate	-0.061	0.116
	(0.138)	(0.109)
Constant		34.351
		(31.838)
Observations	854	369
Number of banks	148	78
R-squared	0.13	0.14

NOTES: Panel data econometrics techniques are used in doing regressions. Indeed, an Hausman test indicates that a fixed-effects specification is appropriate for (1), and a random-effects specification for (2). A modified Wald test for group-wise heteroskedasticity for (1), a Breusch-Pagan test for (2), and the Wooldridge (2002) test for serial correlation for both indicate the presence of heteroskedasticity in both cases, and of autocorrelation of order 1 in the residuals in (1). We therefore choose the fixed-effects model with Newey-West standard errors and an AR (1) process in the error terms for (1), and the random-effects model with robust standard errors for (2). Year dummies are included in the regressions but not reported here. Country dummies are also included but dropped due to colinearity. Sample period: 1994-2004. Robust standard errors are in parentheses. * denotes a significant level at 10% level; ** at 5%; and *** at 1%.

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