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EFFECTS OF FOREIGN BANKS ENTRY ON BANK PERFORMANCE IN THE CEE COUNTRIES

Janek Uiboupin[1]

Abstract

The purpose of this paper is to estimate empirically the short-term effects of foreign banks entry on bank performance in the Central and Eastern European (CEE) Countries. A sample of 219 banks from ten CEE countries (Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovenia, Slovakia) is used in the analysis. The research results show that foreign banks entry affects negatively domestic banks' revenues from interest-earning assets, non-interest income, and profitability. Foreign banks entry can also raise the overhead costs of the local banks in short term. The general conclusion is that foreign banks entry is likely to increase competition in the host country.

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CONTENTS

1. INTRODUCTION

International banks have been active in the transition countries since the early 1990s, after a significant financial market liberalisation and elimination of entry barriers. Today foreign banks already own more than 50 per cent of the equity capital of banks in Central and Eastern Europe (CEE). In many countries foreign banks control over 80% of the banking market.

Growing foreign ownership in the banking sector raises an interesting question about the role played by foreign banks in transition economies. In previous studies the main focus has been on how foreign banks entry affects the performance of domestic banks (profitability, costs and incomes, interest margins and loan loss provisions). In many CEE countries, such as Estonia, Bulgaria, the Czeck Republic, Slovakia, foreign banks control 60–80% of the banking market. Therefore it is reasonable to analyse the effects of foreign banks entry on the banking market as a whole, including both foreign and domestic banks in the sample.

As time-series about banking activities in the transition economies are short, it would be difficult to analyse any long-term effects of foreign banks entry. Therefore all estimations have to be interpreted as short-term effects of foreign banks entry that may significantly differ from long-term results.

The CEE countries differ significantly in terms of foreign ownership of banks as well as the development of their economies and banking markets. Several authors (Lensink and Hermes, 2003; King and Levine, 1993) have concluded that foreign banks entry effects depend on how well developed the host countries' economic and banking sectors are.. In the current paper, we try to estimate if these effects differ among

the transition countries with different levels of financial development.

The purpose of this paper is to estimate empirically the short-term effects of foreign banks entry on the performance of banks located in the CEE countries.

The paper is organised as follows: first a brief overview of relevant literature is given, after which hypotheses are developed on the basis of literature, next we describe our data and explain the methodology, then estimate the results and finally draw conclusions.

2. LITERATURE OVERVIEW

The banking sectors of the European Union (EU) candidate countries have been subjected to deregulation and liberalisation over the last decade. It is argued that liberalisation will significantly affect the degree of cross-border competition in the integrated banking sector's performance and efficiency (see Claessens *et al*., 2001; Gual, 1999; De Brandt and Davis, 2000; Hasan *et al*., 2000; Berger *et al*., 2000). Levine (2001) analysed the relationship between financial liberalisation and banking efficiency, finding that greater presence of foreign banks enhances the efficiency of the domestic banking system by decreasing banks'overhead costs and profits.

There is a growing body of empirical studies to suggest that the overall economic success of a country is a positive function of the development of its financial sector, and of its banking system in particular. Recent studies have shown that countries with well-developed financial institutions tend to experience more rapid rates of real GDP per capita growth (Levine, 1997; Levine and Zervos, 1998; Rajan and Zingales, 1998). More importantly, empirical studies have disclosed the existence of a positive correlation between foreign ownership of banks and stability of the banking system (Caprio and Honahan, 2000; Goldberg *et al*., 2000).

There is also the experience of the impact of foreign banks' participation in different countries. For example, Dages *et al*. (2000) examined the lending patterns of domestic and foreign banks and found that foreign banks typically have stronger and less volatile lending growth than their domestic counterparts. They also found that diversity of ownership contributes to greater credit stability during times of turmoil and weakness of the financial system. Weller (2000) showed that the entry of a larger number of multinational banks resulted in a lower credit supply by Polish banks during the early transition phase (1999). The benefits of increased foreign participation in the banking sector are discussed by Gruben *et al*. (1999), and Lardy (2001). Demirguc-Kunt *et al*. (1998) noticed that over the period 1988–1995, and for a large sample of countries, entry by foreign banks was generally associated with a lower incidence of local banking crises.

An important issue for emerging market economies is whether the entry of foreign banks will contribute to the banking system's stability and being a stable source of credit, especially in periods of crisis. Mathieson and Roldos (2001) have pointed to two related issues: whether the presence of foreign banks makes systematic banking crises more or less likely to occur, and whether there is a tendency for foreign banks to "cut and run" during a crisis. In general, it has been suggested that foreign banks can provide a more stable source of credit because the branches and subsidiaries of large international banks can draw on their parents (which typically hold more diversified portfolios) for additional funding. Large international banks are likely to have better access to global financial markets and the entry of foreign banks can improve the overall stability of the host country's banking system (stronger prudential supervision, better disclosure, accounting and reporting practice, etc.).

The main expected benefits and drawbacks from the entry of foreign banks are clearly defined by Bonin *et al*. (1998) (see also Dages *et al*., 2000; Doukas *et al*., 1998). The main expected benefits include:

- Introduction of new banking technology and financial innovations (for foreign banks it is relatively easy to introduce new products and services to the local market).
- Possible economies of scale and scope (foreign banks can help encourage consolidation of the banking system, they have knowledge and experience of other financial activities: insurance, brokerage and portfolio management services).
- Improvement of the competitive environment (foreign banks represent potential competition to local banks).
- Development of financial markets (foreign banks entry may help deepen the inter-bank market and attract business from customers that would otherwise have gone to foreign banks in other countries).
- Improvement of the financial system's infrastructure (transfer of good banking practice and know-how, accounting, transparency, financial regulation, supervision and supervisory skills).
- Attracting foreign direct investments (the presence of foreign banks may increase the amount of funding available to domestic projects by facilitating capital inflows, diversifying the capital and funding basis).

The main arguments against foreign banks entry, however, are (Anderson and Chantal 1998, p. 65):

- Fear of foreign control (control over the allocation of credit implies substantial economic power in any economy).
- Banking as an infant and special industry (this argument is a version of the general infant industry argument, and banks are subject to various special protections due to their central role in economy).
- Foreign banks may have different objectives (foreign banks may be interested only in promoting exports from the home country or in supporting projects undertaken by home country firms).
- Regulatory differences (supervisors of the host country lose regulatory control and if the home country has weak bank

supervision, this may lead to unsound banking in the host country).

The theoretical literature on the impact of foreign direct investments (FDI) stresses the importance of inter-industry and intra-industry spillover effects. Intra-industry spillover effects of FDI on technology transfer depend on local firms' own ability to innovate and imitate (Glass and Saggi, 1998). It is also suggested that spill-over effects of foreign entry depend on differences between the levels of development of the domestic market and the foreign bank's market; this phenomenon is known as the technology gap hypothesis. It suggests that a larger technology gap between the foreign enterprise and the domestic firm will lead to more spill-over effects.

A most comprehensive empirical survey about foreign banks entry was carried out by Claessens *et al* (2001) who investigated the relationship between foreign banks entry and the performance of the domestic banking sector in 80 countries. They used panel estimations with 7,900 bank observations for 1988–1995. The main result of the study was that foreign banks tend to have higher profits than domestic banks in the developing countries, while in developed countries foreign banks are less profitable than domestic banks. Their results also indicated that higher foreign bank presence is related with lower profitability, costs and margins of domestic banks.

Hermes and Lensink (2003) developed further the model used by Claessens *et al* (2001). They used bank-level accounting data from 990 banks in 48 countries for the period 1990-1996. Threshold estimations were used to study how foreign banks entry effects are related, in a short term, with the economic development of the countries involved. The results indicate that at a lower level of economic development, foreign banks entry is associated with higher costs and margins for domestic banks. At a higher level of economic development, on the other hand, foreign banks entry has a less significant effect on domestic banks' profitability. This result adds some support to the technology gap hypothesis.

Zajc (2002) analysed foreign banks entry effects on domestic banks in the Czech Republic, Estonia, Hungary, Poland, Slovakia and Slovenia for the period 1995–2000. His results are somewhat different from those presented by Claessens *et al* (2001). He found that foreign banks entry is associated with lower non-interest income but increases overhead expenses.

3. HYPOTHESES

Previous studies into foreign banks participation and net interest margins (Hermes and Lensink 2002, 2003) have established that foreign banks entry is associated with higher interest margins of banks in the short run. Quite often authors have found that there is no statistically significant relationship between net interest margin and foreign banks' share (Zajc, 2003). This indicates that net interest margin is probably related to other factors, for example, overall competition on the market, banks' own market share, money market interest rates, etc. Unite and Sullivan (2003) observed that foreign banks entry is inversely associated with interest rate spreads of domestic banks, but only in case of those banks that are affiliated to a family business group. As we expect a rise in competition in the market when the foreign banks' share increases, we set up the following hypothesis:

H1: The net interest margin of a bank in a given country is negatively correlated with foreign banks' share in that country.

It is a common trend in banking markets that incomes from lending activities are falling due to increasing competition. Since an increase in foreign banks share in the market is generally associated with higher competition effects, we assume that banks are trying to increase their non-interest incomes in order to compensate for the falling interest margins. At the same time, increasing competition associated with foreign banks entry may also decrease the non-interest incomes of banks, who try to offer better conditions and prices to their customers. Therefore, the final effect of foreign banks entry on

non-interest income is ambiguous. We set up the following hypothesis:

H2: The non-interest income of a bank in a given country is either positively or negatively correlated with foreign banks' share in that country.

Claessens *et al* (2001) concluded that a higher foreign banks' share in the market is associated with lower overhead costs of banks[2], which indicates higher efficiency. In transition countries this relationship can be opposite at least in the short term. Domestic banks react to foreign banks entry with higher overhead costs because they want to retain their image and technological base to be competitive in the market. An- other explanation for increasing overhead costs would be adjustment costs that have to be made when a foreign bank takes over a domestic bank. Usually foreign banks have a more highly developed technology base that can allow for lower overhead costs in the long run, while the short-term effect can be higher overhead costs. We propose the following hypothesis:

H3: The overhead costs of a bank in any given country are positively correlated with the foreign bank's share in that country.

The ratio of a bank's profits to its total assets reflect the overall profitability outcome of the bank. Foreign banks entry is usually expected to have a positive effect on the competition in the banking market and therefore it is expected to have a negative effect on banks' profitability. Several authors have found that foreign banks entry reduces the profits of the domestic banking sector (see Claessens *et al*, 2001; Hermes and Lenksink, 2003; Zajc 2002; Unite and Sullivan 2003). We set up the following hypothesis:

H4: The ratio of pre-tax profits to the total assets of a bank in a given country are negatively correlated with foreign banks' share in that country.

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[2] Overhead costs are defined as all operating expenses except interest expenses.

The effect of foreign banks entry on banks' loan loss provisions is still unambiguous because foreign banks entry may have both positive and negative effects on the quality of loans and therefore the result could even be insignificant. Foreign banks have usually better credit risk management techniques and then higher foreign ownership is negatively correlated with loan loss provisions. At the same time, increasing competition in the loan market could force banks to reduce credit quality because they want to keep their market shares and increase lending.

H5: Foreign banks' share in the country has either a positive or negative impact on the banks' loan loss provisions.

Hermes and Lensink (2003) found that the financial development of a market has a relevant role within the effect of foreign banks entry. In case of a more developed market, the effect of foreign entry is probably not so strong because the potential to learn from foreign banks is not so high. This is also related to the common assumption that foreign banks are more developed than domestic banks, but that is not always the case. For example, an Estonian commercial bank entering into the Latvian market is not significantly more advanced than Latvian domestic banks. We suggest that the way foreign banks' share in the market influences the performance of banks depends on the financial development of the market. It is probable that the development of the banking market is especially important for overhead costs and non-interest activities. In more advanced markets, investments into banking technology have already been made and therefore the overhead costs will rise especially in less developed markets, whereas in developed markets the effect is weaker. The same holds for the non-interest income of banks. In developed markets, where competition is higher, banks have already shifted to non-interest activities and therefore in more developed markets foreign banks entry may even decrease non-interest incomes, because the competition effect is stronger than the adjustment effect. Therefore we will basically test the technology gap hypothesis described above.

H6: The effects of foreign banks entry depend on the banking market development in the given country.

The banking markets in the CEE countries are quite concentrated. In some countries, such as Estonia, Lithuania, and Slovakia, three biggest banks have more than 60% of the market. Williams (2003) analysed foreign and domestic banks profitability determinants in Australia and found that a bank's profits are significantly reduced by its competitors' market share. We suggest that the way local banks react to foreign banks entry may depend on their market share. Bigger banks probably react less to foreign entry, because they are either too big to react quickly to market conditions, or foreign banks entry is less important to them than to smaller banks. We set up the following hypothesis:

H7: A bank's reaction to foreign banks entry depends on this bank's market share.

4. DESCRIPTION OF DATA

In the current research we use different bank-level and macro-level data to investigate the relationship between foreign banks entry and banks' performance. A foreign bank is defined as foreign if it is at least 50 percent foreign owned, i.e. more than 50 percent of its share capital is owned by foreign residents. The study covers the 1995–2001 data of 10 countries: Bulgaria, Croatia, the Czech Republic, Estonia, Hungary Latvia, Lithuania, Poland, Slovakia and Slovenia. The annual data is used in the following subgroups: bank-level accounting data, foreign banks entry data, the country's specific variables and the banking market development data. A detailed description of all variables used in the analysis is given in Appendix 1.

Bank-level accounting data was obtained from the Bankscope database; we use panel data for 319 banks during 1995–2001. An important difference between our sample and previous studies is that we include both foreign and domestic banks into

the sample. Several balance sheet variables and profit statement variables are used. First, we use two variables measuring the income of banks: net interest margin (NIM) and non-interest income to total assets (OOITA). Second, a bank's profitability is characterised by the ratio of its before-tax profits to total assets (PTPTA). Third, a bank's costs are measured by two variables: overhead costs to total assets (OHTA) and loan loss provisions to total assets (LLPTA). These variables are calculated on the basis of the bank's income statement and balance sheet. We use the following internationally comparable accounting identity:

$$PTPTA = NIM + OOITA - OHTA - LLPTA \quad (1)$$

The bank-specific exogenous variables are as follows: short-term and long-term deposits and other funding to total assets (CSTFTA), equity ratio to total assets (ETA), and non-earning assets to total assets (NEATA).

We use two different foreign entry variables: the share of foreign banks' assets in the total banking market assets (FSA), and the ratio of foreign banks to the total number of banks (FBSN). Since Bankscope covers about 90% of the banks on the market and the precise ownership structure of a bank is described only in the last reporting period, it is not possible to calculate foreign ownership by aggregating the data of the reporting banks, because of the danger to either overestimate or underestimate the proportion of foreign ownership on the market. The possibility to overestimate foreign ownership comes from the fact that foreign banks are more active internationally and also provide data more actively to Bankscope. The possibility to underestimate foreign ownership in some countries is also quite high because Bankscope does not cover branches of foreign banks, and therefore the countries where the main foreign bank entry mode has been branching tend to significantly underestimate foreign ownership on the market. The problem of data is more relevant for small countries like Estonia, Latvia and Lithuania, where the number of banks is small, and the absence of even two or three banks from the

database may significantly affect foreign ownership data. To overcome these problems, we used different sources of data. Foreign banks' share in the total assets (FSA) data was drawn from Bankscope and national central banks, while foreign banks' share in the total number of banks (FBSN) was obtained from the EBRD Transition Report 2003.

The development of the banking sector is characterised by the ratio of domestic private credit to the GDP (DCGDP). This is a widely used measure of banking sector development, used also by Hermes and Lensink (2003). Another banking-market-specific variable that we use is the concentration index, calculated as the ratio of three biggest banks' assets to total banking market assets in the given country (CONC). Market concentration data is obtained from the database provided by the website of Asly Demirgüç-Kunt from Worldbank. The DCGDP data is from the EBRD Transition report 2002.

We use three country-specific variables. Similarly to Claessens *et al* (2001), Hermes and Lensink (2003), and Zajc (2002) we use real GDP growth (GDPG), GDP per capita (INCOME, in logarithm) and inflation rate (CPI) as indicators of macroeconomic development. All country variables were obtained from the EBRD Transition Report 2002. We have an unbalanced sample because of lack of data for some banks in some periods. The number of observations varies between 884 and 1041.

Table 1 reflects the main trends of bank-specific variables in domestic and foreign banks between 1993 and 2001. The before-tax profits to total assets (PTPTA) ratio declined in both foreign and domestic banks, while domestic banks tended to have slightly lower profitability than foreign banks in the transition economies. Net interest margins (NIM) also declined for both foreign and domestic banks. Foreign banks operated with lower average interest margins, enhancing the competition. Domestic banks had a higher rate of loan loss provisions (LLPTA) except during 1993–1994, which indicates that foreign banks have better credit risk management systems. Foreign banks have lower equity ratio (ETA) with higher leverage

and risk, indicating that foreign banks can exploit the reputation of their mother banks and can have higher risks and profitability than domestic banks.

Table 1.

Average values of bank-specific variables by ownership (percentages)

Variable	Owner-ship	1993	1994	1995	1996	1997	1998	1999	2000	2001
PTPTA	Foreign	2.9	1.5	0.7	1.9	2.3	0.9	0.8	1.5	1.2
	Domestic	4.5	1.2	1.3	1.1	1.4	–0.2	1.1	1.0	0.6
NIM	Foreign	10.1	5.2	5.9	5.7	5.3	5.1	4.7	4.9	4.2
	Domestic	12.2	5.3	5.9	5.9	5.0	6.0	5.1	5.1	4.6
OHTA	Foreign	6.6	5.2	4.6	5.0	4.4	4.7	4.6	4.4	3.9
	Domestic	5.3	4.8	5.0	5.3	5.7	6.3	5.4	5.0	4.8
LLPTA	Foreign	4.0	1.6	1.6	1.0	1.0	1.0	1.2	0.7	0.5
	Domestic	1.2	1.4	1.7	1.7	1.8	2.1	1.3	1.1	1.9
OOITA	Foreign	5.2	4.2	2.8	3.9	4.3	2.4	2.8	2.6	2.4
	Domestic	5.4	3.4	3.6	4.1	5.0	2.9	3.5	2.9	3.6
ETA	Foreign	12.4	10.8	10.7	13.9	15.1	15.4	14.8	13.0	11.8
	Domestic	18.8	18.6	17.8	17.9	15.5	17.6	17.2	15.8	15.1
CSTFTA	Foreign	77.7	80.8	81.0	77.6	75.9	74.9	77.2	78.7	79.3
	Domestic	73.3	73.3	71.8	73.8	76.0	71.7	72.0	74.0	77.8

Source: Bankscope, author's calculations

Figure 1 shows that average foreign banks' share increased significantly in the CEE countries in the period 1993–2001. Average foreign banks' share in total assets was almost 80%. Foreign banks' share in assets was significantly higher than their share in the total number. Therefore it can be concluded that foreign banks have high market shares in the transition countries. In most cases, the biggest banks in the CEE countries are at least partly and often fully foreign-owned (ECB, 2002).

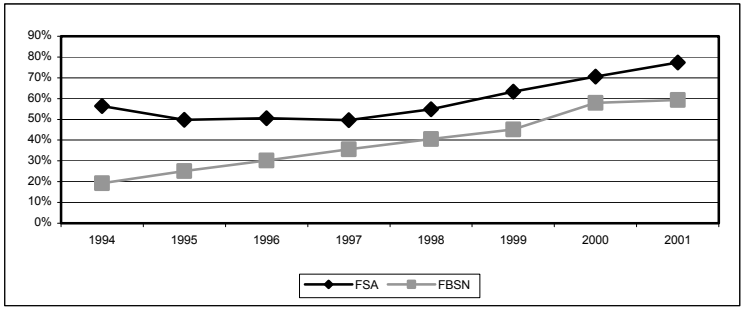

Figure 1. Average foreign banks' share in the CEE markets.

Source: author's calculations

The foreign banks' share in each country's total number of banks is given in Figure 2. The number of foreign banks has increased over time in almost all the CEE countries. By the end of 2001, the foreign banks' share in number had fallen in Lithuania and Latvia compared to the year 2000. The reason is market concentration via bank mergers.

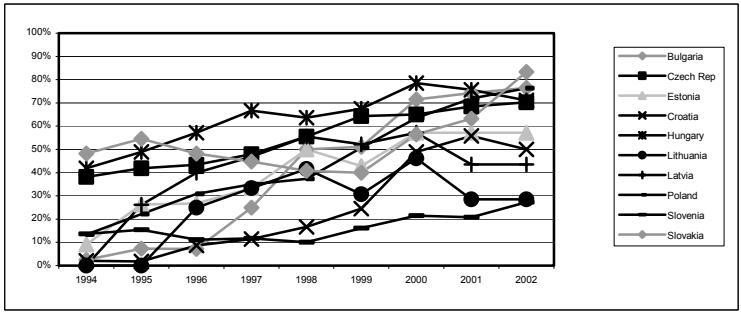

Figure 2. Share of foreign banks in the total number of banks.

Source: EBRD, 2003; author's figure

In empirical estimations we use domestic private credit to the GDP (DCGDP) as proxy for the development of the banking

sector in a given country. Figure 3 shows that DCGDP suits quite well for characterising the development of the banking market. First, almost in all the countries, private credit to the GDP has raised constantly, connected with the development of the banking market. Second, except for Bulgaria and the Czech Republic, there are no significant drawbacks in credit supply that could have led to the scenario, according to which, for example, at the beginning of the 1990s crediting was high, then after a banking crisis the DCGDP fell, and in 2002 the DCGDP ratio was the same as in 1995, which says that the banking market did not develop at all during 5 years while in actual fact the development has been significant.

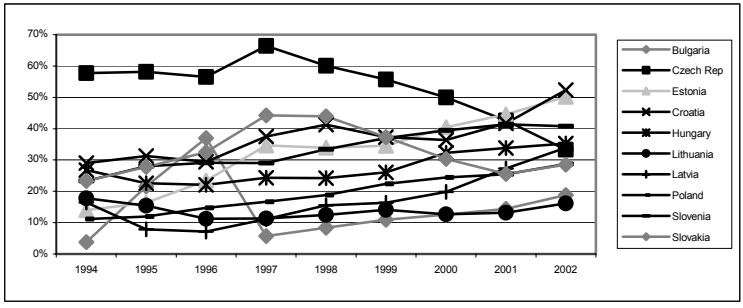

Figure 3. Private credit to the GDP (DCGDP) ratio in 1994–2002

Source: IFS, 2003; author's figure

Figure 4 demonstrates the EBRD (European Bank for Reconstruction and Development) banking sector's development indexes for the CEE countries. According to the EBRD, the development of the banking sector of the Czech Republic has been significant, although private credit is falling because of the recession of the whole economy at the and of the 1990s, and a stricter credit policy. According to the EBRD Transition report 2002, the most developed banking sector among the CEE countries is in Hungary, with Lithuania and Bulgaria ranking next with their considerably less developed banking markets.

Compared with 1993, the banking sector developed most rapidly in Latvia and Croatia.

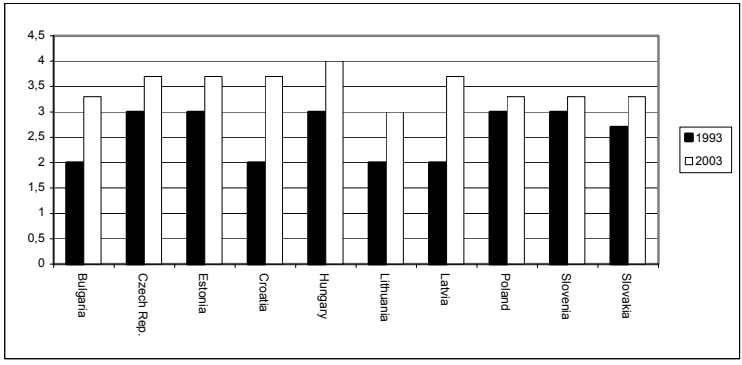

Figure 4. EBRD Banking index of the banking sector reform.

Source: EBRD, 2002; author's figure

5. THE EMPIRICAL MODEL

First we present a simple theoretical conception of foreign banks entry. We use one period model as we are interested in the short-term effects of foreign entry. Suppose that foreign banks share on the market at the time t_0 is FS_0, so that $0 \leq FS_0 < 1$. We assume that at the beginning of the period the foreign banks' share is less than 100%. At the time t_0 the banks have set their strategies to maximize their profits π_0 if the market conditions from the previous period are given exogenously. A bank's profit depends on costs and income:

$$\pi_i = nii + ooi - oh - llp$$

where *nii* – net interest income;
ooi – non-interest income;
oh – overhead costs;
llp – loan loss provisions

Now suppose that foreign banks enter the market. It is defined as the difference between FS_1 and FS_0. Foreign banks' entry motives derive from the previous periods (market seeking or customer following motives). Foreign banks' entry affects the market conditions. Local banks (both foreign and domestic owned) may react to the foreign banks entry. If the local banks are reacting to foreign entry, then their profit components for the period t_1 differ from those of the time t_0, because banks change their cost structure and prices to be competitive and maximize their profits. We also assume that the period between t_0 and t_1 is long enough, so that banks are able to react to foreign entry if they find it beneficial. Bank profit is also affected by macroeconomic factors, but we assume that those effects are the same for all the banks operating on the market. *Ex post* we can say that local banks have reacted to foreign entry if at least one component in the profit equation has changed.

The conception of the model is illustrated in Figure 5.

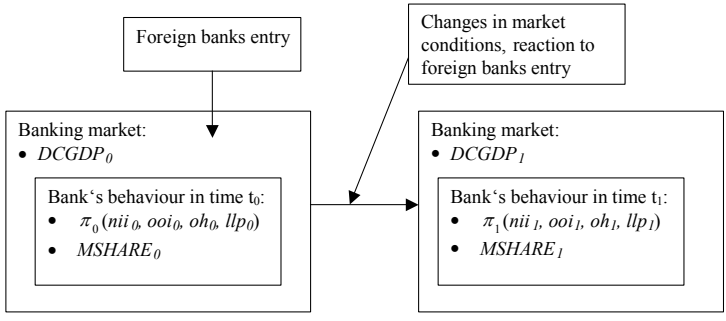

Figure 5. Theoretical effect of foreign banks entry.

Source: author's figure

At t_1 the model may restart, new foreign banks enter and banks reorganize again their activities to maximise profits.

Next we try to test empirically the short-term relationship between foreign banks entry and bank performance. We start with the empirical model which is similar to that used by Claessens *et al* (2001):

$$\Delta I_{ijt} = \alpha_0 + \beta_j \Delta FS_{jt} + \delta_{ij} \Delta B_{ijt} + \gamma_j \Delta X_{jt} + \varepsilon_{ijt} \qquad (2),$$

where I_{ijt} is a vector of dependent variables for bank i in country j at time t, FS_{jt} is a measure of foreign bank penetration in country j at time t, B_{ijt} is a set of bank-specific variables for bank i in country j at time t. B_{ijt} is included into the equation as a set of control variables. X_{jt} is a vector of country variables in country j at time t.

Then we develop further the initial empirical model characterised by equation 2, adding banking market development variables and an interactive term of foreign banks entry and banking market development; the same methodology was also used by Hermes and Lensink (2003). The model involving banking sector development and interactive term is as follows:

$$\Delta I_{ijt} = \alpha_0 + \beta_j \Delta FS_{jt} + \gamma_j \Delta FS_{jt} \times DCGDP_{jt} + \delta_{ij} \Delta B_{ijt} + \varphi_j BMD_{jt} + \varepsilon_j \Delta X_{jt} + \varepsilon_{ijt} \qquad (3)$$

$DCGDP_{jt}$ is a proxy for banking market development in country j at time t, *FS*DCGDP* is a variable that has been created by interacting the foreign banks entry variable with the banking market development variable. The interactive term is included to test whether foreign entry effects in a particular country depend on the level of development of that country's banking market . We expect foreign banks entry to have a more relevant impact in the early stage of internationalisation and to be lower when the banking market in the target country is well-developed. It may even be the case that the sign of the coefficient of *FS* changes from negative to positive or vice versa. The banking market development variables are expected to have a negative effect on the cost and income of a bank.

Finally, we include into the equation an interactive term of foreign banks entry and bank market share. Banks with different market shares may react differently to foreign banks entry.

We suggest that smaller banks react more actively, because they are more flexible to changes in market conditions and have to adjust themselves more readily in order to be competitive. The model is as follows:

$$\Delta I_{ijt} = \alpha_0 + \beta_j \Delta FS_{jt} + \gamma_j \Delta FS_{jt} \times MSHARE_{jt} + \delta_{ij} \Delta B_{ijt} + \varphi_j BMD_{jt} + \varepsilon_j \Delta X_{jt} + \varepsilon_{ijt} \quad (4)$$

where *FS*MSHARE* is a variable that has been created by interacting the foreign banks entry variable with the banking market development variable.

6. ESTIMATION OF RESULTS AND DISCUSSION

We use two variables to measure foreign banks' presence: the number of foreign banks as the share of the total number of banks (FBSN) and foreign banks' share in the total assets of the banking market (FSA). We also use interactive terms with private credit to the GDP (DCGDP) and the bank market share (MSHARE). We use five bank performance measures (ALINT (interest income on interest earning assets), PTPTA, OOITA, OHTA and LLPTA) as dependent variables. Stata SE 8 is used for estimations.

Compared with Claessens *et al* (2001), who used a fixed effects model, our methodology for estimating regression coefficients is somewhat different. . We use Arellano-Bond linear, dynamic panel data estimation which enables us to use a lagged term of dependent variable as exogenous variable, and instrumental variables (Arellano and Bond, 1991) to reduce the endogenety problem and get more consistent estimates. To reduce the heteroskedasticity that is often the problem in micro level panels, robust standard errors are reported (see Stata, 2003). Robust standard errors are higher and therefore relationships are statistically less significant.

It is a general assumption that foreign banks entry at time t is exogenous, i.e. FBSN or FSA do not depend on bank-specific

variables at time t (Zajc, 2002). In practice, foreign banks entry may be associated with timing, thus a bank enters the market in year t because of the market conditions in period t. It may be the case that foreign banks are entering by acquisition at time t because of the crisis period of a single bank or the whole banking market in order to acquire banks at a low price. It can be argued that this makes foreign banks entry partly endogenous. The endogenety problem here is not very strong, because in most cases the bank's name changes after the merger, and the bank that was acquired, for example, because of negative profit and low price, drops out from period t estimation as we use first differences. Nevertheless, some endogenety may remain, because sometimes foreign banks consider the average performance of the whole market in period t when making entry decisions.

To reduce possible endogenety problems in estimations, it is suggested that levels of lag operators can be used (Stata, 2003). We use levels of lag operators of foreign bank entry variables (1 period lag of FBSN and FSA) as instrument variables.

An important difference between this study and previous works is that we analyse foreign banks entry effects on both foreign and domestic banks' performance. The first differences of variables ensure that the observations of a foreign bank entering the market at time t are not included. We are analysing the short-term reaction to foreign banks entry of banks operating in a CEE market. Yearly time dummies (1996–2001) are included into the estimations, while regression coefficients of time dummies are not reported. Arellano-Bond estimations include also tests of autocorrelations AR(1) and AR(2) that are not reported. Autocorrelation was not significantly present in the regressions except for ALINT.

Our estimation results with FBSN as the foreign banks entry variable are given in Table 2. Foreign banks entry variable

Table 2.

Foreign bank entry (FBSN) effect on banks' performance

Variable	D(ALINT)	D(PTPTA)	D(OOITA)	D(OHTA)	D(LLPTA)
LD(DEP)	0.0185	0.1898	0.0217	0.3240	0.2061*
	(0.0238)	(0.1304)	(0.0961)	(0.2795)	(0.1096)
D(FBSN)	–0.1277***	–0.0252	–0.0583	–0.0024	–0.0700*
	(0.0387)	(0.0408)	(0.0713)	(0.0503)	(0.0409)
D(NEATA)	0.1109*	0.0355	0.4998*	0.4282	–0.0251
	(0.0603)	(0.0414)	(0.2979)	(0.3328)	(0.0773)
D(ETA)	–0.1535	0.3968***	–0.0244	–0.2211	0.0100
	(0.1027)	(0.1310)	(0.3568)	(0.3459)	(0.0964)
D(CSTFTA)	–0.0242	0.0543	0.1437	0.0100	0.0498
	(0.0345)	(0.0369)	(0.0886)	(0.0767)	(0.0416)
D(MSHARE)	0.1722	0.2006*	–0.6116**	–0.6354*	–0.1750*
	(0.1698)	(0.1089)	(0.3001)	(0.3334)	(0.1032)
FD	0.0119	–0.0347	0.0086	0.0347	0.0249
	(0.0147)	(0.0295)	(0.0579)	(0.0677)	(0.0226)
D(DCGDP)	–0.0247**	0.0574	0.5085***	0.5294*	0.1648***
	(0.0295)	(0.0505)	(0.1736)	(0.3165)	(0.0610)
D(GGDP)	–0.4700***	–0.0125	–0.3006**	–0.4822*	–0.0464
	(0.1669)	(0.1186)	(0.1462)	(0.2508)	(0.1218)
D(LNIN-COME)	0.0039	–0.0072	–0.2695**	–0.2694*	–0.0651
	(0.0440)	(0.0488)	(0.1293)	(0.1454)	(0.0519)
D(CPI)	–0.0036	0.0051	0.0344	0.0103	0.0026
	(0.0033)	(0.0043)	(0.0266)	(0.0259)	(0.0018)
D(MMR)	0.0322				
	(0.0480)	–	–	–	–
Nr. Obs	1036	1041	1035	2021	895
F-Statistic	4.13	2.91	2.08	1.29	2.60

Source: author's calculations
Note: * – significant at 10% level, **– significant at 5% level, ***– significant at 1% level.

FBSN has a statistically significant and negative effect on banks' average interest rate on earning assets and loan loss provisions (LLPTA). We tested the foreign banks entry effect

also on the banks' net interest margin, but found no statistically significant relations. Therefore ALINT was used to analyse the effect on interest revenues. It seems that foreign banks entry has a significant effect only on interest income of interest earning assets and not on interest expenses. Hermes and Lensink (2003) found a positive and significant effect of FBSN on non-interest income, whereas Zajc (2002) found similar results. A negative relationship with profitability measures indicates that foreign banks entry enhances the level of competition in the banking sector.

As foreign banks entry is negatively related with the average loan interest rate, we can conclude that hypothesis 1 is supported by the empirical results.

A negative relationship between FBSN and LLPTA shows that foreign banks entry leads to more strict lending policies of the local banks. No cherry-picking behaviour among foreign banks compared with the domestic banks was found, as FD was in-significant.

FBSN is not statistically associated with profits, overhead costs and non-interest income of banks. Therefore hypotheses 2, 3 and 4 were not supported by this regression estimation. We excluded the banking market concentration index from our estimation equations because of no significant effect on any dependent variables.

FSA has a somewhat different effect on bank performance. The estimation results in Table 3 show that FSA has a negative effect on the average loan interest rate and a positive effect on loan loss provisions. As proposed by hypotheses 2 and 5, foreign banks entry may have both positive and negative effects on non-interest income and loan loss provisions. FSA reflects the relative size of foreign banks versus domestic banks.

Table 3.

Foreign banks entry (FSA) effect on bank performance

Variable	D(ALINT)	D(PTPTA)	D(OOITA)	D(OHTA)	D(LLPTA)
LD(DEP)	0.0167	0.1809	0.0537	0.3541	0.2162**
	(0.0223)	(0.1274)	(0.1099)	(0.2848)	(0.1112)
D(FSA)	–0.0417**	–0.0203	0.0512	0.0617	0.0251**
	(0.0168)	(0.0145)	(0.0340)	(0.0478)	(0.0117)
D(NEATA)	0.1116*	0.0379	0.5076*	0.4375	–0.0253
	(0.0594)	(0.0425)	(0.3065)	(0.3451)	(0.0791)
D(ETA)	–0.1648	0.3966***	–0.0321	–0.2304	0.0101
	(0.1036)	(0.1315)	(0.3647)	80.3555)	(0.0957)
D(CSTFTA)	–0.0285	0.0495	0.1345	–0.0029	0.0469
	(0.0316)	(0.0370)	(0.0889)	80.0796)	(0.0403)
D(MSHARE)	0.2048	0.2166	–0.6168**	–0.6512*	–0.1766*
	(0.1695)	(0.1135)	(0.3141)	(0.3422)	(0.0963)
FD	0.0125	–0.0284	–0.0067	0.0227	0.0140
	(0.0193)	(0.0308)	(0.0539)	(0.0648)	(0.0187)
D(DCGDP)	0.0088	0.0598	0.5347***	0.5350	0.1897***
	(0.0340)	(0.0472)	(0.1814)	(0.3362)	(0.0641)
D(GGDP)	–0.4745***	–0.0120	–0.3154**	–0.4654**	–0.0700
	(0.1681)	(0.1133)	(0.1453)	(0.2470)	(0.1092)
D(LNIN-COME)	0.0280	0.0018	–0.2905**	–0.2909**	–0.0675
	(0.0447)	(0.0503)	(0.1367)	(0.1591)	(0.0523)
D(CPI)	–0.0028	0.0054	0.0347	0.0104	0.0037*
	(0.0031)	(0.0043)	(0.0261)	(0.0264)	(0.0020)
D(MMR)	0.0703				
	(0.0463)	–	–	–	–
Nr. Obs	1023	1028	1022	1009	884
F-Statistic	3.63	3.57	1.75	1.26	2.88

Source: author's calculations

Note: * – significant at 10% level, ** – significant at 5% level, *** – significant at 1% level.

The estimation results indicate that if entering foreign banks are comparatively larger than the local banks, then due to the increasing competition on the loan market, the banks offer

better loan conditions to firms and this could result in increasing loan losses. From other explanatory variables, MSHARE is negatively associated with overhead costs and non-interest income and positively associated with profits. The results indicate that bigger banks are able to achieve some economies of scale.

The estimation results with interactive term with foreign ownership (FBSN) and banking sector development are given in Table 4. The results indicate that the development of the banking sector has some effect on short-term foreign banks entry effects. As concluded above, foreign banks entry is generally associated with decreasing interest incomes. Estimations with interactive term FBSN*DCGDP show that in more developed banking markets this fall in interest revenues is lower, because interest rates are already more converged with developed markets.

FSA*DCGDP has a significant effect on average loan interest rates, pre-tax profits and non-interest incomes. Foreign banks entry reduces the profitability of the local banks, but in more developed markets this fall is lower because the entering bank does not have such a high competitive advantage as in less developed countries.

The development of the banking market has also some effect on banks' overhead costs. Therefore we found some support to hypothesis 6. Our results indicate that in countries with a lower level of financial sector development, foreign entry is more related with higher overhead costs, but for countries with a higher level of financial sector development, foreign entry causes less and less extra costs for banks because the banking system is already developed and fewer additional investments are needed to upgrade the banking equipment.

Table 4.

Foreign banks entry (FBSN) effects:
role of the banking market development

Variable	D(ALINT)	D(PTPTA)	D(OOITA)	D(OHTA)	D(LLPTA)
LD(DEP)	0.0165	0.1916	0.0450	0.3229	0.2013*
	(0.0220)	(0.1302)	(0.1183)	(0.2899)	(0.1095)
D(FBSN)	–0.2293***	0.0617	0.3104	0.3382*	–0.0388
	(0.0820)	(0.0790)	(0.2312)	(0.2036)	(0.0845)
D(FBSN* DCGDP)	0.3620**	–0.2922*	–1.2258**	–1.1266*	–0.1072
	(0.1768)	(0.1644)	(0.5979)	(0.6814)	(0.1862)
D(NEATA)	0.1008*	0.0408	0.5233*	0.4417	–0.0251
	(0.0609)	(0.0413)	(0.3022)	(0.3260)	(0.0786)
D(ETA)	–0.1497	0.3929***	–0.0455	–0.2406	0.0091
	(0.1008)	(0.1316)	(0.3722)	(0.3540)	(0.0972)
D(CSTFTA)	–0.0233	0.0535	0.1394	0.0075	0.0491
	(0.0341)	(0.0371)	(0.0892)	(0.0757)	(0.0414)
D(MSHARE)	0.1581	0.2099**	–0.5791**	–0.6052*	–0.1727*
	(0.1731)	(0.1043)	(0.2922)	(0.3291)	(0.1021)
FD	0.0083	–0.0345	0.0094	0.0362	0.0253
	(0.0146)	(0.0291)	(0.0609)	(0.0699)	(0.0225)
D(DCGDP)	–0.1552**	0.1395	0.8693***	0.8543*	0.1952*
	(0.0751)	(0.0858)	(0.3375)	(0.5093)	(0.0925)
D(GGDP)	–0.4254***	–0.0146	–0.3061**	–0.4932**	–0.0561
	(0.1514)	(0.1196)	(0.1466)	(0.2479)	(0.1268)
D(LNIN-COME)	0.0191	–0.0013	–0.2621**	–0.2606*	–0.0610
	(0.0463)	(0.0468)	(0.1269)	(0.1431)	(0.0518)
D(CPI)	–0.0063	0.0067	0.0404	0.0164	0.0033*
	(0.0041)	(0.0042)	(0.0287)	(0.0277)	(0.0018)
D(MMR)	0.0702*				
	(0.0402)	–	–	–	–
Nr. Obs	1036	1041	1035	1021	895
F-Statistic	4.02	2.97	1.85	1.2	2.63

Source: author's calculations
Note: * – significant at 10% level, **– significant at 5% level, ***– significant at 1% level.

The results show that foreign banks entry reduces non-interest incomes of the local banks, but the coefficient may turn positive in more developed markets, where competition is more intense. We found limited support to hypothesis 6. One reason for the limited role of the banking sector development on foreign entry effects can be the homogenous sample of countries.

Generally, lags of difference of dependent variables do not have statistically significant coefficients. From among other explanatory variables, the ratio of bank equity to total assets is positively correlated with bank profits.

Next we introduce the interactive term with foreign banks entry variable and a bank's market share. It can be expected that small banks react to foreign banks entry somewhat differently from big banks. Obviously, banks having a bigger market share react less to foreign banks entry. This can be so because firstly, they are too big to react so quickly and secondly, banks with high market shares may care less about foreign entry, because it affects them less than small banks.

Our estimation results in Table 6 show that the role of the bank's market share in foreign entry effects is very limited. The interactive term FBSN*MSHARE has a statistically significant negative effect on non-interest income and loan loss provisions. Bigger banks tend to have lower loss provisions, indicating that they have comparably more creditworthy clients and/or a better credit risk policy. We found no significant coefficients for FSA*MSHARE, therefore those results are not reported.

Table 5.

Foreign banks entry (FSA) effects:
role of the banking market development

Variable	D(ALINT)	D(PTPTA)	D(OOITA)	D(OHTA)	D(LLPTA)
LD(DEP)	0.0160	0.1805	0.1391	0.4027	0.2184**
	(0.0220)	(0.1264)	(0.1446)	(0.3073)	(0.1117)
D(FSA)	0.0651*	–0.1366***	–0.3075**	–0.2444	–0.0235
	(0.0347)	(0.0387)	(0.1248)	(0.1864)	(0.0409)
D(FSA* DCGDP)	–0.3371***	0.3512***	1.0882**	0.9311	0.1476
	(0.1066)	(0.1135)	(0.4342)	(0.6640)	(0.1287)
D(NEATA)	0.1103*	0.0382	0.5074	0.4342	–0.0266
	(0.0588)	(0.0414)	(0.3104)	(0.3474)	(0.0779)
D(ETA)	–0.1665	0.3948***	–0.0314	–0.2306	0.0114
	(0.1036)	(0.1309)	(0.3819)	(0.3653)	(0.0960)
D(CSTFTA)	–0.0282	0.0492	0.1318	–0.0064	0.0469
	(0.0314)	(0.0368)	(0.0914)	(0.0820)	(0.0402)
D(MSHARE)	0.2130	0.2043*	–0.6698**	–0.6962*	–0.1838*
	(0.1696)	(0.1106)	(0.3350)	(0.3746)	(0.0989)
FD	0.0109	–0.0286	0.0019	0.0301	0.0144
	(0.0167)	(0.0376)	(0.0389)	(0.0564)	(0.0166)
D(DCGDP)	0.1894***	–0.1690***	–0.1452**	–0.0507	0.0989
	(0.0738)	(0.0569)	(0.1361)	(0.1324)	(0.0539)
D(GGDP)	–0.4151***	–0.0095	–0.3574	–0.4927**	–0.0690
	(0.1570)	(0.1121)	(0.1718)	(0.2740)	(0.1094)
D(LNIN-COME)	–0.0017	0.0530	–0.1173	–0.1498*	–0.0476
	(0.0450)	(0.0491)	(0.0771)	(0.0752)	(0.0459)
D(CPI)	–0.0057*	0.0071*	0.0376	0.0136	0.0044**
	(0.0034)	(0.0043)	(0.0280)	(0.0288)	(0.0022)
D(MMR)	0.1173***				
	(0.0433)	–	–	–	–
Nr. Obs	1023	1028	1022	1009	884
F-Statistic	4.53	3.93	1.32	1.36	3.00

Source: author's calculations
Note: * – significant at 10% level, ** – significant at 5% level, *** – significant at 1% level.

Table 6.

Foreign banks entry (FBSN) and bank performance: role of a bank's market share

Variable	D(ALINT)	D(PTPTA)	D(OOITA)	D(OHTA)	D(LLPTA)
LD(DEP)	0.0184	0.1876	0.0307	0.3429	0.2015*
	(0.0238)	(0.1299)	(0.0989)	(0.2916)	(0.1079)
D(FBSN)	–0.1171***	–0.0103	–0.1275**	–0.0816	–0.1008**
	(0.0415)	(0.0419)	(0.0642)	(0.0822)	(0.0426)
D(FBSN* MSHARE)	–0.1664	–0.2505	1.1796*	1.3582	0.4665***
	(0.2358)	(0.1551)	(0.6216)	(0.9280)	(0.1414)
D(NEATA)	0.1103*	0.0348	0.5029*	0.4302	–0.0236
	(0.0601)	(0.0413)	(0.2977)	(0.3335)	(0.0760)
D(ETA)	–0.1542	0.3968***	–0.0243	–0.2209	0.0103
	(0.1026)	(0.1310)	(0.3582)	(0.3504)	(0.0961)
D(CSTFTA)	–0.0253	0.0534	0.1482*	0.0148	0.0517
	(0.0346)	(0.0371)	(0.0885)	(0.0760)	(0.0413)
D(MSHARE)	0.2071	0.2526**	–0.8549**	–0.9185*	–0.2989**
	(0.2053)	(0.1083)	(0.4245)	(0.5143)	(0.1204)
FD	0.0162	–0.0246	–0.0401	–0.0245	0.0084
	(0.0110)	(0.0262)	(0.0380)	(0.0315)	(0.0134)
D(DCGDP)	–0.0259	0.0561	0.5178***	0.5461*	0.1717***
	(0.0290)	(0.0506)	(0.1736)	(0.3270)	(0.0606)
D(GGDP)	–0.4653***	–0.0080	–0.3201**	–0.5040*	–0.0542
	(0.1693)	(0.1194)	(0.1529)	(0.2648)	(0.1203)
D(LNINCOME)	0.0051	–0.0054	–0.2790**	–0.2819*	–0.0721
	(0.0447)	(0.0488)	(0.1318)	(0.1527)	(0.0521)
D(CPI)	–0.0036	0.0052	0.0339	0.0096	0.0024
	(0.0033)	(0.0043)	(0.0265)	(0.0258)	(0.0018)
D(MMR)	0.0335				
	(0.0484)	–	–	–	–
Nr. Obs	1036	1041	1035	1021	895
F-Statistic	4.27	3.87	2.1	1.24	2.59

Source: author's calculations

Note: * – significant at 10% level, **– significant at 5% level, ***– significant at 1% level.

A summary of results and comparison with other studies is given in Table 7. Our results are consistent with earlier studies, having, however, some differences. It can be generalised that foreign banks entry is negatively correlated with the income variables (ALINT, PTPTA and OOITA) and foreign banks entry is also negatively associated with loan loss provisions. Overhead costs are positively correlated with FBSN, but the increase is less important for countries with higher DCGDP, therefore the results support the technology gap hypothesis. Hermes and Lensink (2002, 2003) and Zajc (2002) have also found positive and significant effects of foreign banks entry on overhead costs. In most studies, foreign banks entry is negatively correlated with non-interest income; Hermes and Lensink (2003) found positive and significant correlation between foreign banks entry and non-interest income.

For the sake of comparison, we have calculated parameter estimates also with the fixed effects OLS model. The summary of the results is reported in Appendix 2. There are some minor differences between Arellano-Bond estimation results and fixed effects results. On the whole, we can say that Arellano-Bond and OLS fixed effects models yield quite similar results. Therefore our parameter estimates are generally robust against different estimation methodologies.

Table 7.

Summary of the results and comparison with earlier studies

	Model	Net int. margin; ALINT	Non-interest income	Before tax profit	Overhead expenses	Loan loss provisions
Results	FBSN	–	NS	NS	NS	–
	FSA	–	NS	NS	NS	+
	FBSN	–	NS	NS	+	NS
	FBSN*DCGDP	+			–	
	FSA	+	–	–	NS	NS
	FSA*DCGDP	–	+	+		
	FBSN	NS	–	NS	NS	–
	FBSN*MSHARE		+			+
	FSA	NS	NS	NS	NS	NS
	FSA*MSHARE					
Claessens et al. (2001)	FBSN	NS	–	–	–	NS
	FSA	NS	NS	NS	NS	NS
Hermes and Lensink (2003a)	FBSN	+	+	–	+	+
	FBSN*DCGDP	–	–	+	–	–
Hermes and Lensink (2003b)	FBSN	+	+	–	+	+
	FBSN*GDPPC	–	–	+	–	–
	FSA	+	+	–	+	+
	FSA*GDPPC	–	–	NS	NS	–
Zajc (2002)	FBSN	NS	–	–	+	NS
	FSA	–	–	–	+	NS

Note: + indicates a significant positive correlation
– indicates a significant negative correlation
NS indicates a relationship that is not statistically significant

Source: Author, Claessens et al. (2001), Hermes and Lensink (2003 a,b), Zajc (2002)

7. CONCLUSIONS

This paper serves to demonstrate the impact of foreign banks entry (measured as a change of foreign banks share in the total number of banks) on bank performance in the CEE countries. We combined bank-level micro data with macroeconomic and banking sector development indicators to estimate foreign banks entry effects. The main methodological difference with previous studies was that both domestic and foreign banks were included into the study and Arellano-Bond estimations were used instead of fixed effects. In previous studies, only domestic banks were observed. The reason for including all banks into the sample was to analyse foreign banks entry effects on the whole banking market and also because in many countries foreign banks clearly dominate the market.

Our results indicated that foreign banks entry is associated with lower before tax profits, non-interest income, average loan interest rate and loan loss provisions. We found limited evidence that foreign entry increases a bank's overhead costs in the short run. The results generally suggest that foreign banks entry enhances competition in the market.

The role of the development of the banking sector was also analysed. The estimation results indicate that in more developed banking markets foreign banks entry is less associated with decreasing incomes and loan loss provisions than in less developed banking markets. In more developed markets, overhead costs of banks are less likely to increase. The results show that banks with higher market shares react less on foreign banks entry in terms of non-interest income and loan loss provisions.

The results support hypotheses 1, 2, 5 and 6, while the support to hypotheses 3, 4 and 7 is limited. Our results are consistent with previous studies with some exceptions, which indicates that transition economies are a somewhat special case in terms of foreign banks entry effects.

The overall conclusion of the paper is that foreign banks entry is likely to raise the competitive level of the Central and Eastern European countries. In further research it would be interesting to study the effect of foreign banks entry on the stability of the banking markets in the CEE countries.

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KOKKUVÕTE

Välispankade turule sisenemise mõju pankade tegevusedukusele Kesk- ja Ida-Euroopa riikides

Välispankade sisenemine Kesk- ja Ida-Euroopa (KIE) riikidesse on olnud väga aktuaalne juba alates 90-date algusest. Praeguseks on enamikes KIE riikides välispankadel juba selgelt domineeriv positisioon. Välispankade osakaalu kasvuga turul võivad kaasneda mitmed positiivsed ja ka võimalikud negatiivsed efektid. Senistes uuringutes on jõutud järeldusele, et välispankade sisenemine vähemarenenud pangandussektoriga riikidesse aitab kaasa stabiilsuse ning konkurentsi kasvule pangandusturul. Käesoleva artikli eesmärk on hinnata empiiriliselt välispankade turule sisenemise mõju kohalike pankade tegevusedukusele KIE riikides. Valimisse kuulub 219 panka kümnest KIE riigist (Bulgaaria, Horvaatia, Eesti, Läti, Leedu, Poola, Ungari, Tšehhi, Sloveenia, Slovakkia). Uurimuses kasutati paneelandmeid aastatest 1995–2001. Andmete võrreldavuse parandamiseks on üksikpankade finantsandmeid täiendatud riigispetsiifiliste näitajatega. Välisosalust väljendati välispankade osakaaluga pankade koguarvust ning välispankade varade osakaaluga pankade koguvarades.

Uuringu tulemused näitavad, et välispankade osakaalu suurenemine KIE riikides on negatiivses korrelatsioonis kohalike pankade varade intressitulutootlusega, varade kasumitootlusega ja varade mitteintressitulu tootlusega. Välisosaluse mõju pankade laenukahjumite provisjonidele jäi ebaselgeks, kuna erineva välisosakaalu arvutamise metoodika kasutamine andis erinevaid tulemusi. Uurimuses hinnati ka välispankade osakaalu ja pangandusturu arengu indikaatori ning välispankade osakaalu ja

üksikpanga turuosa vahelisi koosmõjusid. Analüüsi tulemused näitavad, et välisosaluse kasv toob enam arenenud pangandusturul kaasa kohalike pankade väiksema üldkulude kasvu ja väiksema kasumlikkuse vähenemise. Koosmõjude analüüs näitas, et suurema turuosaga pankadel vähenevad varade mitteintressitulutootlus ja laenukahjumite provisjonide osa koguvarades seoses välisosaluse suurenemisega aeglasemalt. Selline tulemus viitab suuremate pankade tulude ja laenukahjumite inertsusele. Empiirilise analüüsi üldine järeldus on, et välispankade sisenemine KIE riikidesse on seotud kohalike pankade kasumimarginaali vähenemisega, mis on märk kasvavast konkurentsist.

Appendix 1

Description of variables

Variable	Source	Description
FBSN	Central banks, EBRD	Number of foreign banks as percentage of all banks in a given country and year
FSA	BankScope	Share of foreign banks' assets in total banking market assets in a given country and year
NIM	BankScope	Net interest income (interest income minus interest expense) over total assets
ALINT	BankScope	Interest income to interest earning assets
PTPTA	BankScope	Before tax profit over total assets
OOITA	BankScope	Non-interest income over total assets
OHTA	BankScope	Total operating expenses (all but interest expenses) over total assets
LLPTA	BankScope	Loan loss provisions over total assets
ETA	BankScope	Equity over total assets
NEATA	BankScope	Non-interest earning assets over total assets
CSTFTA	BankScope	Short- and long-term deposits, and other non-deposit short-term funding over total assets
MSHARE	BankScope	Bank assets to total banking market assets in a given year
GGDP	EBRD	Real GDP annual growth rate
INCOME	EBRD	GDP per capita in US dollars
CPI	EBRD	Annual CPI change
MMR	IFS	End of year money market interest rate
DCGDP	IFS	Private credit to the GDP in a given country and year

Note: all variables are in percentages except GDP per capita (in US dollars (th.), 1995 prices)

Source: Central banks' home pages, EBRD Transition Report 2002, Fitch IBCA's BankScope database, Asly Demirgüç–Kunt, Financial Structure and Economic Development Database, Worldbank, [http://www.worldbank.org/research/projects/Finstructure/database.htm]; International Monetary Fund. International Financial Statistics Yearbook 2002.

Appendix 2

Summary of estimations with fixed effects

	Model	ALINT	Non-interest income	Before tax profit	Overhead expenses	Loan loss provisions
Results	FBSN	–	–	–	NS	NS
	FBSN	NS	+	NS	+	NS
	FBSN*DCGDP		–		–	
	FBSN	NS	–	NS	NS	–
	FBSN* MSHARE		+			+
	FSA	NS	NS	–	NS	+
	FSA	NS	–	–	NS	NS
	FSA*DCGDP		+	+		
	FSA	NS	NS	NS	NS	NS
	FSA*MSHARE					

Source: author's calculations
Note: + indicates a significant positive correlation
– indicates a significant negative correlation
NS indicates a relationship that is statistically insignificant