

The background of the cover features a faded, overlapping image of Polish banknotes. Visible denominations include 2000, 1000, 500, 200, 100, 50, and 20 PLN. The text is overlaid on this background.

NATIONAL BANK OF POLAND WORKING PAPER No. 50

The Economic Determinants and Engagement Modes of Foreign Banks in Central Europe

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Warsaw, August 2008

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The authors would like to thank Franklin Allen, Thorsten Beck, Iftekhar Hasan, Reinhard H. Schmidt, Celso Brunetti, Sheng Huang and an anonymous referee for their helpful comments and suggestions.

Design:

Oliwka s.c.

Layout and print:

NBP Printshop

Published by:

National Bank of Poland
Department of Information and Public Relations
00-919 Warszawa, 11/21 Świętokrzyska Street
phone: +48 22 653 23 35, fax +48 22 653 13 21

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Abstract

In the last fifteen years foreign banks have expanded their presence significantly in almost all developing economies. The transition countries are among those economies that have experienced one of the highest levels of banking internationalization in the world. The foreign controlled banking asset in these countries ranges from 70 per cent in Poland to almost 100 per cent in Slovakia. With our study using panel data we examine the economic determinants of foreign bank engagement in the four local banking markets in Central Europe during the period 1994-2004. In addition, we study whether the economic determinants affect different entry vehicles of foreign banks into the Central European markets. Our results show that the most important factors determining foreign bank engagements were (i) large potential of the Central European banking markets and low degree of their financial sophistication (ii) the legal origin of the home country, (iii) the size of the economic growth rates differentials between host and home markets, and (iv) finally the distance between the host country and the foreign bank headquarter. We also find that most foreign banks investments occurred in the period of poor creditor rights protection. Moreover, our results present that the economic determinants had an impact on the decision of the organization form of the foreign banks entering the Central European banking markets. Our results are robust to several controls, including the lack of independence of investment decisions.

Keywords: international banking, foreign direct investment, foreign bank, vehicle of foreign bank entry, Central Europe

JEL-Classification: G21; F21

1

Introduction

In the last fifteen years there has been a rapid increase in the activity of foreign banks in several developing economies. Although, foreign bank entry occurred in many developing countries, its pattern was not uniform (IMF, 2000). In Latin America as well as in the Central European (CE) countries, the share of foreign banks in the first half of the 1990s was well below 20 per cent and a decade later the foreign banks controlled almost 75 per cent of total banking assets. By contrast, in East Asia over the same period, the average share rose only from 3 to 7 per cent (Barth, 2001). The level of development of a country seems also not to be an obvious determinant explaining foreign bank entries. In such countries as Egypt or Bangladesh, the foreign banks hold less than 10 per cent of banking assets. On the other hand in Cambodia, the Czech Republic or Turkey more than 60 per cent of domestic total bank assets are in the foreign hands. The differences are also meaningful among the transition countries. In Azerbaijan or Uzbekistan, the share of foreign banks is less than 5 per cent, whereas in such countries as Hungary or Lithuania it amounts to almost 100 per cent. The discrepancies are also visible in the industrial countries. In Germany or the United States, the foreign controlled banks hold less than 10 per cent of assets, whereas in Luxemburg or New Zealand they hold more than 90 per cent.

A good financial system has been shown to be an essential ingredient for sustainable economic growth (Levine, 2005; World Bank, 2001). The literature on foreign banking has also shown that foreign bank participation can help develop a more efficient and robust financial system (Claessens *et al.*, 2001). Most evidences show that increased foreign banking is generally positively correlated with the improvement of the efficiency of the domestic banking sectors and helps strengthen countries' financial systems. Especially, studies on the developing countries have shown that these countries have benefited from this trend at most.¹ Therefore, from the policy perspectives it is important to know what determines a favorable environment that encourages cross-border activity and entering foreign banks. Despite the recent trends in the banking internationalization, 28 per cent of developing countries still have foreign bank participation below 10 per cent and 60 per cent of developing countries have below 50 per cent. Among these developing countries with the foreign bank assets below 10 per cent, the transition countries constitute almost 20 per cent and 25 per cent of the sample with the foreign bank participation below 50 per cent (Van Horen, 2006; EBRD, 2005). As the experience of some Central and Eastern European transition countries has shown the foreign bank participation has turned out to be inevitable to build stable and efficient financial system. Hence, we would expect that in other developing and transition countries, the engagement of foreign banks might also turn out to be necessary in the near future.

At the same time, by permitting foreign banks to enter, the policy makers should take care about how the foreign banks operate in the host markets. First, letting the foreign banks come in, the host countries may open themselves up to economic fluctuations in the entrants' home countries. Moreover, the organizational form may affect the competitive structure of the local banking systems, threatening profits and market share of domestic banks and affecting the price and quality of banking services in the host country. And finally, the entry through *de novo* operation involves different levels of parent bank responsibility and financial support. This can have implications not only for parent bank

¹ See Clarke *et al.* (2003) for review of the literature on the impact of foreign bank participation.

but also for local regulators, who care about the stability of the host country, and for local depositors who care about the safety of the savings. The recent experience of Argentina, where some foreign banks decided not to recapitalize their foreign subsidiaries presents the best example on this.

On the other hand, the literature on international banking comes up with some arguments in favor of one entry mode versus another. While the empirical studies show that the entry of foreign banks through cross-border mergers and acquisitions is positively correlated with the efficiency improvements of the acquired banks, the entry of foreign banks through subsidiaries may promote greater access to the financial services in the host countries, as in many countries, the foreign subsidiaries have powers identical to those of domestic banks. Hence, although, the trade-off between one entry mode versus another is by local regulators required, from the policy perspectives, it is also important to know what determines a foreign bank's choice of organizational form.

Today, the banking sectors of most transition countries are among the ones with the highest share of foreign controlled banking asset in the world. It ranges from 70 per cent in Poland to almost 100 per cent in Slovakia (Allen *et al.*, 2006). The change in the share of foreign participation in banking in these countries from the early transition years to the later ones is significant.

The pattern of the banking internationalization was also not uniform in these countries. At the beginning of the transformation, foreign banks entered the region mainly new chartered operations. Encouraged by the fast going economical and political reforms in the region and high economic growth, the pressure to enter the CE region has increased. With the intention of gaining rapidly share in the local market most foreign banks used acquisition as an entry vehicle instead of establishing a subsidiary or branch in those countries.

Generally, banks are found to be attracted to markets abroad to exploit favorable financial system environment and to take advantage of economic opportunities in those countries (Goldberg and Saunders, 1981). In this paper we try to analyze and establish the determinants of foreign banks engagement despite the political and economical uncertainties in the four CE countries: Poland, Czech Republic, Slovakia and Hungary. Using a new sample of countries this paper tries to fill the gap by presenting the determinants of foreign bank engagement in the transition economies.

Our decision on the choice of this sample has been driven by some variations between these countries. On the one hand, these countries have experienced the most significant pattern of banking internationalization among the transition countries in the region. At the same time they represented various policies toward foreign bank entries as well as started their transition processes with similar initial conditions. For this reason, in our opinion, these countries constitute a good testing ground on determinants of foreign banking participation and entry vehicles chosen by foreign banks.

The literature comes up with various motives for foreign banks to go abroad. In addition, the mode of entry or the organizational form chosen by foreign banks is not only an issue of their strategy or mission, but also depends on the entry country's conditions and environment. Despite the profound changes in the banking sectors of the CE economies as well as growing number of countries embracing foreign bank investments, there is still open debate about the determinants of banking internationalization and its modes of entries. The empirical evidences presented in the literature come mostly from the US and developed European countries. There has been little empirical research in this field for the developing countries so far. With our study we present the empirical evidence on the foreign bank entry determinates and chosen vehicles by them in the CE markets.

Our contribution with respect to previous literature is twofold. First, we consider a new set of explanatory variables than previous studies, verifying different hypothesis

and relative importance of economic factors in determining banks' choice of whether and where to expand abroad. Second, we use for the first time a sample of entry models of foreign banks entering the CE region. Our framework permits us to examine the relation between the relative importance of the different country's factors and the chosen entry model by foreign banks in the CE region.

Our major finding is that the most important factors determining foreign bank engagement into CE countries was the depth of the financial system as well the legal origin of the home country. Our results also shows that the size of the economic growth rates differentials between host and home markets, and finally the distance between the host country and the banking headquarters were of great economic importance. We also show that determinants of bank internationalization have changed within development of the financial systems. Finally, our findings present that the economic determinants had also an impact on the decision of organization form of the foreign banks in the CE local banking markets.

The remaining of the paper is organized as follows. In the next section we present a short overview of problems encountered by the transition from planned economy to the market economy in the four CE countries. The third section presents the literature review about determinants related to our main hypothesis of the banks' expansion abroad. At the end of this section we present also the results of the few empirical papers on foreign banking in the transition countries. In the next section, we present the variables based on previous empirical research, which we have applied in our regressions. In a subsection we develop also our main hypothesis related to the economic determinants and the decision about the entry mode of the foreign banks into the CE local banking markets. In the fifth section we present the model which investigates the incentives of foreign banks for entering CE countries in the last decade, the period of enormous uncertainties and economic transformation. The next section describes the results and compares them with other ones from developed countries. Finally, the last section of the paper concludes.

2

Banking sector in early transition process

All the CE countries in our study followed the socialist financial system model, which was designed to support the central planning economic system. Despite the centralization of financial functions the state directed credit allocation with scant regard for repayment capacity, using the national bank and state-owned banks to channel funds to state-owned enterprises.

As a consequence of political changes in the year 1989 the creation of an effective financial system was a priority for the new governments in the CE countries. The aim was to implement a market-oriented economy and thus fundamental changes were needed in the financial system. So the banking industry was one of the first economic sectors, which underwent a fundamental transformation.

Hungary was the leader among the CE countries in the banking reforms. The government began the banking reforms even before the political changes. In the early 1980s the Hungarian government permitted a number of foreign banks to set up operations, even though these banks competed with state-owned banks in the areas of foreign exchange and trade-related transactions. The centralized mono-banking system was replaced by a two-tier banking system as the National Bank of Hungary assumed the role of a central bank in 1987. The new central bank was charged with pursuing monetary policy, including exchange rate policy, and was made responsible for the supervision of the banking sector. The second tier consisted of the specialty banks, newly created commercial banks, and the few already operating foreign banks (Hasan and Marton, 2003).

In Poland the reform of the banking system started in 1987, when the government allowed for creation of the joint-stock banks, yet they were still owned by the state. Two years later a new banking law was introduced, which created a two-tier banking system in Poland.

In all the CE countries as a process of creating a two-tier banking system the commercial and retail operation was divested from the activity of national banks and transferred to new commercial banks. In Hungary the government set up three new state-owned banks from the National Bank of Hungary, in Poland nine banks were created out of the National Bank of Poland, while in Czechoslovakia through divestment from the State Bank of Czechoslovakia four banks were established. These medium sized state-owned banks inherited segments of the old network and staff of the national banks, household deposits and loan portfolio comprising mainly of credits granted to the state enterprises of unknown quality. They supplemented the already existing large state-owned specialty banks. Those specialty banks existed separately from the central bank and performed specific functions on behalf of the government in the planned economies. A state savings bank with an extensive branch network was responsible for collecting household deposits, although most savings was forced and done by the state. A foreign trade bank handled all transactions involving foreign currency. An agricultural bank provided short-term financing to the agricultural sector. A construction bank funded long-term capital projects and infrastructure development (Bonin and Wachtel, 2003).² Table 1 presents the representatives of each specialization group in a particular country.

² Besides these banks there existed also some other state banks rendering other services as loans for example to households for development of small enterprises as in Hungary Konzumbank. Their role however, was very limited and government support diminished as budgets tightened.

Table 1**Structure of the banking system in post-socialist economies at the beginning of transformation in 1989**

	Hungary	Poland	Czechoslovakia
Ratio of all specialized banks' assets to total assets ^{*,**}	47.7%	79.1%	32.2%
Ratio of commercial banks' assets to total assets ^{*,**}	35%	8.5%	67.8%
Ratio of total savings bank deposits to total deposits [*]	N/A	12.1%	52.3%
Savings Bank's households deposits as ratio of total household deposits [*]	81.3%	70.5%	100%
Ratio of Savings Bank loans to deposits [*]	100%	61.3%	16.8%

Source: Thorne (1993).

* Estimated at the date of the break-up of the mono-bank. Because in Hungary the central bank held a portion of the banking systems' total assets the sum of the ratios of commercial and specialized banks' assets to total assets is low relative to the other countries.

** In the case of CSFR, these ratios are calculated using total loans instead of total assets, as assets by group of banks were not available.

Although three to nine new state-owned banks were set up through the divestment from central banks, yet the banking industry remained fragmented as the three to four specialist banks still dominated the emerging banking system. However, already in the first year of the transformation, new banks started to operate in transition countries. The entry requirements policy of the newly central banks and the licensing procedure for new established banks was very lenient at that time. The principal motivation was to increase the competition of the four large banks, which were considered too inertial and ineffective. The number of new established banks was very impressive at this time. In Hungary six new banks began its operation, in Poland 40 new banks and 13 new banks in Czechoslovakia in 1990. Of these, three were foreign-owned in Hungary, five in Poland and four in Czechoslovakia.

However, this huge expansion of new domestic private banks later caused serious problems for the financial system. Most of those domestic banks were in general undercapitalized and placed an additional unwanted burden on an underdeveloped regulatory structure. In addition, some of them have been set up either by state enterprises or by local governments in order to provide soft lending to them. Hence, the features of banking system at the beginning of transformation were structural segmentation, high concentration of the assets caused by few large and medium sized state-owned banks, and an increasing number of small domestic private banks (Bonin *et al.*, 2005).

Given the poor banking supervisory environment caused by poor accounting and financial information, weak off-side surveillance capacity and the lack of experience with on-site examinations, it was bound to lead to problems in the banking industry. The benevolent licensing policy, combined with inexperienced and still weak banking supervision, caused the new private domestic banks to take on rather unsound development strategies. In addition, the absence of effective legal and institutional supervision also invited fraudulent behavior by the managements of these banks. As a consequence the new domestic banks started to have liquidity problem in very short term. Also the former specialist banks get into trouble as they inherited a loan portfolio from the past in which credit was granted not on commercial terms. In addition, those banks were still the primary lending vehicle and quasi fiscal financing, usually for loss-making state-owned enterprises that had to be either privatized or closed. The number of non-performing loans increased significantly as the structural problems of the real economy increased caused by the ongoing transition process in CE countries (Bonin and Wachtel, 2003). Once the compliance of supervision provision requirement was enforced, the quality of loan portfolios became apparent. As a consequence several large state-owned banks reported huge losses and the equity adequacy ratios were below the requirement of the banking supervision.

In Hungary, at the end of 1992, between 15 to 28 per cent of the credits extended were nonperforming loans. Those loans were primarily granted to the state-owned enterprises during the pre-1989 era (Hasan and Marton, 2003). The situation quickly became unsustainable as failing financial institutions turned for bailout to the National Bank of Hungary. As a result the newly established national bank was in jeopardy and the Hungarian government had to step in through a series of costly loan consolidation programs beginning in 1992 (Várhegyi, 1994,1995; Balassa, 1996). The government objective of the bailout programs was the cleaning-up of the books of the state-owned banks, which would permit a sell off to foreign strategic investors. The cost of the program approached close to 10 per cent of Hungary's GDP.

Poland was the most successful in dealing with the bad debt crisis. The success is attributable to the design of the recapitalization program, which provided the least incentive for moral hazard. In addition, the central bank encouraged the buyout of troubled banks by foreign strategic investors. As a consequence, the costs of bad debt bank crisis were below 1.5 per cent of GDP and were the lowest among the transition economies.

In the Czechoslovakia the Consolidation Bank was established as a vehicle for the takeover of the accumulated bad loans till 1991. The bank was created to take nonperforming loans from the balance sheets of the largest state-owned banks and the clean-up of the books of other banks in the periods both before and after the division of Czechoslovakia (Dědek, 2001). The overall costs of the Consolidation Bank are estimated to have reached more than 7 per cent of GDP. Nevertheless the creation of the Consolidation Bank did not solve the problem of the banking sector and the Czech National Bank had to intervene in the affairs of eight banks by 1996. In 1997 classified credits reached already 32 per cent of the total banking credits in the Czech Republic (Dědek, 2001). Finally the problem was resolved through a postponed privatization of the largest banks. However, the estimates indicate that the final cost of bank bailout in the Czech Republic may have approached 30 per cent of GDP as compared to just 1.5 per cent in Poland or 10 per cent in Hungary.

The growing problem of bad debt was the trigger for the postponed bank privatization in all the transition countries. In most of these countries the privatization of state-owned banks started in the beginning of the 1990's, yet foreign banks were entitled only to minority shares whereas controlling stakes remained with the state treasury. As the problem of bad debt increased, the government was more likely to sell controlling shares in the state-owned banks to foreign investors. Furthermore the governments in the transition countries were encouraged by privatizations revenues as they started with the sell of state-owned banks. Therefore often foreign bank entry was seen as a way of saving the ailing domestic banking sector in the transition countries.

In opposition to the three transition countries, in Hungary bank privatization policy from the beginning was aimed at selling controlling shares in state-owned banks to foreign investors. Although the privatization required prior an initial recapitalization of the banks so that the combination of current net worth and franchise value would attract a foreign investor. As a consequence the Hungarian government engaged in multiple recapitalizations of its domestic banks caused by the poor quality of loan portfolios. Thus, the government was able to attract foreign investors and thus signal credibly the end to bailouts of these banks (Hasan and Marton, 2003). In Hungary four of five large state-owned banks had been sold to foreign owners till the end of 1997. In addition the share of foreign banks was 63 per cent of total assets at the end 2006.

The Polish experience indicates the danger in combining the resolution of bad loans with bank responsibility for enterprise restructuring. The main instrument used to restructure bad loans was debt to equity swaps. Hence, weak banks with no expertise in restructuring large companies ended up taking ownership stakes in their weak clients. Therefore bank credit was provided regularly to ailing enterprises and no meaningful enterprise restructuring was promoted (Gray and Holle, 1996). Poland's program strengthened, rather than cut off

the ties between weak banks and their undesirable clients and, thus, postponed painful restructuring of ailing enterprises (Bonin and Leven, 2001).

Poland's government presented an inconsistent policy toward foreign banks. In 1993 the government attracted the first strategic foreign investor for two of the nine mid-sized commercial banks, yet only minority shareholding was allowed. Thus, foreign institutions controlled only 2.1 per cent of Polish banking assets at the end of 1994. The National Bank of Poland however enabled foreign bank entry at the beginning as *de novo* operation and later through either the buyout of failing banks or their nonperforming credit portfolio. The persisting inefficiency of Polish banking system caused the government to change their attitude toward foreign investors. In 1997 foreign banks were allowed to take control in the initial privatization of the state-owned banks. At the same time the government started a year before to arrange a large bank merger of state-owned banks. In the years 1998-1999 the three of the nine mid-sized commercial banks were merged with one of the state retail banks to form the second largest bank in Poland. Shortly afterwards this new formed bank was fully privatized by the state. In the last decade significant strides have been made and foreign strategic investors took control in some of the largest commercial banks. In 2004 the government sold 30 per cent of shares in the country's largest state savings bank PKO BP through the stock exchange. As it was the last state-owned bank and therefore the government decided to retain a majority stake in it. In 2006 the government owned directly only one special bank and one retail bank and indirectly government in three other commercial banks. The share of foreign assets to total bank assets was 75 per cent at the end of 2006.

In the Czech Republic bank privatization took place twice. In 1992 the government of Czechoslovakia conducted a voucher privatization transferring the shares to individual investors and investment funds in exchange for vouchers. Three of the four large commercial banks participated in voucher privatization, yet these banks participated on both sides of privatization as they also sponsored the largest investment funds. As a result, Czech banks took ownership stakes in their voucher-privatized clients, some of which continued to be loss making, while the state retained a controlling ownership stake in the large banks. Consequently, voucher privatization in the Czech Republic strengthened the relationship between banks and clients and left bank governance held hostage to the legacies of the past. Thus, the privatization of the Czech banks was to little avail because soft lending practices continued. As a consequence these banks accumulated bad debts, which later have been transferred to the Consolidation Bank.

In the Czech Republic the second round of privatization occurred from 1998 to 2001, when the government sold holding in three major banks. Until then no Czech bank was sold to a foreign investor. Those three banks accounted for 38 per cent of assets. Since then the proportion of foreign-owned bank assets soared to 96 per cent in 2006.

Concluding, the increasing foreign bank presence since the 1990s is one of the most striking developments in the banking system in the transition economies. On average, foreign-owned banks account for more than two thirds of total bank assets in most transition economies at the end of 2006. The percentage of assets in banks with a majority of foreign ownership in these countries ranges from 22 per cent in Slovenia to 99 per cent in Estonia. By contrast, in EU-15, only Luxemburg and Great Britain had more than 50 per cent of its banking sector controlled by foreign investors in 2005 (Allen *et al.*, 2006). Thus, banking sectors in transition countries differ significantly from their counterparts in developing as well as from emerging market countries by the unusual high percentage of assets held by foreign banks.

3

Literature review

In the last decades various studies have been conducted that investigated the motivation and location choice of banks abroad.³

The classical hypothesis (Aliber, 1984) is that banks follow their customers abroad being afraid of losing them once they have established relationships with banks operating in other countries. According to the defensive expansion hypothesis, banks' expansion enables them to retain information on their customers.

Multinational banking hypotheses relating to the servicing and following their clients generally find empirical support. Nigh, Cho and Krishnan (1986) presented in their study of US banks' overseas expansion that the major determinant was to respond to the financial needs of US firms abroad. Their study implies that US banks do not lead, but follow the US business sectors. Goldberg and Saunders (1980) analyzed the factors affecting the expansion of US banks into the UK, concluding that US trade is significantly conducive to the growth of US banks in UK, while the Eurodollar interest rate and the exchange rate are not significant factors. In a later study Goldberg and Saunders (1981) examine on the contrary the growth of foreign banks in the US. Their results provided evidence that the direct investment made by foreign firms into the market was a significant positive determinant of growth of foreign banks' market share in the US. Hultman and McGee (1989) and Grosse and Goldberg (1991) also provided results that foreign banks entered the US market to service the international trade and direct investment needs of their home-country clients. In a recent study similar results were presented by Magri *et al.* (2005) in a study on entry decisions and activity levels of foreign banks operating in Italy. The authors report that trade influences both entry decision and activity levels of foreign banks. However, they found also that the relative profitability of banking activity in Italy strongly influences both entry decisions and activity levels. As a consequence the observed correlation in several studies between proxies for foreign investment trade and the structure of a foreign market complicates the conclusions on motivation. Thus, the motivation of bank to move abroad may be explained by the need to follow its clients and equally by the lure of a potentially significant new market.

The importance of new market opportunities in attracting foreign banks has been emphasized by the eclectic theory of direct investment (Dunning, 1977). The theory was extended by Gray and Gray (1981) to explain multinational banking. In this theory internationalization of banks is contingent upon location-specific factors and ownership-specific factors.

The location-specific factors are the size and competition in the foreign market, presence of entry restriction and other regulations. Foreign market size has been found to be a significant driver of multinational banking by Terrell (1979) and Goldberg and Grosse (1994). While, Goldberg and Johnson (1990) provides some support for relative lack of competition or high relative profitability as causal factors. In contrast Nigh *et al.* (1986) did not found that local market opportunity to have a significant effect. In their study they analyzed the role of location-specific factors in foreign involvement of the US banks.

Recent studies presented a new approach to multinational banking and market structures. In those studies banks may use economic crises and distortions in the banking

³ See Williams (1997) for a comprehensive survey of literature on foreign bank investments.

industry in order to enter a foreign market. Peek and Rosengren (2000) found evidence that as a result of liberalizations and of the worsening conditions in domestic markets, foreign banks expanded in several Latin American countries. Consistent with this result, Guille'n and Tschoegl (2000) found that Spanish banks have increased their ownership in Argentina's banks during the economic crisis of the last decade. However, Engwall *et al.* (2001) found that foreign banks lost market share in Sweden during the Scandinavian banking crisis in the early 1990s. On the other hand, at the same time they found that foreign banks increased their market share in Norway. As we can see, the empirical results do not present a clear picture on market structure, yet it seems that foreign banks may use a domestic crisis in order to increase their market share in the market.

The ownership specific factors emphasize that banks become multinational in order to employ their domestic strengths in foreign markets at low marginal cost and thus leverage those strengths. Such advantages can take many forms, including large scale of operation, low cost of capital, unique business processes or banking technology, skilled personnel and banks' reputation (Nigh *et al.*, 1986; Tschoegl, 1987). Among bank specific characteristics, size has been found to affect mainly the patterns of foreign direct investment. Ball and Tschoegl (1982) provided evidence that the larger banks are much more international than smaller ones.

Consistent with this result Focarelli and Pozzolo (2001) have shown that banks with foreign shareholdings are on average larger and have headquarters in countries with a more developed and efficient banking market. However, Berger *et al.* (1995) argue that larger banks have generally larger and more internationally diversified customers, and therefore these banks have more incentives to follow their clients when they operate abroad. If it is the case than large foreign banks would rather follow their multinational clients than have been encouraged by their comparative advantage. In addition, several studies have documented that foreign-owned banks are not as profitable as their domestic peers. Seth (1992) and Nolle (1995) found that foreign-owned banks were not as profitable as domestically owned banks, based on aggregate profits. DeYoung and Nolle (1996) use a profit-efficiency model and conclude that foreign-owned banks were less profit-efficient because of their reliance on purchased funds. Molyneux *et al.* (1997) applying a simultaneous equations framework concludes that the profitability of foreign-owned banks was mainly related to capital ratios, commercial and industrial loan growth and asset portfolio composition.

Although, the presence of higher demand profit opportunities in the market of destination of the investment seems likely to be an obvious determinant of the location choice of multinational banks, the empirical studies are more equivocal on location-specific factors and ownership-specific factors as motives for banks to go abroad.

Apart from leveraging existing advantages, following clients or seeking attractive markets overseas, there are other determinants of bank expansion abroad. In the opinion of Focarelli and Pozzolo (2001) bank internationalization depends on other factors besides the degree of economic integration among countries. While, Claessens *et al.* (2000) analyzing foreign presence across 80 countries from 1988 to 1995 presents that foreign banks are attracted to markets with low taxes and a high per capita income. He reports however that the regulatory restrictions significantly affect the pattern of bank investment abroad. Miller and Parkhe (1998) presented that US banks prefer to expand in countries where capital requirements are less stringent and taxes are lower. Consistent with this result, Nigh *et al.* (1986) and Goldberg and Johnson (1990) have shown that restrictions on the entry of foreign investors significantly reduce the degree of internationalization of a country's banking market. In Boot (1999) opinion governments desire that the largest banks in their countries are domestically owned. Thus, we would expect that in high concentrated markets as the CE, the entry of foreign banks is more difficult. In this case a single acquisition of the former state-owned banks would imply the loss of a significant market share to the advantage of foreign financial institution.

The literature on the restructuring and development of the financial sector in transition economies is abundant. However, the empirical literature on banking in transition countries concentrates mainly on the impact of foreign bank entry on banking efficiency. Yildirim and Philippatos (2002) find that foreign banks in transition countries are more cost efficient but less profit efficient relative to domestic banks. Hasan and Marton (2003) and Fries and Taci (2003) demonstrate that the entry of more efficient foreign banks creates an environment that forces the entire banking system in transition countries to become more efficient, both directly and indirectly. Buch (2000) compares interest rate spreads in Hungary, Poland and the Czech Republic from 1995 to 1999. She finds evidence confirming the hypothesis that foreign banks create a more competitive market environment in transition economies, but only after they have attained sufficient aggregate market share. The results were conformed to Zajc (2002), who reported for six European transition countries that foreign bank entry reduces net interest income and profit, and increases costs of domestic banks. While, Bonin *et al.* (2003) examine the performance of banks in eleven transition countries and show that majority foreign ownership is associated with improved bank efficiency.

On the contrary, Green *et al.* (2002) estimate the efficiency of domestic and foreign banks in the Central and Eastern Europe (CEE) in terms of economies of scale and scope. They find that foreign banks are not really different from domestic banks and that bank ownership is not an important factor in reducing bank costs. Their results were in opposition to Claessens *et al.* (2001), who reported that foreign banks in CEE countries tend to have lower overhead costs and loan loss provisions and higher profits than domestic banks.

Fries and Taci (2005) have shown that costs are lower in those transition countries where foreign-owned banks have a large share of assets. While, de Hass and van Lelyveld (2003) argued that the increase in foreign banks have contributed to credit stability in CEE by keeping up credit supply during crisis periods, while domestic banks reduced theirs. Although their results also have shown that the privatization of domestic banking systems in CEE as such has not led to immediate positive stability effects. They have shown that banks that are sold to foreign strategic investors do not change immediately into more efficient banks. Additionally, they presented that the country conditions matter for foreign bank growth, as they have reported a significant negative relationship between home country economic growth and host country credit by foreign bank subsidiaries. Bonin *et al.* (2005) have shown similar results in a study on the impact of bank privatization in transition countries. They have reported that state-owned banks are the least efficient and new established foreign banks are the most efficient of all bank types in transition countries. However, they found also that domestic banks have a local advantage against foreign banks in pursuing fee for service business.

The effects of foreign ownership on bank efficiency have been also examined in a few country specific studies. For Hungary, Hasan and Marton (2003) find that relatively more efficient foreign banks created an environment that forced the entire banking system to become more efficient in the years 1993 to 1998. Nikiel and Opiela (2002) find that foreign banks servicing foreigners and business customers are more cost-efficient but less profit-efficient than other banks in Poland from 1997 to 2000. For the Czech Republic and Poland, Weill (2003) reported that foreign-owned banks were significantly more efficient than domestically owned banks in 1997. To the contrary, Matousek and Taci (2002) observed greater efficiency in private banks in the Czech Republic for the period 1993-1998. Yet, they did not find any evidence of greater efficiency of foreign-owned banks in their study. Although these single country studies provide mainly a positive relation between foreign ownership and bank performance, yet the results are not always convincing.

Finally, Naaborg *et al.* (2003) presents that the three largest banks in most European transition economies are in foreign hands. However, banks from non-European countries are almost absent in the transition countries. In addition, they report that there is a relatively

strong presence in some of the European transition economies of foreign banks from neighboring countries.

While the empirical evidence confirms the follower relationship hypothesis, the importance of local market opportunities requires deeper investigation. So far little research has been undertaken in order to examine the relation between foreign bank expansion and economic and structural characteristics of host countries. In particular, a variable measuring profit opportunities usually mentioned in the theory is either omitted in empirical studies, because of limited data availability, or found to be non significant.

In addition, the validity of the foreign bank motivation and entry modes has not been yet established for the transition countries due to the modest attention given to their empirical verification. Our study tries to fill the existing gap in the multinational banking literature building our study upon previous empirical work. We focus on this aspect arguing that transition countries are an interesting testing ground for theories on multinational banking. In 1990s, the economy and financial market were characterized by lack of competition and close regulation. The situation changed in the 1990s due to political transformation, when the financial markets were liberalized and competition in the market increased. As a consequence, the transition economy and thus the banking sector offered several profit opportunities to be exploited by foreign banks. Yet, it is still unclear which motives for foreign banks had been the leading in the decision to go into one of the transition countries.

4

Economic determinants contributing to FDI in CE banking sector

As have been shown in the previous section, there are various theories explaining the motives for banks to invest abroad. In this section, we review the determinants that have been provided by the literature as the motivation of foreign banking and present the proxies we have included in our regressions. Our aim is to present the determinants that have been the leading in attracting foreign banks in the CE countries. In our study we have decided to organize the selected determinants into four major groups. Each of the group represents a different hypothesis providing an explanation on the motives behind foreign bank investments into one of the CE country. In addition, we hope this way to be able to establish the relationship between the motivation and the model of entry chosen by the foreign banks. We review the determinants of engagements of foreign banks in more detail in the sub-section below. Given the above considerations, we present the following four hypotheses to be tested.

Hypothesis 1: The foreign bank involvement is positively related to client's presence in the CE country.

Hypothesis 2: The foreign bank involvement is positively related to market opportunities in the CE country.

Hypothesis 3: The foreign bank involvement is positively related to low efficiency of domestic banks in the CE country.

Hypothesis 4: The foreign bank involvement is positively related to favorable regulations in the CE country.

As have been already mentioned in the past the pattern of foreign bank expansion has been dominated by the follower relationship. Under this hypothesis banks decided to expand in order to provide services to their home country clients in countries abroad. At the same time those banks operating abroad have gained a growing understanding of foreign markets and have increased the range of their operation and services. Thus, we believe that the pattern of foreign banks has some characteristics which are peculiar to the banking industry, yet the choice of expanding abroad depends on a wider range than just one single factor. Therefore our hypotheses should be seen with great caution as the variables presenting them may be significant simultaneously and it is difficult to assess, which of them may be more important on a stand alone basis.

Lag on non-financial foreign direct investment

Our first measure controls for the first hypothesis to be tested, which have been shown in many previous studies as an important motivation for foreign bank expansion. As a proxy for the follower hypothesis we use as proxy the stock of direct investments excluding financial industry into one of the countries in the CE from the country of origin of the foreign bank. The variable non-financial FDI was expressed as ratio to the domestic country GDP. We employ it as a lagged one measure as the rationale is that home banks will follow their customers abroad so that they can provide services for them in the foreign operations. Thus, we expected that there is a positive relationship between foreign direct investments and the expansion of banks abroad. A strong positive relationship has been reported in the studies of Nigh *et al.* (1986) and Goldberg and Johnson (1990). They have found a positive relationship between the US banks foreign activities and the size of US foreign direct investments abroad.

Liquid liabilities

Another common assumption in the empirical literature is that a well developed financial market may attract foreign banks due to external agglomeration economies (Davis, 1992; Kindleberger, 1974). The rationale behind is that investors consider whether to invest in foreign banking, the size and structure of the particular financial system is likely to be one of the factors they take into account. Thus, Konopielko (1997) formulated a hypothesis that with the economic development of other countries the significance of the follow the client rationale for foreign entry in banking will diminish and subsequently be replaced by search for client's behavior, which presents our second hypothesis in our paper.

This claim was supported by Dopico and Wilcox (2002) who argued that the size of the host country's banking market is one of the significant determinants of foreign expansion. They found that foreign banks are more pervasive in countries where banking is more profitable and where the banking sector is smaller relative to GDP. In order to control for these characteristics, we considered size of the financial sector and the banking sector, whereas the profit opportunities present our next hypothesis and the proxies will be described later. In our study the size of the domestic banking market of one of the CE countries is a location-specific determinant of foreign bank expansion.

We employ liquid liabilities, which are defined as the ratio of liquid liabilities of the financial system to GDP. We consider this variable, as it is usual in the finance literature, as a proxy of financial depth since it represents the size of the formal financial intermediary sector. The implicit assumption is that the size of the financial system is positively related to the foreign bank entry. Including liquid liabilities to GDP might also control for the effects of financial system underdevelopment that differ systematically by income levels across countries.

Bank deposit

In this study, similar to the study of Grosse and Goldberg (1991), the size of the banking market is proxied by the deposits held by the domestic banks to GDP. This variable allows us to see whether smaller and less developed domestic banking sectors attract more foreign banking. In theory the larger the domestic banking market, the greater the number of potential customers. This would suggest that there should be a large number of foreign banks willing to invest in large markets in order to take advantage of the market's potential. In our study we expect a positive relation between the size of the banking market and the number of foreign banks. Especially in case of Poland, which is the biggest country in the region, we anticipate to report a positive relation of foreign presence and the size of the banking market.

Concentration

Steinherr and Huvneers (1994) provided evidence that foreign banking was less common in countries where a smaller number of domestic banks dominated banking. They argued that greater concentration limited the choices available to borrowers, forced domestic firms into relationships with the dominant banks and stunted the development of an arms-length lending market. In such a market, even though banking might be profitable, foreign banks might be unable to enter. We test for this by including a five-bank concentration ratio in our model specifications and expect a negative relationship with foreign banking entry.

Market capitalization and turnover ratio

Demirgüç-Kunt and Levine (1996) documented that in different countries the extent of stock market development highly correlates with the development of banks and other financial institutions. We use the value of domestic equities on domestic exchanges divided by GDP to measure the development of the stock market. In addition, we use the values of equities traded to GDP, which reflect the activity of stock markets in transition countries. The total value traded ratio is frequently used to gauge market liquidity because it measures market

trading relative to economic activity. On one side, we would expect significant positive relationship between the development of banking sector and capital markets in transition countries. On the other side, the more active and developed the capital market, the greater the competition with the banking industry. Thus, we may also assume a negative relation between stock market development and activity and foreign bank entry.

Net interest margin and overhead costs

In order to test the importance of market opportunities in the transition countries we employ two different variables. To test whether the overall profitability of banking in the host country influenced foreign banking, we include a profitability measure the net interest margin (Claessens *et al.*, 2001; Dopico and Wilcox, 2002). High net interest margins in the CEE countries in comparison to other developed countries have been observed in the past (Allen *et al.*, 2006). However, Lensink and Hermes (2004) find that in developing countries, foreign entry is associated with shrinking net interest margins. Similar results were previously reported by Claessens *et al.* (2001), who demonstrated that for most countries higher foreign ownership is associated with a reduction of costs and net interest margins for domestically owned banks. Those results were confirmed recently by Allen *et al.* (2006) in a study on the EU-25 financial system. The authors have shown a gradually decline of the interest margins in the CEE region over the last decade and the convergence towards the levels reported in the developed countries.

Another source of motivation to expand abroad can be the foreign banks' efficiency relative to that of the domestic banks. According to Tschoegl (1987), high overhead costs, low efficiency of management and the cost of capital can increase the likelihood of foreign bank expansion into the market. In the Czech Republic and Poland foreign-owned banks were more efficient than domestic owned banks and this was not due to scale differences or the structure of activities (Weill, 2003), which would confirm our hypothesis. Therefore, to estimate and control for inefficient domestic banks, we include the measures of overhead costs.

We will use these two variables in order to test our third hypothesis that foreign banks expand into those markets, where are the highest profit opportunities and the lowest efficiency of banks. We expect that foreign banks entering the market will see an opportunity to export their knowledge, which will give them a competitive advantage in the domestic banking markets. Thus, we assume that the foreign banks are probably the most efficient in their home market. The combination of high profit opportunities and the inefficiency of the domestic banks provide the motivation for the third hypothesis on foreign bank expansion into the CE countries. Therefore we expected that those two variables will have a positive effect on the foreign entry into the region.

Legal origin, creditor rights and banking regulations

According to Goldberg and Saunders (1980) international expansion may be affected by both economic and regulatory factors. In a series of influential papers La Porta *et al.* (1997,1998) stress that the cross-country differences in the legal environment and their enforcement may influence the financial structure. Rajan and Zingales (1998) argue that bank-based financial structure prevails and is more effective in countries with weak legal systems and poor infrastructures. While, Darby (1986) presents that the rate of growth by particular parent countries may be stimulated by home country regulation that reduces domestic profitability. To examine this issue, we follow La Porta *et al.* (1997) and consider institutional factors that measure the quality of the legal environment both overall and specifically for creditors.

We used the data on the legal origin from the La Porta *et al.* (1997, 1998) studies the countries were classified into five legal origin groups. With respect to legal origin, La Porta *et al.* (1997) distinguish first between common law and civil law countries. The civil law comes from Roman law and relies heavily on legal scholars to formulate its rules,

whereas the common law originates from English law and relies on judges to resolve disputes. It is common to further distinguish between French, German and Scandinavian civil law countries. In addition, we separately control for the legal origin of the transition economies where the legal system represents currently a combination between the French and German civil law.

La Porta *et al.* (1997, 1998, 2000) argue that common law countries protect both shareholders and creditors the most. More specifically, La Porta *et al.* (1998) shows that countries based on the English tradition have laws that emphasize the rights of creditors to a greater degree than the French, German, and Scandinavian countries. French civil law countries give the weakest protection to creditors, whereas German and Scandinavian civil law countries are somewhere in between. La Porta *et al.* (1998) also examine enforcement quality. Countries with a French legal heritage have the lowest quality of law enforcement, while countries with German and Scandinavian legal traditions tend to be the best at enforcing contracts. In our study the variable English Legal Origin equals one if the country has an English legal tradition and zero otherwise. Similarly, French Legal Origin, German Legal Origin, Scandinavian Legal Origin and Socialist Legal Origin take on appropriate values of one and zero for each country.

Legal and regulatory systems that facilitate the repossession of collateral and that grant creditors a clear say in reorganization decisions are likely to encourage the development of banks. As shown by La Porta *et al.* (1997) greater creditor right is positively associated with financial institutions development. Thus, reforms improving creditor protection may attract foreign bank entry into the transition countries. In terms of the specific indicators, we follow Pistor *et al.* (2000) who modify the index of La Porta *et al.* (1997) by excluding one and including two additional variables, referring the index to the problems of transition countries. In our analysis, the index ranges from zero to five and aggregates creditor rights.

The creditor rights variable is described in La Porta *et al.* (1998) and Pistor (2004). We expect that those countries with the legal systems that assign strong rights to creditor are more likely to support the growth of banks including those of foreign origin.

Aliber (1984) and Hultman and McGee (1989) noted that a host country's regulatory environment affects foreign banking. Using the Barth *et al.* (2001) analysis of commercial bank regulations, we construct an aggregate index of regulatory restrictions on bank activities in securities, insurance, and real estate markets and restrictions on bank ownership of non-financial firms. This measure of regulatory restrictions on bank activities gauges bank power and therefore allows us to test whether restrictions on the range of permissible banking activities affected foreign banking. Therefore, we anticipated a negative relation between foreign bank entry and regulatory restriction on bank activities.

Economic growth and inflation

Weller and Scher (2001) claimed that the real economic growth and the level of development of domestic banking determine foreign banks' presence in the host countries. In order to control for economic growth we include a variable representing difference in economic growth between host and home country of the foreign bank. We expect to find a positive correlation between the difference in economic growth rate and the presence of foreign banks.

A series of recent papers have addressed the study of the long-run influence of inflation on growth and financial system development (Barro, 1995). The main findings of this body of empirical literature may be summarized as follows. First, inflation has a negative temporary impact upon long-term growth rates. This effect is significant and generates a permanent reduction in the level of per capita income. Second, inflation not only reduces the level of investment but also the efficiency with which productive factors are used.

Exchange rate and corporate tax rate

To consider long-term economic conditions of the countries in our study, we include two additional variables. The first is the change in foreign exchange rates of the currency of the domestic country against the euro currency. We use the exchange rate towards euro as most of the foreign banks stem from the euro area. We will test whether fluctuations in the value of the host countries' currencies affect the level of foreign investment in banking in CE countries.

Operating a banks subsidiary abroad will involve substantial flow of foreign currencies. A depreciation of domestic currency may motivate foreigners to acquire the control of domestic bank. In addition, when the host countries' currencies depreciate, foreign banks may reduce their repatriated income and increase their reinvestment in the host countries, as they may want to avoid exchange rate losses. On the other hand, when the host countries' currencies appreciate with respect to foreign banks currencies, capital flows is expected to decrease as it becomes more expensive for foreign investors to invest in one of the CE countries. Such a negative relation has been reported by Goldberg and Saunders (1981) and Froot and Stein (1991).

Our second variable is the level of corporate tax in the CE countries. In the literature overseas bank expansion is also frequently attributed to the variations in tax treatment of banks in different countries. Thus, taxes may influence the level of foreign direct investment in banking in the region. The corporate tax regime in use may therefore determine whether or not a country is an attractive location for a foreign bank to establish a subsidiary. At the same time the foreign entry can be a response to moves by the host country to attract foreign banks by offering more favorable tax treatment than the bank's home country or in order to increase competition in the financial services sector.

Geographic location

The geographic differences between the home and host nations may proxy not only the geographical, but also the cultural distance between countries. Given the importance of information about customers as well as of knowledge of outlet markets in banking, we expected a negative relationship between distance and foreign entry. In addition, in several studies the geographical distance has been applied in the literature as a proxy for the degree of economic integration (Ball and Tschoegl, 1982; Grosse and Goldberg, 1991).

We measure the geographic difference using the distance between banks host and home country. A negative relationship may indicate that the difficulty of operating a subsidiary in a foreign country grows as geographical and cultural differences increase. Focarelli and Pozzolo (2001) have reported that the distance increases the probability of market entry by acquiring shares in a foreign bank. While, Magri *et al.* (2005) presented that the likelihood of operating a foreign bank in Italy diminish as geographical and cultural differences increased.

EU membership

Finally, following Magri *et al.* (2005) we introduced also a dummy in the estimates to identify countries belonging to the EU. We assume that EU banks should have an advantage to other foreign banks due to lower entry barriers and extended the activities that are permitted to undertake under the EU Directive. Therefore we expected the variable to exert a positive effect, which has been reported by Magri *et al.* (2005) in Italy.

4.1 Economic determinants and the entry modes of foreign banks

In principle, the factors affecting the decision about entry into the CE countries may vary with the mode of entry chosen by a bank. High net interest margin or great economic development may promote one form of entry, while tax relieves or high concentration

of the banking sector may influence positively the other formal structures. Hence, an organizational form is not an arbitrary formality but rather a function of foreign bank's strategy and scope of its activities willing to provide in the host country. In addition, foreign bank must take into constitute an economic environment existing both in home and host countries. The legal form chosen by a foreign bank is also of great substantive importance from another reason. It may under certain circumstances have effect on the stability of both home and host banking sectors. The first one may be affected by a failure or great losses of a parent's bank institution in a host country. From the point of view of a host country, the regulations promoting particular modes of entry may prevent country from a crisis or at least attenuate their effects (Tschoegl 2003).

The regulatory environment of the CE countries has changed over time. Furthermore, it was also different among the countries themselves. In principle, the foreign banks could enter the CE countries either by acquiring or merging with a domestic bank or through *de novo* operation. We distinguish among the operational forms a subsidiary or branch of a parent company, as well as a representative office of a bank. Since bank's representative office can not provide any financial services in a host country, we do not consider them in our analysis.

A branch is defined as an integral part of the parent organization and in our opinion it constitutes the highest level of foreign banking penetration in a host country. The branch shares a parent's credit rating, lends and trades on the parent's full capital base. Thus, it may have substantial advantage in a host country banking market. However, a branch may go insolvent if its parent goes bankrupt or other way around. Thus, this mode of entry requires a careful supervision of both home and host country's authorities. The Polish banking law allowed the foreign banks to enter via branches since 1989. The licensing policy was also very liberal at that time. The only requirement to be fulfilled by a foreign bank to set up a branch was an agreement with the National Bank of Poland. However, despite that, Poland did not experience in wave of branches. The situation has not changed significantly until now. One of the reasons was that the Polish National Bank was not willing to allow foreign banks to operate as branches easily.

The situation looked differently in Hungary. The Hungarian regulatory authorities abolished the entry via branch until 1997 and even after the implementation of the Second Banking Act Amendment in 1997, which provided a possibility to establish a branch by a foreign institution, this form effectively qualified as subsidiaries in terms of capital requirements and operations (Király *et al.*, 1999). Although, the operation activities via branches are allowed, the country has not experienced any opening of branches till 2004.

In the Czech Republic and the Slovakia the situation looked very similar to Poland. The banking laws from their beginning allowed foreign banks to set up branches assumed they received a formal approval from the host national central bank.

Since the accession into the EU, the member states has been granted a "single passport", which assumes that all credit institutions authorized in an European Economic Area (EEA) country would be able to establish branches or supply cross-border financial services in the other countries of the EEA without further authorization, provided that a bank was authorized to provide such services in the home state (Dermine, 2005).⁴

Table 2 shows that branch has been very rare mode of penetrating CE banking markets comparing with other European countries despite any specific restrictions (excluding Hungary) per se imposed by the regulatory authorities on this organizational form. One reason for that could be that branches are very sensitive to the location-specific risk (Tschoegl, 2003). Hence, in the course of instable political and economic situation, the parent banks preferred to choose other organizational forms, which could put them in the

⁴ The EEA agreement allows the three EFTA states – Iceland, Liechtenstein and Norway – to participate in the European single market without joining the EU.

more secured position and did not require risking their reputations once the expectations of great economic development would not have been met. Wengel (1995) has proved it empirically concluding that the parent tends to send branches to wealthier countries, while the less sophisticated forms to the developing ones. On the other hand, setting up a branch of foreign bank should be justified by sufficient activities in the area for which a branch offers an advantage (Heinkel and Levi, 1992). Therefore, many studies on international banking argue that branches are not attracted by great profit opportunities and hence they do not state in the direct competition with other legal forms (Miller and Parkhe, 1998). In the US, Heinkel and Levi (1992) found that setting up a branch was positively correlated with the development of the domestic money and capital markets, in which the foreign branches participate allocating the deposits of their customers collected in the home market. Hence, we may assume that the development of the capital markets in the CE countries as well as better creditor rights may positively affect the inflow of branches into this region.

Table 2
Branches of foreign banks in the EU

Old EU Member States	1997	1998	1999	2000	2001	2002	2003	2004
Belgium	40	39	44	47	46	46	48	45
Denmark	7	8	9	9	9	8	15	17
Germany	77	84	87	90	80	83	84	83
Greece	23	23	22	22	21	21	20	23
Spain	53	51	52	51	56	59	57	61
France	93	89	88	90	83	79	80	82
Ireland	18	21	26	28	32	31	31	32
Italy	81	83	88	98	110	106	91	60
Luxemburg	68	68	68	63	63	55	50	47
Netherlands	20	21	26	28	28	28	28	14
Austria	6	9	12	13	15	15	18	18
Portugal	15	18	20	23	23	21	22	27
Finland	6	6	7	5	18	19	18	20
Sweden	14	17	16	19	19	18	17	20
United Kingdom	252	242	227	221	202	190	172	172
CE countries/ New EU Member States								
Poland	3	3	3	2	1	1	1	3
Hungary	0	0	0	0	0	0	0	0
Czech Republic	10	10	10	10	10	9	9	9
Slovakia	4	2	2	2	2	2	2	4

Source: national central banks, national annual reports of the Commissions for the Banking Supervision ECB (2004, 2006).

A subsidiary is a separate legal entity incorporated in the host country, mostly acted as wholly-owned subsidiary company of a parent bank and often it is engaged in a broader range of financial services than branches. Since the beginning of transformation the subsidiaries were the most frequent forms of entering the CE banking markets. Heinkel and Levi (1992) point out that subsidiaries differ from other forms of banking operations and thus respond differently to various factors. First, they operate in the different area of competition than other legal forms. Second, the parent bank has different motivations on establishing it. In the CE the history of subsidiaries can be divided into two periods. The first, early 1990s when the subsidiaries were set up and second, the middle of 90s when the privatization process began. The motivations of entry through this type of organizational form have also changed across time. In the early of 1990s, the major motive driving an establishment of a subsidiary was to provide high-quality services to these companies which had invested in or traded

with the CE countries as well as their foreign employees on the spot (Majnoni *et al.* 2003). Thus, these subsidiaries were mostly engaged in the wholesale and corporate banking, trade and exchange foreign operations. The best example is Commerzbank in Hungary (1993) and Czech Republic (1991), while in Poland Citibank (1991) or BNP – Dresdner Bank (1994). It should be also mentioned that many of these banks were motivated to enter by the tax relieves which were very common practice at that time in CE countries. Unlike branches which are subject to the home country's regulations and tax and accounting standards, this could be an additional motivation for setting up a subsidiary.

In the middle of 1990s, during the time of the major bank privatizations, the motivations behind setting up a subsidiary changed. In this period foreign banks noticed an opportunity of acquiring large domestic universal banks. Some of them acquired subsidiaries and even merged them with already existing operation or branches. Apart from it in this period many subsidiaries of the foreign banking institutions began to operate, especially in consumer finance sector as Opel Bank, Ford Bank or Fiat Bank.

Following the above argumentation, we would argue that the establishment of branches and subsidiaries would be motivated by different factors and that they do not stay in direct competition to each other.

Table 3
Foreign bank entry into CE among OECD countries in breakdown by entry modes

Poland	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total
acquisition	2	4	5	6	7	11	11	3	6	1	2	58
branch	0	0	0	0	0	0	0	0	0	0	2	2
subsidiaries	0	2	2	3	0	0	1	2	1	0	0	11
Hungary												
acquisition	3	3	3	7	3	1	2	2	0	0	0	24
branch	0	0	0	0	0	0	0	0	0	0	0	0
subsidiaries	1	1	3	1	0	0	1	2	0	1	0	10
Czech Republic												
acquisition	0	0	0	0	4	1	3	1	1	0	0	10
branch	1	0	1	0	0	0	0	0	0	0	0	2
subsidiaries	0	0	1	0	0	0	0	0	0	0	0	1
Slovakia												
acquisition	0	0	2	0	0	1	2	2	3	2	1	13
branch	0	0	0	0	0	0	0	0	0	0	2	2
subsidiaries	1	4	0	1	0	0	0	0	0	0	0	6

Source: national banks, national annual reports of the Commissions for the Banking Supervision.

As mentioned already, the most common mode of penetrating the CE banking markets which became in the middle of 1990s was an acquisition of the existing banks. The entry through acquisitions was the quickest and the simplest mode of establishing presence in the CE countries. Mostly, it took place during the privatization process when the governments offered share in the domestic banks in order to save them or in exchange for the takeover of bad portfolios. This process lasted till the entrance of the CE countries into the EU. One reason for that were the administration restrictions imposed by the governments on the acquisition of majority stakes by foreign institutions. In the Czech Republic, for example, the acquisition of majority stakes to the strategic investors was abolished. Thus, foreign investors were able to buy only minority interests in the domestic banks in the first years (Bonin and Wachtel, 1999). The Hungarian banking law, on the other hand, required an agreement of the President of the National Bank on acquisition of stakes in a domestic bank above 10 per cent. However, it represented the most liberal licensing policy and the privatization process with the possibility of acquisition of majority

later on. In Poland, the government started to sell majority shares of the state-owned banks to foreign investors at the end of the 1990s (NBP, 2001).

Tschoegl (2003) point out that the type of an organizational form chosen by foreign banks to expand is closely related to its strategy. He argues that the conditions which drew foreign banks to enter developing countries erode over time and then some will have to withdraw their local operations. Therefore, he distinguishes among others two types of banks' strategies. First, prospectors who entered the foreign market either through subsidiary or joint-ventures. Second, restructures who acquired large domestic banks in privatization process and treat their investments rather as long-term commitment. Tschoegl (2003) also argues that as foreign banks have no comparative advantage in retail banking vis-à-vis host country banks in the long-run perspective, the acquisition of the domestic banks can be the only possible method to get in this business and remain in it for certain, at least, medium term. In this sense, this mode of entry gave the entering foreign banks much greater comparative advantage as setting up a branch or subsidiary.

Table 4
Foreign bank entry into CE by country of origin in the years 1994-2004

Home \ Host	Czech Republic	Hungary	Poland	Slovakia
Australia	0	0	0	0
Austria	2	7	3	9
Belgium	2	2	4	1
Canada	0	0	0	0
Czech Republic	-	0	3	1
Denmark	0	0	2	0
Finland	0	0	0	0
France	1	3	4	0
Germany	3	11	17	3
Greece	0	0	0	0
Hungary	0	-	0	1
Iceland	0	0	0	0
Ireland	0	0	3	0
Italy	1	2	3	4
Japan	1	0	2	0
Luxemburg	0	0	0	0
Mexico	0	0	0	0
Netherlands	0	2	8	1
New Zealand	0	0	0	0
Norway	0	0	0	0
Poland	0	0	-	0
Portugal	0	0	4	0
South Korea	0	4	1	0
Spain	0	0	1	0
Sweden	0	0	6	0
Switzerland	0	0	0	0
Turkey	0	0	0	0
United Kingdom	1	0	1	0
United States	1	3	9	1
Slovakia	1	0	0	-
Total	13	34	71	21

Source: annual reports, national central banks and reports of supervision authorities.

Tables 3 and 4 show the number of foreign bank entries into the CE countries in breakdown by entry modes and entering countries during the period 1994-2004. As it can be seen, acquisitions have been the most favorite entry mode of the foreign banks into CE markets during the last years.

The high number of the yearly entries by acquisitions can be a result of the banking regulations and restrictions imposed by the governments in the CE countries on acquisition of majority stakes in the domestic banks and as well as other forms of entry. In the course of relaxing the restrictions, the same foreign banks could further increase their stakes in the domestic banks. An entry via subsidiary was the second most common mode of internationalization into the CE banking markets and dominated over the other methods mostly at the beginning and middle 1990s.

Table 3 shows also that Poland had the highest number of foreign bank entries. However, as we compare the assets of the foreign banks between individual banking sectors presented in the table 5, we can observe that the Czech Republic and Slovakia are among the CE countries with the highest share of the banking assets in the hands of the foreign banks. As table 4 shows those foreign banks came mainly from the neighbors' countries of the CE countries in the past.

Table 5
Asset under majority foreign control as a share of the commercial bank assets (in %)

Country	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Poland	3.2	4.2	13.7	15.3	16.6	47.2	69.5	68.7	67.4	67.8	66.9
Hungary	N/A	41.8	46.2	53	64	66.4	68.1	70	90.7	83	77
Czech Republic	N/A	16.0	20.0	24.0	26.0	39.0	75.4	93.3	94.2	95.9	91.8
Slovakia	N/A	19.0	23.0	30.0	30.0	31.0	43	90.5	95.6	96.3	97

Source: Eurostat.

5

Data and Methodology

This section describes our data set and the two econometric methods that we use to assess the economic determinants of foreign bank expansion into the four CE countries. First, we employ Poisson regression with our sample for the four CE countries and the OECD countries over the years 1994-2004. Second, in order to evaluate the economic determinants and the entry mode of a foreign bank into the CE market we use a bivariate probit model using our sample over the years 1994-2004. In our study we concentrate only on the OECD countries as almost all foreign banks operating in the CE region were from the OECD member countries. All variables employed in our analysis are presented in the Appendix.

5.1 Data

In our paper we evaluate the economic determinants of foreign bank entries and its entry modes into the four local banking markets in CE. In order to analyze those markets we use yearly data on countries and banks in the four CE countries, namely the Czech Republic, Hungary, Poland, Slovakia for the period 1994-2004. These countries have shown widely different policies towards the mode of foreign bank entry as we have presented above.

Our final sample contains 110 cross-border entries either by acquisitions or through establishing a new branch or subsidiary by a OECD foreign bank in one of the host countries. We established those transactions using public information as national and international press coverage and compared it with the list of foreign banks compiled by national bank supervisors.

In our study we define a foreign bank entry as to be followed by three forms: entry by setting up a branch, subsidiary or via acquisition.

We define a subsidiary or branch as a organizational form that received a domestic license or approval by domestic bank supervisory institution. The transformations of the already existing foreign banks, for example the transformations of branches into subsidiaries or vice versa are not considered as entry and therefore are not included in our analysis. We argue that they can be driven by other market determinants, which might not be observable for the non-existing foreign banks.

We define the engagement through acquisitions as a purchase of minimum of 5 per cent shares in a domestic bank by a foreign banking institution as well as opening of a subsidiary or branch by a foreign bank in a host country. An acquisition of 5 per cent by a foreign bank in a domestic bank will be seen as an first attempt to entry a host country. In our paper we are interested only in the horizontal foreign bank engagements, which are assumed to offer a broad potential for cost and profit efficiency improvements. Other types of transactions, such as government owned banks or other financial institutions acquiring a bank are excluded because they may be motivated by a different set of considerations. Moreover, our analysis does not include mergers or acquisitions of the domestic banks with other domestic banks.

5.2 Poisson regression

In order to analyze entry decisions into the CE countries, we consider the number of entries of foreign banks at year t into Poland, Hungary, Czech Republic and Slovakia in breakdown

by a country of origin, conditioning on the specific groups of the regressors such as host-country characteristics, physic relationship between host and home country and potential determinants of entering. In contrast to other analysis, we are not strongly interested in the characteristics of banks entering the CE countries as this area has been covered by many researchers whose work can also be applicable to the four countries in our study.⁵ Hence, we are mainly interested in answering the following questions:

- How much did the host-country characteristics and in particularly macroeconomic conditions matter in the entrance process of foreign banks into CE? Which of them did the foreign banks consider to be the most important?
- How much did the host-country banking regulations influence the number of foreign entries?
- Which of the suggested in the section two determinants of banking internationalization did the foreign banks mostly follow deciding on entry the CE countries?

Accordingly, we estimate the following choice model:

$$\Pr(Y_{iht} = y) = \frac{\exp^{-\lambda_{iht}} \times \lambda_{iht}^y}{y!} \quad (1)$$

It is used to assuming that 's are log-linearly dependent on the explanatory variables. Thus,

$$\ln \lambda_{iht} = \beta_0 + \beta_1 K_{ht} + \beta_2 H_{hit} + \beta_3 B_{it} + \varepsilon_{iht} \quad (2)$$

where y =number of entering banks from country i into country h at time t and $Y_{1ht}, Y_{2ht}, Y_{3ht}, \dots, Y_{29ht}$ have independent Poisson distribution with parameters $\lambda_{1ht}, \lambda_{2ht}, \lambda_{3ht}, \dots, \lambda_{29ht}$.

h =host countries (Hungary, Poland, Czech Republic, Slovakia)

i =entries from the sample (OECD countries) defined together as home countries

K_{ht} =a vector of variables specific to the host country

H_{hit} =a vector of variables specific for the relationship between host country and home country

B_{it} =a vector of variables specific for the home countries

We estimate a model with a Poisson specification controlling for some unobserved country-and time-specific effects clustering the standard errors on the home country's levels. Hence, our error term has one or two components depending on the specification: $\mu_{iht} = \varepsilon_{iht} + \alpha_h$ or $\mu_{iht} = \varepsilon_{iht} + \alpha_h + \theta_t$.

We believe that a Poisson regression is the most appropriate specification of our model for several reasons. First, most empirical studies analyzing entries of foreign banks and their activities in the host countries use Ordinary Least Squares (OLS) as estimation methodology. However, it has been shown that omitting the countries which do not participate in the foreign banking may lead to inconsistent estimate parameters because of loosing information excluded from the sample. In such cases, OLS estimates are biased towards zero (Greene, 2000). Moreover, employing the OLS regressions where the dependent variable is a count variable seems to be inappropriate as one should explicitly account for this type of dependent variables and use the estimation techniques designed for it (Maddala, 1985). On the other hand, the non-linear methods allow us to take advantage of the larger number of observations and reduce the biasness. It is very useful particularly, when one investigates foreign bank entries into CE in the time-series context, where the number of individual foreign entries is small or zero. In the cases, where there is preponderance of zero or small values and the dependent variable is of discrete nature, we can improve on the least squares with a model that accounts for these characteristics (Greene, 2000).

⁵ An excellent literature survey presents Williams (2002).

Moreover, most studies examining the determinants of banking internationalization use, due to data unavailability, either time-series or cross-section structure of the data. Both are faced to some drawbacks, which do not allow us to take all results unambiguously. Since the cross-section studies ignore the time-series dimension of the data which may result in the biasness of the estimates due to omitting the country-specific effects, the time-series studies, on the other hand, besides their attractive characteristics, suffer from the lack of availability of good-quality and sufficient length of the data needed for the purpose of the time-series analysis.

The new panel data techniques enable us to control for these shortcomings. They allow us to take advantage of the time dimension of the data as well as to estimate common relationships across countries. By introducing the country dummy variables we allow for controlling for the effects of those omitted variables that are specific either to individual CE country or are specific to each time-period. In each regression, we test for their jointly significance.

At the end we show that our results are robust to testing for significance of other explanatory variables used in the literature examining banking internationalization.

As far as the determinants of the entry modes are concerned, we use a bivariate seemingly unrelated probit specification. Unlike the other studies, we control explicitly for the correlation between particular entry modes and test whether any organizational form stayed in direct competition with others.

5.3 Bivariate probit regression

In our study we are also interested in the relation between economic determinants and entry modes of foreign banks into the CE countries. In particular, we are interested in changes between the determinants affecting particular organizational forms among the CE countries. Since the decisions about particular mode of entry might be correlated at time t within a home country, we have chosen a seemingly unrelated bivariate probit estimation (SURB), where the dependent variable is of the binominal discrete nature either one or zero. Thus, the model takes a form:

$$\begin{aligned} \Pr(Y_{iht}=1) &= f(K_{iht}, H_{iht}, B_{it}) \\ \Pr(Y_{iht}=1) &= f(K_{iht}, H_{iht}, B_{it}) \end{aligned} \quad (3)$$

where Y_{iht} equals one when an acquisition or opening a branch or subsidiary by a foreign bank from country i in a country h occurs at year t versus an engagement through another operation mode from country i into country h occurs at year t , otherwise zero.

As the equations are estimated simultaneously, we allow for the error terms to be correlated between the different engagement modes. The other vectors are the same as defined in the first specification.

6

Results

This section presents the results of the Poisson regression and of the bivariate probit regression. First, we present the descriptive statistics for our sample. Second, we discuss the results of the Poisson regressions and we present the outcome of our robustness analysis. Finally, we show the results of our panel analysis using the bivariate probit estimations.

6.1 Descriptive statistics

Tables 6-9 provide summary statistics of our sample of OECD countries. Table 6 shows the data representing economic characteristic of the 30 OECD countries in the period 1994-2004. The table presents the economic characteristics of those countries with no foreign direct investment in the CE, as well of those OECD countries with foreign bank entry into the CE.

Table 6
OECD countries summary characteristics

All OECD countries	Obs.	Median	Mean	Std.Dev.	Min.	Max.
Bank freedom index	1276	2.000	2.136	0.815	1.000	3.000
Liquid liabilities	1276	52.305	51.834	12.405	27.970	70.000
Creditor rights	1276	3.875	3.926	0.510	3.250	5.000
Corporate tax rate	1276	31.000	30.455	8.204	18.000	41.000
Exchange rate	1276	37.405	75.272	88.850	2.690	260.040
Log inflation	1276	2.169	1.965	1.018	-2.303	3.506
Concentration ratio	1276	60.500	59.870	8.513	42.900	79.000
Bank deposit	1276	44.960	45.006	11.548	23.090	61.510
Net interest margin	1276	3.795	4.030	1.349	2.040	7.440
Difference in overheads	1212	3.810	3.832	1.307	1.893	9.703
Log distance	1276	7.303	7.509	1.113	5.241	9.808
Difference in growth rates	1276	-0.700	-0.513	3.014	-13.100	12.400
Lag of non-financial FDI	1015	3.500	4.565	2.953	1.340	13.480
OECD countries with no bank expansion into CE						
Bank freedom index	1166	2.000	2.112	0.818	1.000	3.000
Liquid liabilities	1166	55.610	52.419	12.339	27.970	70.000
Creditor rights	1166	4.000	3.953	0.510	3.250	5.000
Corporate tax rate	1166	31.000	30.507	8.251	18.000	41.000
Exchange rate	1166	37.920	76.259	88.887	2.690	260.040
Log inflation	1166	2.152	1.940	1.036	-2.303	3.506
Concentration ratio	1166	61.000	60.233	8.384	42.900	79.000
Bank deposit	1166	50.090	45.537	11.493	23.090	61.510
Net interest margin	1166	3.760	3.996	1.359	2.040	7.440
Difference in overheads	1102	3.793	3.809	1.328	1.893	9.703
Log distance	1166	7.374	7.548	1.117	5.241	9.808
Difference in growth rates	1166	-0.700	-0.457	3.057	-13.100	12.400
Lag of non-financial FDI	928	4.020	4.633	2.982	1.340	13.480

OECD countries with bank expansion into CE						
Bank freedom index	110	3.000	2.391	0.731	1.000	3.000
Liquid liabilities to GDP	110	43.000	45.636	11.417	27.970	69.000
Credit rights	110	3.750	3.645	0.417	3.250	5.000
Corporate tax rate	110	30.000	29.900	7.703	19.000	40.000
Exchange rate	110	34.040	64.810	88.184	2.690	260.040
Inflation	110	2.313	2.226	0.766	-0.357	3.506
Concentration ratio	110	54.350	56.033	8.954	42.900	79.000
Bank deposit	110	37.100	39.377	10.638	23.090	61.450
Net interest margin	110	4.300	4.388	1.189	2.130	7.440
Diff. in overheads	110	3.935	4.066	1.049	2.174	9.673
Distance	110	6.877	7.095	0.994	5.241	9.100
Diff. in growth rates	110	-1.100	-1.105	2.448	-7.500	7.700
Non-financial FDI	87	3.000	3.835	2.515	1.370	13.480

Source: own computation.

In table 7 we present the economic characteristics splitting the OECD countries sample using our CE host countries: Poland, Hungary, the Czech Republic and Slovakia.

Table 7
OECD countries summary characteristics by CE countries

Poland	Obs.	Median	Mean	Std. Dev.	Min.	Max.
Bank freedom index	319	3.000	2.727	0.446	2.000	3.000
Liquid liabilities	319	37.160	35.993	5.449	27.970	42.970
Creditor rights	319	3.250	3.341	0.193	3.250	3.750
Corporate tax rate	319	34.000	32.727	6.562	19.000	40.000
Exchange rate	319	3.850	3.803	0.545	2.690	4.530
Inflation	319	2.313	2.072	1.138	-0.357	3.506
Concentration ratio	319	48.800	49.509	3.535	42.900	54.700
Bank deposit	319	31.910	30.685	5.306	23.090	37.540
Net interest margin	319	4.650	5.205	1.343	3.600	7.440
Difference in overheads	303	3.941	3.914	0.608	2.712	4.898
Distance	319	7.281	7.552	1.045	5.919	9.784
Diff. in growth rates	319	-1.100	-1.267	2.730	-13.100	6.600
Lag of non-financial FDI	290	2.370	2.488	0.846	1.370	4.420
Hungary						
Bank freedom index	319	2.000	2.182	0.386	2.000	3.000
Liquid liabilities	319	45.000	45.091	1.732	43.000	49.000
Credit rights	319	3.750	3.750	0.000	3.750	3.750
Corporate tax rate	319	20.000	19.818	0.576	18.000	20.000
Exchange rate	319	242.970	222.561	43.044	124.780	260.040
Inflation	319	2.303	2.448	0.572	1.548	3.339
Concentration ratio	319	55.000	56.164	3.858	52.100	65.300
Bank deposit	319	37.610	37.903	0.999	36.470	39.830
Net interest margin	319	4.790	4.758	0.712	3.760	5.700
Difference in overheads	303	4.581	4.583	0.426	3.833	5.272
Distance	319	7.436	7.566	1.099	5.241	9.791
Diff. in growth rates	319	-0.400	-0.367	2.650	-11.700	8.100
Lag of non-financial FDI	145	3.500	3.840	1.637	1.740	6.730

Czech Republic						
Bank freedom index	319	1.000	1.000	0.000	1.000	1.000
Liquid liabilities	319	66.000	65.909	3.034	60.000	70.000
Creditor rights	319	4.000	4.341	0.374	4.000	4.750
Corporate tax rate	319	35.000	34.545	4.214	28.000	41.000
Exchange rate	319	34.100	34.125	1.847	30.810	36.890
Inflation	319	1.548	1.288	1.295	-2.303	2.370
Concentration ratio	319	66.000	67.127	3.167	64.000	75.500
Bank deposit	319	57.700	57.852	2.538	53.290	61.510
Net interest margin	319	2.890	3.011	1.024	2.040	5.500
Difference in overheads	303	2.425	3.019	1.104	1.893	5.806
Distance	319	7.231	7.409	1.168	5.688	9.808
Diff. in growth rates	319	0.400	0.795	3.253	-12.100	12.400
Lag of non-financial FDI	290	4.855	4.838	2.841	1.340	9.490
Slovakia						
Bank freedom index	319	3.000	2.636	0.644	1.000	3.000
Liquid liabilities	319	60.190	60.344	2.533	55.610	64.420
Creditor rights	319	4.000	4.273	0.446	4.000	5.000
Corporate tax rate	319	40.000	34.727	7.411	19.000	40.000
Exchange rate	319	40.050	40.601	2.205	37.920	44.100
Inflation	319	2.015	2.050	0.379	1.194	2.595
Concentration ratio	319	66.400	66.682	5.686	59.000	79.000
Bank deposit	319	53.640	53.585	1.839	50.090	56.880
Net interest margin	319	2.870	3.145	0.442	2.670	3.990
Difference in overheads	303	3.086	3.813	1.959	2.473	9.703
Distance	319	7.374	7.510	1.136	5.241	9.792
Diff. in growth rates	319	-1.500	-1.212	2.926	-12.000	9.300
Lag of non-financial FDI	290	6.080	6.731	3.330	1.930	13.480

Source: own computation.

Similar, as in table 6 we divided also the sample in countries with foreign entry into CE and not. Table 8 presents the economic characteristics of those OECD countries without any foreign direct investment in the financial services in the CE region.

Table 8
OECD countries summary characteristics with no bank expansions by CE countries

Poland	Obs.	Median	Mean	Std. Dev.	Min.	Max.
Bank freedom index	267	3.000	2.712	0.454	2.000	3.000
Liquid liabilities	267	37.160	35.899	5.553	27.970	42.970
Creditor rights	267	3.250	3.351	0.201	3.250	3.750
Corporate tax rate	267	34.000	32.719	6.741	19.000	40.000
Exchange rate	267	3.850	3.780	0.564	2.690	4.530
Inflation	267	2.313	2.057	1.186	-0.357	3.506
Concentration ratio	267	48.800	49.699	3.534	42.900	54.700
Bank deposit	267	31.910	30.587	5.393	23.090	37.540
Net interest margin	267	4.650	5.237	1.390	3.600	7.440
Difference in overheads	251	3.939	3.878	0.611	2.712	4.889
Distance	267	7.291	7.609	1.066	5.919	9.784
Diff. in growth rates	267	-1.100	-1.247	2.817	-13.100	6.600
Lag of non-financial FDI	239	2.370	2.449	0.866	1.370	4.420

Hungary						
Bank freedom index	292	2.000	2.182	0.386	2.000	3.000
Liquid liabilities	292	45.000	45.134	1.741	43.000	49.000
Creditor rights	292	3.750	3.750	0.000	3.750	3.750
Corporate tax rate	292	20.000	19.801	0.599	18.000	20.000
Exchange rate	292	242.970	223.489	43.186	124.780	260.040
Inflation	292	2.303	2.419	0.575	1.548	3.339
Concentration ratio	292	55.000	56.089	3.883	52.100	65.300
Bank deposit	292	37.610	37.943	1.014	36.470	39.830
Net interest margin	292	4.790	4.791	0.711	3.760	5.700
Difference in overheads	276	4.592	4.613	0.425	3.833	5.272
Distance	292	7.486	7.587	1.101	5.241	9.791
Diff. in growth rates	292	-0.400	-0.368	2.656	-11.700	8.100
Lag of non-financial FDI	138	3.500	3.860	1.675	1.740	6.730
Czech Republic						
Bank freedom index	306	1.000	1.000	0.000	1.000	1.000
Liquid liabilities	306	66.000	65.990	3.010	60.000	70.000
Credit rights	306	4.000	4.343	0.374	4.000	4.750
Corporate tax rate	306	35.000	34.552	4.256	28.000	41.000
Exchange rate	306	34.100	34.085	1.847	30.810	36.890
Inflation	306	1.548	1.273	1.313	-2.303	2.370
Concentration ratio	306	66.000	67.137	3.181	64.000	75.500
Bank deposit	306	57.700	57.912	2.535	53.290	61.510
Net interest margin	306	2.890	2.995	1.009	2.040	5.500
Difference in overheads	290	2.422	2.987	1.085	1.893	5.806
Distance	306	7.231	7.439	1.161	5.688	9.808
Diff. in growth rates	306	0.550	0.816	3.292	-12.100	12.400
Lag of non-financial FDI	278	4.510	4.819	2.857	1.340	9.490
Slovakia						
Bank freedom index	301	3.000	2.645	0.635	1.000	3.000
Liquid liabilities	301	60.190	60.344	2.519	55.610	64.420
Credit rights	301	4.000	4.286	0.453	4.000	5.000
Corporate tax rate	301	40.000	34.817	7.352	19.000	40.000
Exchange rate	301	40.050	40.599	2.210	37.920	44.100
Inflation	301	2.015	2.049	0.379	1.194	2.595
Concentration ratio	301	66.400	66.576	5.704	59.000	79.000
Bank deposit	301	53.640	53.587	1.830	50.090	56.880
Net interest margin	301	2.870	3.142	0.442	2.670	3.990
Difference in overheads	285	3.086	3.805	1.952	2.473	9.703
Distance	301	7.400	7.569	1.128	5.241	9.792
Diff. in growth rates	301	-1.400	-1.136	2.951	-12.000	9.300
Non-financial FDI	273	6.080	6.747	3.305	1.930	13.480

Source: own computation.

While, in table 9 we present the economic characteristic of the OECD countries with operation in the CE region.

Table 9
OECD country summary characteristics with bank expansion by CE countries

Poland	Obs.	Median	Mean	Std. Dev.	Min.	Max.
Bank freedom index	52	3.000	2.808	0.398	2.000	3.000
Liquid liabilities	52	37.160	36.477	4.899	27.970	42.970
Creditor rights	52	3.250	3.288	0.135	3.250	3.750
Corporate tax rate	52	34.000	32.769	5.610	19.000	40.000
Exchange rate	52	3.920	3.918	0.426	2.690	4.530
Log inflation	52	2.313	2.149	0.860	-0.357	3.506
Concentration ratio	52	47.700	48.533	3.408	42.900	54.700
Bank deposit	52	31.910	31.192	4.853	23.090	37.540
Net interest margin	52	4.650	5.045	1.069	3.600	7.440
Difference in overheads	52	4.027	4.086	0.565	2.728	4.898
Log distance	52	7.048	7.263	0.889	6.065	9.051
Difference in growth rates	52	-1.050	-1.371	2.249	-7.500	4.900
Lag of non-financial FDI	51	2.610	2.668	0.728	1.370	4.420
Hungary						
Bank freedom index	27	2.000	2.185	0.396	2.000	3.000
Liquid liabilities	27	44.000	44.630	1.597	43.000	49.000
Creditor rights	27	3.750	3.750	0.000	3.750	3.750
Corporate tax rate	27	20.000	20.000	0.000	20.000	20.000
Exchange rate	27	210.930	212.528	40.910	124.780	260.040
Log inflation	27	2.907	2.757	0.451	1.548	3.339
Concentration ratio	27	56.000	56.974	3.533	52.100	65.300
Bank deposit	27	37.470	37.469	0.708	36.470	39.150
Net interest margin	27	4.040	4.404	0.630	3.760	5.630
Difference in overheads	27	4.187	4.278	0.304	3.856	4.939
Log distance	27	7.081	7.341	1.078	6.224	9.098
Difference in growth rates	27	-1.100	-0.348	2.640	-3.100	7.700
Lag of non-financial FDI	7	3.500	3.450	0.290	3.210	4.020
Czech Republic						
Bank freedom index	13	1.000	1.000	0.000	1.000	1.000
Liquid liabilities	13	63.000	64.000	3.082	60.000	69.000
Credit rights	13	4.000	4.288	0.380	4.000	4.750
Corporate tax rate	13	35.000	34.385	3.203	31.000	39.000
Exchange rate	13	35.610	35.051	1.647	30.810	36.890
Log inflation	13	1.548	1.654	0.684	0.588	2.370
Concentration ratio	13	66.000	66.892	2.923	64.400	75.500
Bank deposit	13	55.920	56.437	2.275	53.290	61.450
Net interest margin	13	2.890	3.393	1.320	2.130	5.500
Difference in overheads	13	3.382	3.730	1.323	2.174	5.795
Log distance	13	6.667	6.717	1.162	5.688	9.100
Difference in growth rates	13	0.000	0.292	2.173	-3.200	5.400
Lag of non-financial FDI	12	5.200	5.268	2.503	1.780	8.170

Slovakia						
Bank freedom index	18	3.000	2.500	0.786	1.000	3.000
Liquid liabilities	18	61.440	60.344	2.827	55.610	64.420
Credit rights	18	4.000	4.056	0.236	4.000	5.000
Corporate tax rate	18	40.000	33.222	8.420	19.000	40.000
Exchange rate	18	40.050	40.637	2.177	37.920	44.100
Log inflation	18	2.083	2.067	0.400	1.194	2.595
Concentration ratio	18	66.500	68.444	5.223	59.000	79.000
Bank deposit	18	53.890	53.563	2.041	50.090	56.880
Net interest margin	18	2.870	3.189	0.449	2.670	3.990
Difference in overheads	18	3.085	3.933	2.131	2.493	9.673
Log distance	18	6.374	6.516	0.768	5.241	9.079
Difference in growth rates	18	-3.200	-2.483	2.148	-5.200	1.600
Lag of non-financial FDI	17	5.110	6.481	3.823	1.930	13.480

Source: own computation.

6.2 Poisson regression results

This section presents our Poisson regression results. In table 10 we present the results for foreign bank entry into the CE countries. We regress the dependent variable first against country economic determinants and then progressively add our additional control variables. Table 10 shows the results with a different set of independent variables in regressions (1)-(4). The Poisson regressions reveal that some of our economic determinants may have a positive and statistical significant impact on the entry decision of foreign banks into the CE countries.

In the regression (1) of the 1276 observations in the sample we lost 64 observations due to the missing data on overheads in the home countries. In the regression (2)-(4) we lost additionally 261 observations because we missed some data on non-financial FDIs for Hungary. In all four specifications we included dummies with respect to the host country in order to control for the effects of those omitted characteristics which are specific to the individual CE countries. We test also if those effects are significant and can explain the variations in the foreign banking between these countries. Additionally, in regression (3) we added a time-effect and test if the determinants of entering into CE have changed across time.

In the regression (1), the coefficients of two of three country-characteristics variables are significantly different from zero. As expected, the tax rate is negatively correlated with the expected number of foreign banks' entries into CE countries, although, it seems not to be economic significant in the regression. The reason might be that this variable may capture two opposite effects. First, the higher tax rate may discourage foreign banks to enter, especially by entry modes falling under the local taxation. Second, the higher tax rate may encourage foreign entrants to choose particular entry modes which gave a possibility to foreign banks to be exempted from local taxation or could repatriate their profits to the parent banks.

As expected, the exchange rate shows a negative correlation with the expected number of entries of foreign banks into CE and is highly significant. The negative sign of this variable may indicate that with the depreciation of the foreign currency, the foreign banks started searching for possibilities for great profits which occurred in the CE markets. The positive correlation between inflation and the expected number of the foreign banks entering into CE was surprising. Yet, taking into account that high inflation rates in the CE countries were associated with high net interest margins, this variable may capture the effect of great profit opportunities on the CE banking markets rather than its negative

impact on the economy. This result is also consistent with other findings of the literature on this topic. For example, Demirgüç-Kunt (1998) *et al.* find that inflation is associated with higher realized interest margins and thus higher profitability of banks, especially in the developing countries. This finding they explain by the fact that in developing countries demand deposits frequently pay zero or below market interest rates. On the hand, in the period of high inflation when the entries of most foreign banks occurred, the monetary policy targets of the CE countries were already set and the specific measures to achieve them were identified.

The measure capturing the differences in the economic development between home and host country turned out, on the other hand, not to be statistically significant, although it has an expected a negative coefficient. It indicates that the higher the growths rate of the host country in comparison with the home country, the higher the expected number of foreign banks entering the CE countries.

The size of the banking sector and financial sector appear to be statistical significant. Since the bank deposits are positively correlated with the expected number of bank entries, consistent with the hypothesis, the larger domestic banking sector, the greater number of potential clients and thus better prospects for great profits. The second variable measuring the level of intermediation of a country has a negative correlation with the banking internationalization into CE. We interpret this as evidence that with the greater development of the financial sectors of the CE countries, which means a wider range of financial products and services outside a banking sector, the demand for banking products begins to decline.

The coefficient of the concentration level of the banking sector is economically significant and shows a negative correlation with the expected number of entering banks. Consistent with our hypothesis, the result indicates that high concentration of the banking markets hinders new entries of foreign banks.

The net interest margin is negatively correlated with the expected number of entries of the foreign banks. The impact of this variable remains also statistically significant. The low interest income of the banking sector suggested high potential of the credit markets in the CE countries and thus great profit opportunities from the retail and wholesale banking for the new entrants.

The variable measuring the legal and regulatory structure of the CE banking markets, the bank freedom index has, as expected, a negative sign, although it is insignificant. Possibly it is because all CE countries were considered by foreign institutions to have similar regulatory structure and other country-characteristics and location specific factors played a decisive role in an entry process into a particular country.

On the other hand, the variable capturing the effects of the improvement in the creditor rights is significant and negatively correlated with the expected number of banks entering the CE countries. The reason could be that most of the foreign bank entries occurred in a period of poor creditor rights protection.

The difference in the efficiency of the banking markets seemed not to be a driving factor to an entry of foreign banks into CE countries although it indicates a negative sign. It means that the higher the inefficiency of the banking market relative to the home market, the higher probability of an entry. Possibly it is a result of opposite effects of this variable on an entry. Once more inefficient banking markets may encourage acquisition entries consistent with the hypothesis that foreign investors may use their expertise in order to restructure inefficient banks, the inefficient banking markets may, on the other hand, discourage greenfield investments.

The results of the regression provide also evidence that the law of origin of the entering country is of great economic importance. The legal origin variables are significant even at the one percentage significance level. This result is also consistent with other

findings in the literature that foreign banks are more willing to locate their operations in the countries which share the same legal origin (Galindo *et al.*, 2002).

Conditioning our regression on the dummy if a country belongs to the EU or not, we can see that joining the EU exerts a negative effect on the number of entries of foreign banks into CE countries. It is also statistically significant. This negative impact is possibly because of the fact that since joining the EU creates many new opportunities, the banking markets of the CE countries had been already penetrated by the foreign banks leaving the new entrants a limited room to step in.

Finally, consistent with other literature, our result shows that the distance between home and host country is economically important in determining an entry decision. In the regression the variable is statistically significant even at the one percentage level. The negative correlation with the foreign banking suggests that banks from neighboring countries were more expected to enter the CE's banking markets.

As a goodness of fit measure we perform Pearson test which in each specification was highly insignificant suggesting that our data are indeed Poisson distributed (the results are not reported here).

The regression (2) reports the estimates of the specification that includes non-financial FDIs (lag), testing the hypothesis that the foreign banks were motivated to enter the CE countries by following their customers and providing them their services on site. Although the coefficient of this variable appears in the regression as insignificant, it has an expected positive sign. The inclusion of the inflow of non-financial FDIs has resulted in some changes in the significance of the coefficients as well as has changed the sign of one of the variables. We see that the estimate of the exchange rate becomes positive, as we would expect, however insignificant. The coefficient may reflect two different effects in the regressions. In the (1) regression the exchange rate was significant at the one percentage level because since we did not control for other motives of foreign banks' entries into CE than motives driven by great profit opportunities, the appreciation of the local currencies encouraged the foreign entrants willing to take advantage from the strong currency. However, as we include the non-financial FDIs and take into consideration the fact that depreciation of the currency creates great prices for the foreign investors, many foreign banks followed the FDIs in the period of great depreciation of the local currencies.

The insignificance of the concentration level of the banking sectors of the CE countries as determinant of number of foreign bank entries can be explained possibly by two offsetting effects. First, the higher concentration level of the banking sector could have a negative effect on the number of entries of foreign banks where the established retail and wholesale structure was desired. Second, the higher concentration level could indicate under-banked and under-served markets and thus could exert positive effects on foreign banks following their clients.

The economic significance of the differences in the growth rates between host and home country after inclusion of the volume of the FDIs in the non-financial sector we interpret as the evidence that the countries, which suffered from low economic growth were more expected to search for the opportunities in the CE countries.

In the (2) regression the variable measuring the regulatory structure of the banking markets in the CE countries becomes an important determinant of entry of the foreign banks into these countries. We think that this is due to the fact that dummies with respect to the country of entry remain jointly insignificant (compare regression (1), (2), (3) and (4)) rather than due to inclusion of the non-financial FDIs. The reason might be that since the omitted characteristics between the CE countries disappear, the entry into that country was more probable that imposed lower restrictions on foreign banks' entries.

Regression (3) presents the results of the regression after the inclusion of the time-specific effects. We see that the results do not differ strongly from the ones of the

regression (2). Interesting is, however, the improvement of the significance level of the non-financial FDIs, which may suggest that the foreign banks followed their customers entering the CE countries only at a certain point of time. In order to test for it, we include in the next regression an interactive term. The parameter estimates for three interactive terms are negative and highly significant suggesting that the “follow the customer hypothesis” was not realized at the eve of the EU accession of the CE countries. The parameter estimate for the non-financial FDIs on its own is, however, positive and highly significant. It may indicate that the foreign banks followed their customers only at the beginning of the transition process. We can also see that after inclusion of the interactive terms, two variables have changed their significance. The exchange rate becomes significant at the one percentage significance level but the net interest margin loses its economic significance. It may indicate that the foreign banks following their customers could benefit also from the great depreciation of the currencies of the CE countries. The insignificance of the net interest margin may suggest that retail and wholesale banking activities gained an importance in the course of time. Finally, the results suggest that the determinants motivating the foreign banks to enter the CE countries have changed across time.

6.2.1 Robustness analysis

We next conduct a number of robustness tests. We test for the significance of other explanatory variables, which may explain foreign banking entry and have been also presented in the literature. Additionally, we check whether our results are robust to different econometric techniques. We begin our robustness analysis with the regression (1) and include new control variables. In the regression (6), we estimated our model with the ordered logit and in the regression (7) with Tobit. The empirical literature points out some advantageous of these two econometric techniques for the type of observations which we use in the regression. The results of new estimation are reported in the table 11. The results show that none of the covariates is significant even at 10 percentage level and their inclusion does not affect our previous results.

Table 10

The determinants of a bank's decision to expand into CE countries

The dependent variable is equal to the number of foreign banks by country of origin. In each regression we included also country dummies; In the regression (3) we included dummies with respect to the time of entering. The results are not reported. Regression (4) was regressed on interactive terms: $fdinonlag \cdot dummy$ of year. We report that variables, which are statistically significant.

	(1)	(2)	(3)	(4)
Exchange rate	-0.0276*** (0.0087)	0.0850 (0.0538)	0.1049 (0.0704)	0.1178*** (0.0400)
Inflation	0.3402*** (0.1203)	0.7829*** (0.2712)	1.0510** (0.3446)	1.1431** (0.4703)
Tax rate	-0.0453 (0.0449)	0.0501 (0.0576)	-0.0438 (0.0522)	-0.0845 (0.1031)
Bank freedom index	-0.4225 (0.4072)	-1.4793** (0.6660)	-1.2986 (1.1241)	-2.0571 (1.2678)
Creditor rights	-1.6585*** (0.4902)	-1.4742*** (0.4902)	-1.3578** (0.6600)	-1.4094*** (0.4286)
Liquid liabilities	-0.4307** (0.1741)	-0.8816*** (0.2748)	-0.9110*** (0.3439)	-0.8652** (0.4001)
Bank deposits	0.3948 (0.2117)	0.9087*** (0.3092)	0.9070** (0.3962)	0.9320** (0.4601)
Concentration ratio	-0.0527** (0.0263)	-0.0123 (0.0351)	-0.0104 (0.0726)	-0.0614 (0.0835)

Table 10 (cont'd)

	(1)	(2)	(3)	(4)
Net interest margin	-0.4232*** (0.1623)	-0.6221** (0.2530)	-0.8631** (0.4023)	-0.4954 (0.3440)
Diff. in growth rates	-0.0822 (0.0574)	-0.1290*** (0.0484)	-0.1260*** (0.0477)	-0.1297** (0.0508)
Diff. in overheads	-0.0891 (0.1105)	-0.1004 (0.1160)	-0.0979 (0.1264)	-0.1254 (0.1388)
Distance	-0.7091*** (0.2191)	-0.7617*** (0.2486)	-0.7525*** (0.2476)	-0.7358*** (0.2448)
Non-financial FDI (lag)	-	0.0984 (0.0940)	0.1453 (0.1063)	0.9345** (0.4605)
English legal origin	2.1870*** (0.7380)	2.2097*** (0.6934)	2.1933*** (0.7011)	2.1283*** (0.6897)
German legal origin	2.5333*** (0.5538)	2.1406*** (0.5493)	2.1377*** (0.5589)	2.0718*** (0.5599)
French legal origin	1.6339*** (0.5448)	1.4131*** (0.5358)	1.4150*** (0.5378)	1.3744*** (0.5301)
Scandinavian legal origin	0.9189 (0.7941)	0.8723 (0.7701)	0.8725 (0.7801)	0.8262 (0.7705)
EU dummy	-0.9172** (0.5098)	-0.2890 (0.7489)	-1.9321 (1.7070)	-1.0557 (9.7948)
Fdinonlag*y2000				-0.6200* (0.3355)
Fdinonlag*y2001				-0.7548** (0.2976)
Fdinonlag*y2003				-0.8561** (0.3846)
No. of observations	1212	973	973	973
Log likelihood value	-360.0716	-282.1786	-278.2254	-273.9627
Wald test	0.0535	0.1823	0.0132/0.0010*	0.0007

***, **, * denote that the coefficient is significant at the 1, 5 and 10 percent level, respectively. t statistics based on robust standard errors in parenthesis. The first result refers to the significance of the country dummies; the second to the time-effect.

The national income per capita is used as a measure of a host country's purchasing power and thus demand for the banking services. The coefficient of this variable is negative and insignificant. This is possibly because of the two offset effects. The measure of the country risk, as before, is highly insignificant although shows a positive sign. It is consistent with the hypothesis the higher the index (lower a country risk), the higher expected number of foreign banks entries. The coefficient for the stock market as expected is positive suggesting that the foreign banks entries are positively correlated with the stock market development. However, the variable is statistically insignificant. Thus, we include instead the stock market capitalization and also this time the coefficient was positive, yet insignificant. Finally, we included a measure of the size of country proxied by the population of the host country. The coefficient of this variable was positive, but again insignificant.

6.3 Results of bivariate probit regression

In the table 12 we present results from a simple univariate probit estimation conducted on the pooled data where we compare the coefficients for all types of entry modes. Each

equation from the previous regression (2) is estimated separately. The error terms are clustered on the home country's level.

To analyze the inferences in greater detail, we compare further the coefficients on determinants affecting the presence of branches with respect to acquisitions and subsidiaries as well as subsidiaries with respect to branches. This gives us a picture of comparative influences of the different factors on the choice of entry mode. Moreover, by considering what interdependencies between the banking forms are consistent with the empirical literature, the model shows how different forms of banking activity compete or complement one another and what pattern of competition or complementation between banking forms created the banking structure of the CE countries. Unlike other studies on this presented in the literature, we employ the model which directly control for it. The results are shown in table 13.

In table 14 we examine further the subsidiaries versus acquisitions, as these modes dominated in the entrance process of foreign banks into CE. Moreover, as their activities could overlap to some extent we feel that these forms could compete with each other in some areas. Moreover, in table 14 in the regression (2) and (3) we included also non-financial FDIs, although the literature on international banking treats the trade variable and non-financial FDIs exchangeable as proxies for "follow the customer hypothesis". However, we follow Miller and Parkhe's (1998) approach who argue that since the bilateral trade can be positively correlated with different modes of entry, the non-financial FDIs could explain the foreign entries through subsidiaries. We present in table 14 in the regression (3) the results of the regression with the country effect in order to examine if any unobserved and omitted characteristics of the countries may explain additionally the differences in foreign bank entries between the countries.

Table 11
Robustness check of the determinants of a bank's decision to expand into CE countries

The dependent variable is equal to the number of foreign banks by country of origin. In the regressions the additional control variable is in: (1) income per capita; (2) country risk; (3) turnover ratio; (4) market capitalization and (5) population. In regressions (6) and (7) we estimated the model using Tobit and ordered logit, respectively. In each regression we included also country dummies.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Exchange rate	0.0481 (0.0599)	0.1068 (0.0682)	0.0761 (0.0623)	0.0723 (0.0547)	0.0854 (0.0534)	0.0883 (0.0839)	0.0770 (0.0632)
Inflation	0.7641*** (0.2804)	0.7987*** (0.2720)	0.8295*** (0.2697)	0.7809*** (0.2750)	0.7819*** (0.2736)	0.9597*** (0.3635)	1.0381*** (0.3551)
Tax rate	0.0176 (0.0496)	0.0496 (0.0588)	0.0453 (0.0604)	0.0539 (0.0605)	0.0494 (0.0586)	0.0220 (0.0735)	0.0399 (0.0744)
Bank freedom index	-1.7332** (0.8279)	-1.4884** (0.6689)	-1.6291*** (0.6163)	-1.5565** (0.6809)	-1.4749** (0.6612)	-1.3871* (0.7854)	-1.7321** (0.8571)
Creditor rights	-1.5506*** (0.4667)	-1.4323*** (0.4929)	-1.4674*** (0.4880)	-1.4481*** (0.47989)	-1.4643*** (0.4806)	-1.4761** (0.6318)	-1.6022*** (0.5942)
Liquid liabilities	-0.8359*** (0.2732)	-0.9345*** (0.2764)	-0.9243*** (0.2988)	-0.8777*** (0.2774)	-0.8824*** (0.2724)	-0.9469*** (0.2872)	-1.0231*** (0.3372)
Bank deposits	0.9012*** (0.3175)	0.9667*** (0.3127)	0.9550*** (0.3375)	0.9071*** (0.3106)	0.9109*** (0.3037)	0.9635*** (0.3231)	1.0462*** (0.3839)
Concentration ratio	-0.0400 (0.0366)	-0.0094 (0.0364)	-0.0107 (0.0342)	-0.0086 (0.0340)	-0.0115 (0.0361)	-0.0065 (0.0457)	-0.0171 (0.0475)
Net interest margin	-0.6181** (0.2625)	-0.6446*** (0.2427)	-0.6405*** (0.2469)	-0.5924** (0.2578)	-0.6191** (0.2631)	-0.7638*** (0.2928)	-0.8898** (0.3861)

Table 11 (cont'd)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Diff. in growth rates	-0.1252*** (0.0478)	-0.1263*** (0.0493)	-0.1259*** (0.0479)	-0.1285*** (0.0479)	-0.1288*** (0.0487)	-0.1349** (0.0569)	-0.1410** (0.0603)
Diff. in overheads	-0.1014 (0.1167)	-0.1009 (0.1156)	-0.0899 (0.1314)	-0.1034 (0.1173)	-0.1002 (0.1163)	-0.1047 (0.0865)	-0.1531 (0.1432)
Distance	-0.7598*** (0.2470)	-0.7624*** (0.2478)	-0.7581*** (0.2498)	-0.7602*** (0.2471)	-0.7617*** (0.2486)	-0.8651*** (0.1749)	-0.8945*** (0.2564)
Non-financial FDI	0.1376 (0.1124)	0.1107 (0.0981)	0.1018 (0.0963)	0.1097 (0.1025)	0.0980 (0.0945)	0.0386 (0.0942)	0.0530 (0.1133)
English legal origin	2.2012*** (0.6963)	2.2061*** (0.6922)	2.2100*** (0.6963)	2.2053*** (0.6945)	2.2099*** (0.6935)	2.3466*** (0.6623)	2.2738*** (0.7709)
German legal origin	2.1434*** (0.5522)	2.1416*** (0.5490)	2.1431*** (0.5538)	2.1422*** (0.5487)	2.1409*** (0.5495)	2.4118*** (0.5341)	2.4560*** (0.7536)
French legal origin	1.4152*** (0.5392)	1.4137*** (0.5348)	1.4214*** (0.5448)	1.4135*** (0.5352)	1.4133*** (0.5353)	1.4624*** (0.5159)	1.4776** (0.5974)
Scandinavian legal origin	0.8725 (0.7722)	0.8740 (0.7676)	0.8709 (0.7737)	0.8730 (0.7702)	0.8727 (0.7692)	0.6171 (0.6086)	0.7298 (0.7937)
EU dummy	-0.0216 (0.9161)	-0.2115 (0.8072)	-0.3801 (0.7385)	-0.2604 (0.7736)	-0.2884 (0.7466)	-0.8344 (1.0065)	-0.8886 (0.9699)
Additional control variable	-0.0003 (0.0002)	0.0321 (0.0485)	0.0030 (0.0090)	0.0215 (0.0380)	0.0001 (0.0007)		
No. of observations	973	973	973	973	973	973	973
Log likelihood	-281.7351	-282.0447	-282.0794	-282.0423	-282.1776	-323.2812	-279.4649

***, **, * denote that the coefficient is significant at the 1, 5 and 10 percent level, respectively. t statistics based on robust standard errors in parenthesis.

Table 12

The determinant's of bank's organizational form to enter the CE countries

The dependent variable is equal one if an particular entry from country i into country h occurs at time t . In the regression (1) the dependent variable equal one if the organizational form is a branch, in the regression (2) if it is a subsidiary and in the regression (3) if the entry is an effect of acquisition.

	(1)	(2)	(3)
Bank freedom index	-3.6800** 1.4437	-0.2572 0.3892	-0.5330** 0.2147
Creditor rights	-6.0274*** 0.8260	-3.0948*** 0.7198	-0.8189*** 0.2336
Liquid liabilities	-0.6791** 0.2918	0.3266*** 0.1182	-0.0304 0.0611
Bank deposits	-2.9354*** 1.0028	-0.4692*** 0.1278	0.1062* 0.0610
Net interest margin	-9.0712*** 3.4256	-0.4191* 0.2339	-0.0234 0.1205

Table 12 (cont'd)

	(1)	(2)	(3)
Distance	-0.4266**	-0.0083	-0.1292
	0.2006	0.1410	0.1337
Concentration ratio	3.1794***	0.0856	-0.1017***
	1.2115	0.0810	0.0305
Market Cap.	0.1304**	-0.0171	-0.0224
	0.0659	0.0145	0.0099
Country risk	0.4802***	0.0711	-0.0714***
	0.1424	0.0712	0.0279
Tax rate	0.3908***	-0.0469***	-0.0233*
	0.1505	0.0168	0.0136
Trade	-0.0045	0.0141***	0.0109
	0.0062	0.0024	0.0021
Diff. in growth rates	-0.0499	-0.0595**	-0.0093
	0.0344	0.0258	0.0307
Income per capita	0.0050***	0.0001	-0.0003***
	0.0018	0.0001	0.0001
Wald test	0.3179	0.2702	0.1752

***, **, * denote that the coefficient is significant at the 1, 5 and 10 percent level, respectively. t statistics based on robust standard errors in parenthesis.

The results in table 12 show that none of the entry modes stays in direct competition. It might suggest that the foreign banks had different motives to establish their presence in the CE markets. Hence, the organizational forms chosen by the foreign institutions could be considered as complementary rather than as substitutes as suggesting the analysis from the developed countries (Heinkel and Levi, 1992). Moreover, the results may partly explain why the banking sectors in the CE countries are overbanked but underserved (Heinz 2004, OENB 2002, Bonin *et al.* 1998). It may suggest that the level of the banking services were the same among the organizational forms of foreign banks.

In the regression (1) in table 12, the coefficients of country characteristics variables are in most cases significantly different from zero. Reversely than our previous results, the tax rate appears in the regression highly economic significant suggesting that it has an impact on bank's organizational form. The signs of the coefficients show, however, different signs. The positive sign of the coefficient for branch regression indicates that since branches have an advantage in shifting profits across borders, they were more likely in countries with the higher tax rates. This finding is in line with the results presented in the literature (Cerulti *et al.* 2005). The other organizational forms since they fall under the local tax regime, they were more likely in countries with lower corporate tax rates. The variable proxy the risk of a country suggests interesting implications. It appears significant only in two regressions, although of opposite signs. As we have expected and in line with previous findings, branches were less likely in countries with high country risk as they are considered to be the most sensitive to the local country conditions. Hence, the coefficient in a regression where a branch is our dependent variable has a positive sign. In case of regression when a subsidiary is a dependent variable, the country risk seems not to be economic important, although it also shows a positive sign. The sign of the coefficient of the acquisition regression is significantly different from zero but opposite to the regressions with subsidiaries and branches it has a negative sign. An explanation for that might be that many acquisitions' deals occurred following the economic crises in the host countries since these events provided great opportunities for favourable transaction in terms of acquiring local banks.

The size of the banking sector and financial structure suggest very interesting implications. Financial development matters mostly in foreign bank entries via branches

and subsidiaries. In case of regression where a acquisition deal is our dependent variable only the coefficient of bank deposits is positive and significantly different from zero. The result may confirm that as most acquisitions transactions were driven by potential opportunities in the retail and wholesale banking, the inheritance of the important clients were of great importance. On the other hand, the result might suggest that foreign banks acquiring or merging with the domestic banks were more oriented towards servicing large institutional and corporate clients, whom they inherited with the portfolios of the domestic banks. The results for a branch regression are of totally different nature. The negative signs of both coefficients may be explained by the fact that at the beginning the branches of foreign banks entered in the early stage of countries' development being driven by the privatization processes of enterprises, which partly took place via stock exchanges. Most branches of the foreign institutions were involved in a big portion of these transactions rendering investment banking services. With the development of the stock markets as well as growth of the private sector, the branches of the foreign banks extended the scope of their activities offering variety of products related to the money and capital markets. Thus, controlling also for the stock market capitalization, the coefficient of this variable is highly significant and exerts a positive sign. This result supports Heinkel and Levi's (1992) hypothesis that setting up a branch of a foreign bank should be justified by sufficient activities in the area for which a branch offers an advantage. The regression for subsidiaries shows however different results. The signs are exactly reverse than the signs of the coefficients of the acquisitions' regression and are significantly different from zero. The positive sign of the liquid liabilities suggests that with the development of the financial sectors the new opportunities for subsidiaries of the foreign banks emerged. The stock market capitalization appears in the regression as insignificant. Thus, it seems that the stock market activity did not determine the set up of subsidiaries by foreign banks in a local banking market. The negative sign of the coefficient for the acquisition regression may again confirm the entering foreign banks in the period following the financial crises, where the activity of the stock markets tends to decline.

The variable measuring the concentration level of the banking sector shows in two cases positive signs and in case of the acquisition regression a negative sign. Besides the subsidiary regression where the variable is statistically insignificant, the other coefficients are highly economic significant. The positive sign of the coefficient for the branch regression might be explained by a different scope of activities, mostly in investment and corporate banking, rendered by this form of the foreign institutions. They have not stayed in the direct competition to the ones serviced by the local banks. Higher concentration of the banking sector meant the dominance of several local institutions in the credit market. Such a structure of the banking markets gave other foreign institutions the possibility to gain their shares in other fields. It might be especially true for the developing economies, where the markets are unsaturated and the development of the financial sectors forces other financial products and services to be strongly desired. Another picture presents the regression in which a acquisition deal is considered to be our dependent variable. The coefficient of the concentration level with a negative sign may suggest that in the markets where the local banks enhance their market power, the states banks were less willing to sell their stakes for foreign institutions.

Many foreign institutions entered the CE banking markets in order to provide their home clients with the services on site. In the beginning the banks restricted their activities to trade services. The positive and significant variable for the subsidiary regression may indicate that mostly subsidiaries were the modes of entry chosen by foreign banks to service their clients. The insignificance of the coefficient of the acquisition regression may suggest on different types of clients followed. Since subsidiaries might follow multinational companies, entries of foreign banks through acquisition of the local banks could and hence might indicate that they might service larger companies. The coefficient of the trade variable for the branch regression shows as expected a negative sign and it is insignificant.

Interesting implications suggest the variable measuring the distance between the parent bank and its presence in the home country. Although, the coefficients from all three regressions show a negative sign, as expected, only for branch specification, it is significant. The result is not surprising as most of the entries through acquisitions and subsidiaries occurred among European banks, all CE countries can be considered to be of comparable distance.

The first conclusion that we can draw with regard to the banking regulations for all three regressions is that higher banking regulations hinder the foreign banks' entries. However, only in the regression (1) for branches and (3) for acquisitions, the coefficients of the variable are highly significant from zero. The reason is that the branches and acquisitions were the organizational forms which were regulated differently among the CE countries. The results of the influence of the creditor rights confirm our findings from the first regression.

The coefficients of the net interest margin present the same signs for all the regression specifications, yet it differ in their statistical significance. The negative sign of the net interest income may indicate increasing competition. Increasing competition may explain why we observe the statistical significance of the coefficient for a acquisition regression. Thus, this method of entry may be preferred foreign banks with the aim to reach a strong position in the local markets in a short period.

The literature on the international banking refers very often to the income per capita as a variable measuring a host countries' purchasing power and thus demand for the financial services (Buch and Lapp, 1998; Buch, 2000; Sagari, 1992; Yamori, 1998) and largely find a positive relation to foreign banking assets or FDIs. Our result however indicates that the impact of this variable depends on type of the organizational form chosen by a foreign institution. We find that the branches were more likely in the wealthier countries once acquisition in the poorer. For the subsidiary regression, the income per capita seems not to have an explanatory power.

The difference in the growth rates between home and host countries indicates that the lower the difference (the higher the growth rate of the host country), the higher the probability of an entry into a host country. The result is valid for all regressions, although the coefficients for the branch and acquisition regressions are not statistically significant.

Table 13 analyses the differences in a greater detail by an econometric comparison of the presence of branches in respect to subsidiaries and acquisitions, while table 14 shows the comparison of subsidiaries in respect to acquisitions.

As we can see from the table 13, the examination of the branches with respect to subsidiaries and acquisitions supports that the branches do not stay in any direct competition to other banks' organizational forms in the CE countries. The results fully reflect the findings from the simple probit regression presented in the table 12. The one difference is the insignificance of the bank freedom coefficient in the branch regression versus acquisitions one. The reason might be due to two offsetting effects: (a) the branches were more likely in countries with lower regulations on branches, (b) in countries where the higher regulations on branches applied, the foreign banks chose an entry via acquisition instead.

The regressions in table 14 confronting the subsidiaries versus acquisitions indicate, on the other hand, more interesting implications. Already the result of Wald test suggests on some correlation between acquisitions and subsidiaries. This comes from the significance of the coefficient of trade in case we confront the entries through acquisitions with subsidiaries.

Table 13**The determinant's of a bank's organizational form to enter the CE countries**

The dependent variable is equal one if a particular entry from country i into country h occurs at year t .

	(1) Branch/ Subsidiary	(2) Branch/ Subsidiary	(3) Branch/ acquisition	(4) Branch/ acquisition
Bank free index	-3.5805*** (1.2670)	-0.2600 (0.3906)	-6.1753 (6.2767)	-0.5328** (0.2146)
Creditor rights	-5.9824*** (0.9302)	-3.0971*** (0.7156)	-8.5927*** (2.4903)	-0.8269*** (0.2358)
Liquid liabilities	-0.6776 (0.2988)	0.3299*** (0.1180)	-0.8109*** (0.1605)	-0.0350 (0.0598)
Bank deposits	-2.9569*** (1.0746)	-0.4737*** (0.1276)	-3.7757*** (0.9332)	0.1109* (0.0597)
Net interest margin	-9.1258** (3.6072)	-0.4230* (0.2319)	-11.2538*** (1.6624)	-0.0238 (0.1202)
Distance	-0.4231** (0.1967)	-0.0082 (0.1404)	-0.4877*** (0.1883)	-0.1293 (0.1343)
Concentration ratio	3.2009** (1.2751)	0.0855 (0.0810)	3.9711*** (0.7180)	-0.0999*** (0.0303)
Market capitalization	0.1316 (0.0696)	-0.0173 (0.0143)	0.1637*** (0.0415)	-0.0221** (0.0099)
Country risk	0.4825*** (0.1506)	0.0704 (0.0715)	0.6393*** (0.1315)	-0.0699** (0.0276)
Tax rate	0.3943** (0.1590)	-0.0468*** (0.0168)	0.4736*** (0.0892)	-0.0231* (0.0136)
Trade	-0.0036 (0.0058)	0.0141*** (0.0024)	-0.0114 (0.0071)	0.0109 (0.0021)
Non-financial FDIs				
Diff. growth rates	-0.0493 (0.0339)	-0.0597** (0.0257)	-0.0247 (0.0397)	-0.0090 (0.0306)
Income per capita	0.0050*** (0.0019)	0.0001 (0.0001)	0.0062*** (0.0010)	-0.0003*** (0.0001)
Wald test	0.3651	0.3651	0.0992	0.0992

***, **, * denote that the coefficient is significant at the 1, 5 and 10 percent level, respectively. t statistics based on robust standard errors in parenthesis

Once we consider them separately, the coefficient of this variable in the acquisition regression seems to appear as economically unimportant. This could suggest that subsidiaries of foreign banks could compete with the acquired local banks for some clients, possibly larger multinational companies. After the inclusion of the non-financial FDIs, we see that this variable is significant only in the acquisition regression suggesting that since the acquirers were large international banks, they could also follow large clients engaged in various investments in the CE markets. We can also see that inclusion of the FDIs modify slightly our results in regression (3) supporting the results of Miller and Parkhe (1998) that different forms of entry are positively correlated with following specific clients. Moreover, the result suggests that since the acquisitions and subsidiaries of foreign banks competed to the some extent, they reacted similarly to some effects.

Table 14**The determinant's of a bank's organizational form to enter the CE countries**

The dependent variable is equal one if a particular entry from country i into country h occurs at year t . In the regression (3) we control for the country-omitted effects including dummy equals one with respect to the country of entry.

	(1)		(2)		(3)	
	Subsidiary/ acquisition	Subsidiary/ acquisition	Subsidiary/ acquisition	Subsidiary/ acquisition	Subsidiary/ acquisition	Subsidiary/ acquisition
Bank free index	-0.3376 (0.3669)	-0.5491*** (0.2131)	0.4846 (0.7726)	-0.8223** (0.3402)	0.8016 (1.5960)	-0.4249 (0.4262)
Creditor rights	-2.9704*** (0.7292)	-0.8210*** (0.2340)	-6.0261* (3.4881)	-0.9175*** (0.2731)	-17.8308** (8.2145)	-0.9668*** (0.3050)
Liquid liabilities	0.3050** (0.1197)	-0.0323 (0.0611)	1.2992 (1.4516)	-0.3524*** (0.1334)	2.0305 (2.0066)	-0.3012*** (0.0973)
Bank deposits	-0.4326*** (0.1278)	0.1100 (0.0618)	-1.3996 (1.4499)	0.4141*** (0.1370)	-2.1860 (1.8188)	0.3480*** (0.1217)
Net interest margin	-0.3742* (0.2225)	-0.0224 (0.1212)	-0.1041 (0.2447)	-0.0456 (0.1062)	-0.2176 (0.4224)	-0.0802 (0.0997)
Distance	-0.0024 (0.1427)	-0.1309 (0.1346)	-0.0086 (0.1725)	-0.1725 (0.1396)	-0.0015 (0.1708)	-0.1707 (0.1386)
Concentration ratio	0.0746 (0.0789)	-0.1042*** (0.0307)	0.1290 (0.0848)	-0.0894** (0.0421)	0.0405 (0.0613)	-0.0970* (0.0518)
Market Cap.	-0.0182 (0.0137)	-0.0223** (0.0097)	0.0192 (0.0568)	-0.0016 (0.0188)	-0.1113 (0.0880)	-0.0165 (0.0452)
Country risk	0.0571 (0.0644)	-0.0718*** (0.0276)	0.0246 (0.0822)	-0.0591** (0.0301)	-0.0443 (0.0487)	-0.0537 (0.0318)
Tax rate	-0.0443** (0.0185)	-0.0237* (0.0137)	-0.1488 (0.1837)	0.0098 (0.0210)	-0.4040 (0.3345)	-0.0551 (0.0336)
Trade	0.0137*** (0.0026)	0.0110*** (0.0022)	0.0131*** (0.0026)	0.0084*** (0.0022)	0.0156*** (0.0029)	0.0087*** (0.0022)
Non-financial FDIs			-0.0428 (0.0895)	0.0981** (0.0423)	-0.1090 (0.2275)	0.0774* (0.0447)
Diff in growth rates	-0.0611** (0.0260)	-0.0090 (0.0311)	-0.1111*** (0.0348)	-0.0327 (0.0336)	-0.1030*** (0.0389)	-0.0311 (0.0346)
Income per capita	0.0001 (0.0001)	-0.0003*** (0.0001)	-0.0002 (0.0006)	-0.0002 (0.0001)	-0.0009 (0.0011)	-0.0004* (0.0002)
Wald test	0.0066	0.0066	0.0184	0.0184	0.0293	0.0293

***, **, * denote that the coefficient is significant at the 1, 5 and 10 percent level, respectively. t statistics based on robust standard errors in parenthesis

The results in table 14 regression (3) seem to reflect the results from regression (2), however the bank freedom index and country risk variables became insignificant for both acquisition and subsidiaries regressions. This may support our previous finding that controlling for the omitted country characteristics and location specific factors, the differences between the CE countries in terms of banking regulations and country risk do not explain different modes of entries chosen by foreign banks.

7

Conclusion

In the last decade we have witnessed a large influx of foreign banks into the CE markets. As a result the share of foreign bank assets rose from below 20 per cent to almost 80 per cent in all the CE transition economies. We assume that the foreign banking in the CE will continue to expand, albeit at a slower pace.

The literature on international banking has identified several factors that influence the location choice of foreign banks. With this paper we add to this literature twofold. First, we have examined the determinants of banks' choice – whether and where to engage in a foreign market. Second, we have studied the determinants of organizational form chosen by foreign banks when engaging in a CE market. Our empirical results show that macroeconomic and institutional determinants influenced significantly a foreign bank's decision to expand into the CE countries. We find that the foreign institutions were mostly attracted by large potential of the CE banking markets and low degree of their financial sophistication. This finding stays on the contrary to the results from the developed countries, where the foreign banks are more likely to expand the countries with a high level of financial and banking system development. According to these studies, only such markets offer more efficient banking product opportunities. Our results do not support this view. They rather suggest that less developed financial systems offer a wider range of possibilities for foreign banks to achieve great profits. Moreover, we show that in the beginning of the transition process, many foreign banks decided to engage in the CE markets simply by following their clients. In the course of financial development occurring in the CE countries, the new opportunities emerged and bank's "follow the customer" behavior has been replaced by a search for client's behavior. We also find that most foreign banks entries occurred in the poor creditor rights protection. However, the legal origin of the home country was of great economic importance. We show that common law countries as well as countries with German and French law traditions were the most likely to enter the CE banking markets than other legal families. Finally, in line with other studies, our results suggest that most banks stem from neighbor European countries. This is confirmed by a negative and significant coefficient of the distance between a host country and a foreign bank's headquarter.

We also looked on the modes of foreign bank entry and its relationship to the economic determinants. We find that the choice of organizational form of a foreign bank depend strongly on the economic characteristics of the host country. Moreover, consistent with previous studies, we show that the decision on mode of entry is determined by a scope of activities a foreign bank is going to render in a host country as well as by a type of client followed.

Our results are important from a research point of view. They expand the previous literature on different economic factors encouraging foreign bank entries. They introduce a wider set of explanatory variables than previous studies on this topic. They also shed a light how different factors influence various organizational forms of entries, thus fitting in the growing literature on the role of foreign banks in the host countries' financial systems.

The results are also important from the policy perspectives. For one, they show that high level of financial sophistication and strong creditors' rights protection are not a necessary prerequisite to attract foreign banks. Since the foreign banks have been shown to have a beneficial influence on domestic financial systems, it seems to be good news,

especially for developing and other transition countries whose financial systems are poorly developed and the access to the financial services is constrained. Furthermore, since the behavior of foreign banks changes with the development of financial systems, this suggests different implications for the supervisory authorities. Replacing the foreign banks' behavior by "searching for clients' behavior" might encourage foreign banks to take on excessive risks which might cause important consequences for the stability of the host countries' financial systems and thus might require specific policy responses.

Finally, our results suggest further agenda for research. One area for further research would be to investigate the impact of mode of entry and organizational form on foreign bank behavior in the developing countries in more detail. Can the fact that the various organizational forms react differently on the location-specific factors be explained by different behavior of these banks in the host countries? If yes, in what activities they engage in. Would it be true that foreign banks entering through cross-border acquisitions are more oriented towards large retail and wholesale clients neglecting lending to small businesses? The findings from the developed countries suggest so. Additionally, the results from the developed countries suggest that subsidiaries of foreign banks are more likely to engage in the retail and small-business lending and hence promoting greater access to the financial services. The picture of the CE countries, however, shows that many subsidiaries of foreign banks operate in the niche business providing such services as car loans or mortgages. Thus, the scope of the activities of the foreign subsidiaries in the developing countries requires a deeper investigation. And finally, does a lack of branches have any consequences on the development of the financial systems in the CE countries? Several studies indicate that banking sectors of the transition countries are overbanked but underserved. It would be interesting to find out the reasons for this.

Related to this, it would be interesting to look at banks' determinants in the decision process of whether to enter through *de novo* operation or cross-border acquisitions. Since the behavior of foreign banks may vary in the financial distress, the regulators should monitor what banks are likely to choose subsidiaries rather than branches as an entry mode into a host country. None of these areas has yet much been studied for developing countries.

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Appendix

Variable name	Description and Source
Country-characteristics	
Tax rate	Corporate tax rate. Data available for all countries from 1994 to 2004. <i>Source: Eurostat, Borish and Noel (1996)</i>
Exchange rate	Exchange rate of the national currency of a host country to EUR. For the years when the euro currency was not implemented, we used the relation to ECU. Data available for all countries for the period: 1994-2004. <i>Source: National banks</i>
Growth rates	Difference in growth rates between a home and a host country. Data available for all countries for the period: 1994-2004. <i>Source: World Bank Development Indicators</i>
Income per capita	Gross domestic product per capita expressed in current prices. Data available for all countries from 1994 to 2004. <i>Source: OECD</i>
Inflation	Logarithm of the geometric average annual growth rate of the consumer price inflation for the time period 1994 to 2004. <i>Source: Economic Intelligence Unit</i>
Country Risk	Composite Risk Rating defines the overall risk of a country. It comprises 22 variables in three subcategories of risk: political, financial and economic. A separate index is created for each of the subcategories. The Political Risk index is based on 100 points and includes such components as: government stability, socioeconomic conditions, investment profile, internal conflict, external conflict, corruption, military in politics, religious tensions, law and order, ethnic tensions, democratic accountability, bureaucracy quality; the Financial Risk is based on 50 points and capture such components as: GDP per head, real GDP growth, annual inflation rate, budget balance as percentage of GDP, current account as percentage of GDP. The Financial Risk Rating is based on 50 points and includes: foreign debts as percentage of GDP, foreign debt service as percentage of exports of goods and services, current account as percentage of exports of goods and services, net international liquidity as months of import cover, exchange rate stability. The Composite Risk Rating comprises 50% of political risk rating, 25% of financial and 25% of economic risk ratings. The risk of a country ranges from 00.0-49.5 points-very high risk to 80.00-100.00-very low risk. <i>Source: International Country Risk Guide</i>
Financial development	
Liquid Liabilities	Liquid liabilities of the financial system (currency plus demand and interest-bearing liabilities of the banks and non-banks financial intermediaries) divided by GDP. The variable is constructed following the methodology of Beck, Levine and Demirgüç-Kunt (2000) based on data from the International Financial Statistics. Liquid liabilities are calculated using line 551(liquid liabilities) or line 351 (money or quasi money) if liquid liabilities are not available. Data for GDP uses line 99b and for annual CPI 64. Data available for all countries from 1994 to 2004. <i>Source: International Financial Statistics and Beck et al. (2000)</i>
Bank deposits	Demand, time and saving deposits in deposit money banks as a share of GDP. The variable is constructed following the methodology of Beck and Levine and Demirgüç-Kunt based on data from the International Financial Statistics. Bank deposits are calculated using lines 24 and 25, GDP uses 99b line and for annual CPI 64. Data available for all countries for the period: 1994-2004. <i>Source: International Financial Statistics and Beck et al. (2000)</i>
Stock market turnover ratio	Ratio of value of total shares traded to average real market capitalization. The variable is constructed following the methodology of Beck and Levine and Demirgüç-Kunt (2000). The total value traded and market capitalization use Standard and Poor's Emerging Market Database, annual CPI uses line 64 from International Financial Statistics. Data available for Poland and Hungary from 1994 to 2004 and for the Czech Republic and Slovakia from 1995 to 2004. <i>Source: International Financial Statistics, Standard and Poor's Emerging Market Database</i>
Market capitalization	Total shares traded on the stock market exchange to GDP. Data available for all countries from 1994-2004. <i>Source: Standard and Poor's Emerging Market Database, World Bank</i>

Banking Market	
Banking freedom index	An index measures the relative openness of a country's banking and financial system. It determines whether foreign banks and financial services firms are able to operate freely, how difficult it is to open domestic banks and other financial services firms, how heavily regulated the financial system is, how great the presence of state-owned banks is, whether the government influences the allocation of credits and whether banks are free to provide customers with insurance and invest in securities (and vice versa). It ranges from 1 (very low restrictions) to 5 (very high restrictions). <i>Source: Barth et al. (2000)</i>
Creditor rights index	An index aggregating different creditor rights. The index is formed by adding 1 when: (1) no moratorium on payments once the reorganization petition has been approved (no automatic stay on secured assets); (2) secured assets first (first or after costs of bankruptcy procedure are met); 0,75=second after costs and other creditor category; 0,5=third after costs and other two creditor categories; 0,25=fourth after costs and other creditor categories; 0=priority not different from unsecured creditors); (3) the debtor does not retain freely the administration of its property pending the resolution of the reorganization (management does not stay (receiver)); (4) automatic trigger to file bankruptcy (i.e. if debtor unable to meet obligations for more than 90 days); (5) the adoption of a reorganization or liquidation plan requires creditor consent. The index ranges from 0 to 5. <i>Source: La Porta (1998), Pistor et al. (2000)</i>
Net interest margin	The accounting value of net interest income to bank's earning assets Data from 1994 to 2004. <i>Source: Beck, Demirgüç-Kunt and Levine (2001), World Bank Database (2004)</i>
Concentration ratio	Ratio calculated as assets of five largest banks as a share of assets of all commercial banks. Data available for all countries from 1994 to 2004. <i>Source: National banks, Eurostat</i>
Overheads	Difference in accounting value of a bank's overheads to its total assets. <i>Source: Bankscope</i>
"Follow the customer hypothesis"	
Foreign Direct Investment (FDI)	Poland: FDI is referred to as the inward of stocks and flows, including equity capital, reinvested earnings and other capital, whereby the investment in the financial sector are excluded, that means in monetary institutions, other financial institutions (of which also the financial holding institutions) and insurance companies or other financial institutions rendering insurance services. The data follow the OECD's benchmark definition of foreign direct investment, including the ten percent rule of ownership interests and voting power rights. In 1996, account losses have been deducted from the reinvested earnings. Data cover the period from 1994-2004. Hungary: FDI is defined as investment in equity capital over ten percent, reinvested earnings and other capital flows, whereby the investment in financial sector are excluded, that means in monetary institutions, other financial institutions (of which also the financial holding institutions), insurance companies or other financial institutions rendering insurance services. The reinvested earnings are defined as after-tax profit minus dividends declared payable in the same period. Data cover the period from 1999-2004. Czech Republic: FDI is referred to as the inward of stocks and flows, including equity capital, reinvested earnings and other capital in the non-financial sector. Non-financial sector excludes the investment in monetary institutions, other financial institutions (of which also the financial holding institutions), insurance companies or other financial institutions rendering insurance services. The data follow the OECD's benchmark definition of foreign direct investment, including the ten percent rule of ownership interests and voting power rights. The reinvested earnings are calculated as profits/losses minus distributed dividends. Data available for the period 1994-2004. Slovakia: FDI is referred to as the inward of stocks and flows, including equity capital, reinvested earnings and other capital in the non-financial sector. Non-financial sector excludes the investment in monetary institutions, other financial institutions (of which also the financial holding institutions), insurance companies or other financial institutions rendering insurance services. The data follow the OECD's benchmark definition of foreign direct investment, including the ten percent rule of ownership interests and voting power rights. The reinvested earnings are calculated as profits/losses minus distributed dividends. Data available for the period 1994-2004. <i>Source: OECD report on Foreign Direct Investment, supplemented by national banks' reports</i>
Trade	Volume of export and import from a home country into a host country expressed as ratio to the host country's GDP. Data available for Poland, Hungary and Czech Republic for the period of 1994-2004; for the Slovakia Republic for the period of 1997-2004. <i>Source: OECD</i>
Other variables	
Legal origin	Identifies the legal origin of the Company Law or Commercial Code of each country. There are five possible origins: (1) English Common Law, (2) French Commercial Code, (3) German Commercial Code, (4) Scandinavian Commercial Code, (5) Socialist/Communist Laws. <i>Source: La Porta et al. (1999)</i>
Distance	Logarithm of the distance between headquarter and a capital city of a host country. <i>Source: CIA The World Fact book</i>
EU-dummy	Equals 1 if a country is an official member of European Union and 0 otherwise.