

Ownership structure and profitability of the banking sector: The evidence from the SEE region *

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Abstract

The purpose of the paper is to investigate the relationship between bank ownership and bank profitability in six South-Eastern European countries (SEE-6): Croatia, Bulgaria, Romania, Serbia, FYR Macedonia and Albania. Like in most other Eastern European countries the transition period in the selected set of six Balkan countries was characterised by a large influx of foreign investors, mostly Western European banks. As most of the authors emphasize the beneficial effects of foreign banks entry in developing Eastern European economies, it is still very little evidence on the impact of foreign owned banks on the profitability in the banking industry in the SEE-6 region. Partly, these countries were included as a subset in some others, much broader studies, but the research performed specifically for this region is scarce. The empirical analysis is based on the available individual bank data provided by BankScope database. The profitability indicators are selected following the recently published studies in the field. In the first part of the analysis the profitability differences between foreign owned and domestic banks are tested, whereas in the second part the bank level and country level determinants of specific profitability indicators for foreign and domestic banks are detected, using the regression analysis. Results do not reveal any substantial statistically significant differences between profitability measures of domestic and foreign owned banks, while the econometric tests identify several factors that are clearly associated with bank profitability.

Key words: banking, profitability, determinants, ownership, South-Eastern Europe

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1. Introduction

Banking sectors in Eastern Europe have undergone a remarkable transformation from the beginning of the 1990s, which resulted in a relatively consolidated and to a large extent privatized banking industry that is characterized by a heavy presence of foreign owned banks. While several authors emphasize the beneficial effects of foreign banks' entry in developing Eastern European economies (e.g. Fries and Taci, 2005), there is still very little evidence on the impact of foreign-owned banks on bank performance in the South-East European region. Some of the countries from the region were included as subsets in broader studies (e.g. Demirguc-Kunt and Huizinga, 1999), but research focused on this region is scarce.

The purpose of this paper is to investigate the relationship between bank ownership (foreign vs. domestic) and bank profitability in six South-Eastern European countries (SEE-6): Albania, Bulgaria, Croatia, FYR Macedonia, Romania, and Serbia & Montenegro, using individual bank data.

In section 2 we describe the banking sector developments in selected SEE-6 countries, section 3 reviews the findings of previous studies on foreign bank entry and banking industry performance measurement. Section 4 introduces the characteristics and corresponding variables that can be explored as bank performance determinants. In section 5 data and methodology are explained. Section 6 brings two sets of the empirical results. First, the outcome of the profitability indicators' equality testing for each country in the sample, and second, the results of the four profitability models, explaining the determinants of bank profitability, using pooled data across all analysed countries. Section 7 concludes.

2. Banking sector development in the selected SEE-6 countries

Performance analysis in this paper focuses on banking sectors in six Balkan countries: Albania, Bulgaria, Croatia, FYR Macedonia, Romania, and Serbia and Montenegro³. This region is considered to be highly heterogeneous with regard to the stage of integration with the EU, the level of economic development, the degree of financial intermediation and the development of banking sector. Despite the differences among countries the overall size of banking sector (measured by total assets or loans extended to private sector) is small in comparison to the EU banking sectors. Consequently, a degree of financial intermediation remains significantly smaller than in the EU countries, although the region is quickly developing in all respects.

The lower development stage of banking sector has the roots in the pre-transition political and economic history. Since the beginning of transition in the early 1990s,

³ In the analysed period, until 2004, Serbia & Montenegro constituted one country.

the banking sector in all transition economies has undergone tremendous changes. However, the starting position in the individual countries in the SEE-6 group was quite diverse. According to Bonin (2004), former centrally planned economies used to be characterized by a noticeable structural segmentation (i.e. large specialty banks monopolizing specific market segment), state ownership of a significant proportion of banking assets and high concentration ratios. Conversely, banking system in former Yugoslav Republics (Croatia, FYR Macedonia and Serbia & Montenegro in our sample) used to be a two-tier banking system, with universal banks operating in individual Republics. Furthermore, banks were not state-owned (since 1950s), rather they were owned collectively according to the principles of Yugoslav self-management (Bonin, 2004). Introduction of internal company banks in the late 1970s further contributed to a more diverse banking structure.

Despite the pre-transition historical differences, during the past decade the banking systems in SEE-6 have been transformed by three major trends - privatisation, consolidation and the entry of foreign banks on a large scale (Turner, 2006). The role of foreign-owned banks has become dominant in Central and Eastern Europe, including in the SEE-6 countries. Foreign banks penetrated these markets either directly by establishing greenfield operations or by participating in privatisation of domestic state-owned banks. The latter represented an important entry channel for foreign banks.

Table 1 illustrates rapidly growing proportion of foreign-owned banks⁴ in total number of banks in all SEE-6 countries since the mid-1990s. At the end of 2004, the proportion of foreign-owned banks was the highest in Albania, where it reached 87.5 percent, followed by Romania with 71.9 percent and Bulgaria with 68.6 percent in total number of banks. In Croatia and FYR Macedonia the proportion of foreign-owned banks was 40.5 percent and 38.1 percent respectively, while the banking sector in Serbia & Montenegro was largely dominated by domestic-owned banks.

The data on asset share (Table 2) to some degree mirrors the data on the proportion of foreign-owned banks in total number of banks. Serbia & Montenegro, with the smallest proportion of foreign-owned banks in total number of banks, had also the smallest market share under control of foreign-owned banks (37.7 percent of total assets), whereas foreign-owned banks in Croatia and Bulgaria controlled 91.2 percent and 81.6 percent of the total banking assets, respectively. Thus these data also reveal the size structure of the individual banking sectors and/or the size structure of banks controlled by foreign shareholders. Namely, for example foreign banks in Croatia represented only 40.1 percent of total number of banks, but on the other hand they represented 91.2 percent of total banking assets in the country, indicating that mostly large banks have got under control of foreign shareholders.

⁴ As foreign-owned banks are considered the banks where foreign ownership exceeds 50 percent

Table 1: The proportion of foreign-owned banks in total number of banks in SEE-6 countries for the 1995-2004 period

– in percent (%)

Countries	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Bulgaria	7.3	7.1	25.0	50.0	64.7	71.4	74.3	76.5	71.4	68.6
Romania	25.0	25.8	39.4	44.4	55.9	63.6	72.7	77.4	70.0	71.9
Croatia	1.9	6.9	11.5	16.7	24.5	48.8	55.8	50.0	46.3	40.5
Albania	50.0	37.5	33.3	80.0	84.6	92.3	92.3	92.3	86.7	87.5
Macedonia	50.0	22.7	9.1	25.0	21.7	31.8	38.1	35.0	38.1	38.1
Serbia & Montenegro	---	---	---	---	4.0	3.7	14.8	24.0	34.0	25.6

Note: Foreign-owned banks are defined as those with foreign ownership exceeding a 50 % share as end-of-year.

Source: EBRD, Transition report, different issues

Table 2: Asset share of foreign-owned banks in SEE-6 countries for the 1999-2004 period

– in percent (%)

Countries	1999	2000	2001	2002	2003	2004
Bulgaria	42.8	75.3	72.7	75.2	82.7	81.6
Romania	43.6	46.7	51.4	52.9	54.8	58.5
Croatia	40.3	84.1	89.3	90.2	91.0	91.2
Albania	18.9	35.2	40.8	45.9	47.1	---
Macedonia	11.5	53.4	51.1	44.0	47.0	47.3
Serbia & Montenegro	0.4	0.5	13.2	27.0	38.4	37.7

Note: Share of total bank sector assets in banks with foreign ownership exceeding 50%, as of end-of-year.

Source: EBRD, Transition report, different issues

The lowest proportion of foreign-owned banks in Serbia & Montenegro is largely a consequence of lower degree of banking sector privatisation as compared to the other countries in SEE-6 group. At the end of 2004, state-owned banks in Serbia & Montenegro still represented 23.4 percent of total banking market in the country, while their share was well below 10% in the rest of the SEE-6 group (Table 3). In Albania for example, banks have been almost completely privatised⁵, whereas in Bulgaria, Croatia and Macedonia, state-owned banks controlled 2 – 3 percent of the market, and in Romania 7.5 percent of the market at year end 2004. For most of the

⁵ According to CEE Banking Sector Report (RZB Group, 2005) there are still two minority state stakes left to be sold in the Italian Albanian Bank and in the United Bank of Albania.

countries in the SEE-6 group the percentage of foreign-owned banks has increased substantially in the 1995 – 2004 period. In most of these countries relatively large proportions of foreign-owned banks and rapid changes in their cumulative market share can be explained by a relatively low total number of banks at the beginning of economic transition, which, however, has increased through the 1990s and after the year 2000.

Table 3: Asset share of state-owned banks in SEE-6 countries for the 1995-2004 period

– in percent (%)

Countries	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Bulgaria	0	82.2	66	56.4	50.5	19.8	19.9	14.1	2.5	2.3
Romania	84.3	80.9	80	75.3	50.3	50	45.4	43.6	40.6	7.5
Croatia	51.9	36.2	32.6	37.5	39.8	5.7	5	4	3.4	3.3
Albania	94.5	93.7	89.9	85.6	81.1	64.8	59.2	54.1	51.9	0
Macedonia	0	0	0	1.4	2.5	1.1	1.3	2	1.8	1.9
Serbia & Montenegro	94.7	92	89.8	90	89	90.9	68	35.6	34.1	23.4

Note: State-owned banks are defined as those with state ownership exceeding a 50 % share as end-of-year.

Source: EBRD, Transition report, different issues

As it is evident from the data, the potential for foreign bank entry through the state-owned banks privatisation in the SEE-6 region remains insignificant.

3. Foreign bank entry and performance in banking sector

There exists a substantial body of the literature focusing on performance measurement and on analysis of performance determinants in banking. Studies on foreign bank entry and performance represent a quite extensive part of this literature. Initially these studies focused almost exclusively on individual countries. They tried to identify any systematic differences in bank performance and establish possible relationships with the ownership structure or the origin of banking firms. Although some surveys date back to the 1980s, an important progress in the field was made in the 1990s. DeYoung and Nolle (1996) made a significant contribution with their research where they investigated relative profit efficiency of foreign-owned U.S. banks and U.S.-owned banks between 1985 and 1990. Their results suggest that foreign-owned U.S. banks were significantly less profit efficient than U.S.-owned banks during the investigated period. Since in that period foreign banks expanded rapidly in the U.S. market, the results were consistent with the hypothesis that foreign banks sacrificed profitability in exchange for increased market share.

Similarly, Williams (1998) investigated factors affecting the performance of foreign owned banks in Australia. Consistent with DeYoung and Nolle (1996) results, he found that foreign banks in Australia were willing to sacrifice profits to achieve size targets. Namely foreign bank size was found to be a positive function of holding a bank licence, parent size and duration of operations in Australia, and a negative function of Australian net interest margins and fees. His research further reveals that profits in the host nation are a function of firm characteristics and nation-specific factors, with the nation-specific factors being relatively the least important. In his latter work, Williams (2003) integrates the existing multinational bank literature with the domestic bank profits literature. One of the most important conclusions based on the integrated approach applied to Australian banking market was that concentration in the host market reduces profits of the foreign entrants. Thus the market concentration acts as an effective barrier to entry.

Results of the research performed in the individual banking markets represented a challenge for researchers who tried to broaden the scope of bank profitability empirical investigation to multinational level. Demirguc-Kunt and Huizinga (1999) analysed determinants of commercial bank interest margins and profitability for 80 countries in the 1988–1995 period. According to their findings, in developing countries, foreign banks have higher net interest margins and profits than domestic banks, while the opposite holds for developed countries. Their analysis also shows that a larger ratio of bank assets to GDP and a lower market concentration ratio lead to lower margins and profits, controlling for differences in bank activity, leverage, and the macroeconomic environment. The same authors (Demirguc-Kunt and Huizinga, 2000) investigated the impact of the level of financial development and market structure on bank performance using bank level data for a large number of developed and developing countries over the 1990–1997 period. Their results indicate that a higher level of bank development lowers banks' profits and margins, which can be explained by the fact that higher level of development brings tougher competition, higher efficiency and lower profits. Claessens, Demirguc-Kunt and Huizinga (2001) focused on studying the effect of foreign entry on domestic banking markets and confirmed the results of the Demirguc-Kunt and Huizinga (1999) study.

Martinez Peria and Mody (2004) analysed the impact of foreign participation and high concentration level on the evolution of banking sectors' market structures in five Latin American countries in the late 1990s. Their results suggest that foreign banks were able to charge lower spreads relative to domestic banks. This particular characteristic proved to be more typical for "de novo" banks than for those that entered through acquisitions. Further, their results indicate that the overall level of foreign bank participation influenced spreads indirectly, primarily through its effect on administrative costs.

In a more recent paper, Micco et al. (2006) used a fairly broad data set, covering the period 1995-2002, to reassess the relationship between bank ownership and

bank performance, providing separate estimations for the developing and industrial countries. Specifically, the authors focus on the question whether the differential in performance between public and private banks is driven by political considerations. Their findings suggest that state-owned banks located in the developing countries tend to have lower profitability and higher costs than their private counterparts, and that the opposite is true for foreign-owned banks. They did not find a strong correlation between ownership and performance for banks located in industrial countries.

The research on bank performance and more specifically on bank profitability covering European banking sectors has lagged the research on U.S. banking and used to be relatively scarce through the 1990s (one exceptions is Molyneux and Thornton, 1992). In recent research efforts Goddard et al. (2004) studied profitability determinants in six European banking sectors (Denmark, France, Germany, Italy, Spain and the UK) for the period 1992–1998. Their results suggest that despite intensifying competition it was possible to detect significant persistence of abnormal bank profits from year to year. Although they found some significant size-profit relationships in some of the estimations, the evidence for any consistent or systematic size-profitability relationship was not found. Apart from that they discovered a positive relationship between the capital-asset ratio and profitability, but systematic relationship between ownership type and profitability could not be established. Pasiouras and Kosmidou (2006) examined bank-specific and environmental factors influencing the profitability of domestic and foreign commercial banks in 15 EU countries over the period 1995 – 2001. Their results indicate that profitability of both domestic and foreign banks is affected not only by bank-specific characteristics but also by financial market structure and macroeconomic conditions.

Despite the existence of several multi-market studies in the EU some researchers focus their attention on specific individual banking markets in the region. Athanasoglou et al. (2006) examined the effect of bank-specific, industry-specific and macroeconomic determinants of bank profitability in Greek banking for the period 1985-2001. The results produced by testing the traditional structure-conduct-performance hypothesis show that profitability persists to a moderate extent, indicating that departures from perfectly competitive market structure may not be too large. All bank-specific determinants, with the exception of size, proved to have a significant effect on bank profitability. No firm evidence was found in support of SCP hypothesis. Another interesting single market study was published by Kosmidou et al. (2006). The authors investigated the performance of the banking sector in the UK, focusing on the performance of the domestic banks as opposed to the performance of the foreign banks operating in the UK, over the period 1998 – 2001. Their results suggest that domestic banks exhibit higher overall performance compared to the foreign banks operation in the UK. The results of their study generally support the home advantage hypothesis under which domestic institutions are overall more efficient than foreign-based institutions.

With some exceptions the research on bank performance has been restricted throughout the 1990s to the developed market economies. With the transition processes in several European economies and the revitalization of their banking sectors, banking markets in transition countries are attracting growing attention of researchers investigating bank performance. Although this research does not abound, some studies focusing on (former) transition economies can be found. Fries, Neven and Seabright (2002) examined the performance of 515 banks in 16 transition economies for the period 1994–1999. Their results indicate that banks' performance differs significantly depending on the reform environment, as well as the competitive conditions in which they operate. Further, banks with high market shares have higher costs and achieve lower margins on their loan and deposit activities. Their research also reveals that interest margins are declining over time but are substantially higher in low- reform environments. The results indicate that an appropriate policy and regulatory framework may be the necessary conditions for achieving any significant progress.

A recent work in the field represents the paper by Havrylchuk and Jurzyk (2005) who concentrated on the investigation of foreign and domestic banks' profitability in Central and Eastern Europe, covering only the "new" EU member states and the two accession countries (i.e. Bulgaria and Romania) in the region. However, their methodological approach and results may be relevant also for other transitioning countries in the region. The authors offered the following conclusions: first, foreign-owned banks are not affected by business cycles of their host countries which makes them more competitive with respect to domestic banks. Second, the macroeconomic conditions in the foreign banks' home countries have no impact on the profitability of foreign-owned banks in Central and Eastern European markets which is considered to be one of the potential dangers of foreign bank ownership for host countries. In respect to market concentration–bank profitability relationship, their results show that profits of foreign banks are not affected by market concentration, whereas domestic banks find it more profitable to operate in such markets. The authors also take into account the mode of foreign bank entry and find a superior performance (in terms of ROA) of greenfield banks as compared to domestic and acquired banks. Interestingly, the profitability of acquired banks does not turn out to be significantly different from the domestic banks, which could be ascribed to the economic policy of some countries that allowed foreign bank entry only after crisis.

Our research draws heavily on Havrylchuk and Jurzyk's (2005) work, but complements it with the suggestions offered by several other authors (e.g. Micco et al., 2006; Claessens, Demirguc-Kunt and Huizinga, 2001). As compared to Havrylchuk and Jurzyk (2005), who concentrate methodologically exclusively on banks' profitability, specifically on ROA (return on assets) measure, based on its accounting definition, we consider a wider set of bank performance measures. In addition, our study is

carried out in an interesting but ill-researched setting encompassing six South-Eastern European countries

4. Determinants of bank performance

In this section the bank performance measures and performance determinants, as known from the literature, are introduced. The relationships between both are elaborated according to the prior theoretical findings and results already reported in the empirical literature.

4.1. Bank performance measures

Generally bank performance studies rely on two types of indicators: accounting-based indicators and profit or cost efficiency indicators based on the efficiency and productivity analysis. In this paper we use accounting-based profitability indicators in banking.

Profitability ratio return on asset (ROA) is considered to be a core performance indicator used in majority of studies. ROA directly or indirectly incorporates most of the aspects of the banking business. It can be derived from a simplified bank income statement equation:

$$NI = (II - IE) + (NII - NIE) - EXP - TAX ,$$

where NI = net income, II = interest income, IE = interest expenses, NII = non-interest income, NIE = non-interest expenses (w/o operating expenses and LLP), EXP = operating expenses (inc. LLP) and TAX = taxes. Dividing simplified income statement equation by TA (total assets) gives us the following expression:

$$ROA = NIM + NNIM - \frac{OVH}{TA} - \frac{LLP}{TA} - \frac{TAX}{TA} ,$$

where NIM = net interest margin, NNIM = net non-interest margin, OVH = overhead costs and LLP = loan-loss provisions.

An alternative profitability indicator frequently used in bank performance studies is return on equity (ROE) ratio. If ROA reflects the ability of bank management to generate profits from the available bank's assets, then ROE indicates the return to shareholders' equity. Both indicators are directly related through the asset-to-equity ratio, which measures the financial leverage of the banking firm. Despite the popularity of both indicators we need to be aware of their shortcomings. The ROA indicator may be biased because it ignores the off-balance sheet activities of

banking firms, while the ROE indicator disregards the impact of risk associated with different levels of leverage that in connection with ROA directly determines the size of ROE.

In the present study we employ two additional profitability measures: PBTTA (profit-before-taxes over total assets) and NIM (net interest margin). The PBTTA measure is designed to capture the profitability of a banking firm without potentially disturbing taxation effects. Namely because of different taxation practices in individual countries profitability measures based on after tax profit (i.e. usually ROA and ROE indicators) can be misleading and therefore, profit before tax measure should help to detect differences in bank profitability that can not be attributed to the management of each bank but rather to the environment in which a specific bank operates. Similarly, net interest margin (NIM) as a performance measure reveals performance of a banking firm resulting from the core banking business (i.e. it is taking into account interest income from interest bearing activities and interest expenses that appear as a cost bank funding).

4.2. Bank-specific performance determinants

The relationship between *banking firm size* and its performance (especially profitability) has traditionally been one of the most widely studied relationships in the field. In spite of many research efforts the direction of this relationship is not completely straightforward as the studies produced mixed results. Williams (2003) finds that larger foreign banks in Australia are more profitable over the longer run. Similarly Chmielewski and Krzesniak (2003) detected a positive size-ROA relationship for Polish banking sector. On the other hand Pasiouras and Kosmidou (2006) find negative relationship between size and bank performance in 15 EU countries, regardless of bank ownership. Boyd and Runkle (1993) tested predictions of two theories that try to explain the impact of the size of banking firm: deposit insurance theory and modern intermediation theory. Their empirical results could not support either of theories. However, they found an inverse relationship between size and two other variables: the rate of return on assets and the ratio of equity to assets. Many authors explain such size-profitability relationship by diseconomies of scale, which are present in larger banks especially after the periods of accelerated growth. On the contrary, a positive size-profitability relationship is usually rationalized by positive effects of scale and scope economies. Additionally, large banks may be able to exert market power through stronger brand image or implicit regulatory (to-big-to-fail) protection. In many studies the impact of banking firm size on profitability remains precarious. Athanasoglou et al. (2006) report that the effect of bank size on profitability is not important and Goddard et al. (2004) find no systematic evidence for relationship between size and performance.

Capital strength of a banking firm is the next important bank-specific determinant included in almost all studies. The level of bank capital is typically closely linked to the level of credit risk (Thakor, 1996) and therefore banks with high capital-asset ratios are considered relatively safer in the event of loss or liquidation. A high capital adequacy ratio should signify a bank that is operating over-cautiously and ignoring potentially profitable trading opportunities (Goddard et al., 2004), which implies a negative relationship between equity to asset ratio and bank performance. At the same time, banks with higher equity to asset ratio will normally have lower needs of external funding and therefore higher profitability (Pasiouras and Kosmidou, 2006). Again the direction of the relationship between bank capital and bank profitability can not be unanimously predicted in advance.

Another important dimension of banking management is efficient *liquidity management*. Generally, liquidity of banking firms is a necessary condition for ongoing banking operations and any severe liquidity disruptions can eventually lead to a bank failure. On the other hand, maintenance of a superfluous liquidity very easily leads to the underperformance of banking assets and thus to lower profitability of banking firm. Following other authors (Pasiouras and Kosmidou, 2006, Kosmidou K. et al., 2006) we include a liquidity ratio in our empirical model and expect this ratio to be negatively related to bank profitability.

Cost efficiency of banking firm is predicted to be positively associated with bank performance and specifically with bank profitability. It is important to separate operating cost from other expenses (e.g. taxes, depreciation, etc.), as operating expenses are a cost category that can be actively controlled by bank management. The indicators that account for operating expenses thus reflect management's ability to influence bank performance. In previous research, several attempts have been made to measure the impact of cost efficiency. Athanasoglou et al. (2006) computed the ratio of the operating expenses to total assets, while Pasiouras and Kosmidou (2006) included standard cost to income ratio, which basically reflects the ability of bank's management to cover operating expenses by the generated bank income.

Credit risk exposure is usually treated as a separate determinant of bank performance (profitability). Some authors describe this factor as assets quality (Kosmidou et al., 2006), which can be usually measured only indirectly by taking into account the loan-loss provisions. As provisions roughly indicate the probability of loans to become non-performing, higher provisions are expected to be negatively related to bank profitability. Again, different authors try to capture this effect by using different indicators, for example Athanasoglou et al. (2006) use loan-loss provisions to loans ratio and Kosmidou K. et al. (2006) loan-loss provision to total assets ratio. In either case the relationship with bank profitability is expected to be negative.

Bank asset structure can also be regarded as a significant factor determining bank performance. The sign of the relationship with bank profitability depends on the

choice of the indicator. Demircuc-Kunt and Huizinga (2000) use for example loan to total assets ratio as an indicator of bank asset structure and expect the ratio to be positive. Analogously, Claessens et al. (2001) employ non-interest earning-assets-to-total-assets variable and expect the ratio to be negative. Similarly, Kosmidou et al. (2006) include in their analysis the short term earning assets to total loans ratio and expect the ratio to be negatively related to bank profitability, since a greater proportion of short term earning assets results in lower profitability of the overall portfolio. A quite unique approach is taken by Goddard et al. (2004), who incorporate OBS ratio in their analysis. OBS ratio is measured as a ratio between total off-balance sheet items and sum of total on- balance sheet and off-balance sheet items. According to their interpretation, the ratio accounts of non-interest income and fee generating services from various contingent liabilities.

Bank income structure also reflects the changing dynamics of banking business, which normally results in bank performance. Namely, it is well known that income structure in banking industry is changing and that the structure is shifting in favour of bank non-interest income. Therefore, the bank income structure variable should capture this effect and convey information on the impact on performance of the banking firm. Following this principle Kosmidou et al. (2006) employed a share of net interest revenues in total earning assets as a proxy for bank income structure and established that domestic-owned banks exhibited a clear dominance regarding the significance of net interest revenues for their profitability. However, alternative ratio definitions are also applicable and the sign of the income structure–performance relationship depends on the structure of the ratio itself.

4.3. Banking sector and macroeconomic determinants

Empirical studies investigating bank performance commonly strictly differentiate between bank-specific determinant and all other factors that may have an impact on bank performance. For example Williams (1998, 2003) includes a set of variables reflecting market conditions and general macroeconomic conditions in home country and, when testing multinational hypotheses, some variables reflecting market and macroeconomic conditions in host countries. Likewise, Athanasoglou et al. (2006) implement variables reflecting industry-specific (e.g. concentration ratio) and macroeconomic profitability determinants (e.g. inflation expectations, cyclical output). Claessens et al. (2001) also include some control variables that account for environmental effects (e.g. GDP per capita, annual inflation, real interest rate, etc.).

Some authors (e.g. Havrylchuk and Jurzyk, 2005; Pasiouras and Kosmidou, 2006) include in the analysis beside common bank-specific characteristics, some specific factors denoting financial structure development (e.g. total banking assets to GDP ratio, stock market capitalization to GDP ratio, EBRD index of financial sector development), which is an important aspect of investigation when comparing banks from the economies at the different level of development.

Surprisingly, some authors don't pay a lot of attention to possible macroeconomic effects on bank performance or account for them only partially or indirectly (e.g. Micco et al., 2006, Goddard et al., 2004). In the next section we present the selected data set, estimation methodologies and variables' definitions, including the characteristics of selected bank specific variables and variables representing different external (i.e. banking system and macroeconomic) factors used in our analysis.

5. Data, variables and methodology

5.1. Data and definition of variables

Three types of data were used in the analysis. First, individual bank-level data, which were obtained from the BankScope database. Only data for banks with unconsolidated financial statements with the annual frequency were used for the statistical analysis. Second, market-specific data, illustrating major characteristics of specific banking markets. The data in this category were obtained from the BankScope and from the IFS database. Third, macroeconomic data, reflecting some macroeconomic characteristics in countries included in the analysis. This set of data was obtained from the IFS database and from the EBRD publications for the 1995 – 2004 period with annual frequency. All the variables are summarized and explained in Table 4.

As already explained four variables were employed as bank performance measures: return on assets, return on equity, net interest margin and profit before tax compared to total assets.

The first set of the explanatory variables refers to the individual bank characteristics. Banking firm size (SIZE) is measured as a log of total loans and total other earning assets of each individual bank. Variable EQTASUR measures bank capital strength and is calculated as equity to total assets ratio that exceeds 10%. Further, LOANFUND is calculated as total loans over total deposits ratio and depicts the liquidity of banking firm. Cost efficiency is expressed by a conventional cost-to-income ratio (CIR) and credit risk exposure by loan loss provisions to total assets ratio (LLPTA). Two additional variables reflecting bank asset structure and bank income structure, are computed as non-earning assets to total assets ratio (NEATA) and as other operating income to net interest revenues ratio (OONIR), respectively.

The second set of the explanatory factors consists of three variables reflecting banking market characteristics and therefore vary across countries. Interest rate spread (SPREAD) is obtained as a difference between the average aggregate loan rate and average aggregate deposit rate as provided by the IFS dataset. The other two variables in the set describe the market situation. The variable HHITACEL is the Hirschman-Herfindahl concentration index based on the individual bank total assets, whereas MKTSHARE reflects market share of each individual bank.

Table 4: List of the variables used in the empirical analysis

	Symbol for the variable (abbreviation)	Description of the variable
<i>Dependent variables</i>		
1	ROAA	Return on average assets
2	ROAE	Return on average equity
3	NIM	Net interest margin
4	PBT/TA	Profit before tax over total assets
<i>Bank-specific variables (explanatory)</i>		
1	SIZE	Size of a banking firm
2	EQTASUR	Excessive capitalization of banking firm
3	LOANFUND	Loans-to-funding ratio
4	CIR	Cost to income ratio
5	LLPTA	Loan loss provisions over total assets
6	NEATA	Non-earning assets over total assets
7	OOINIR	Other operating income over net interest revenue
<i>Market-specific variables</i>		
8	SPREAD	Difference between loan and deposit rate (average aggregate rates)
8	HHITACEL	HHI index measured by total assets
10	MKTSHARE	Market share of individual bank, measured by total assets
<i>Macroeconomic variables</i>		
11	STOCKGDP	Stock market capitalization as a share in GDP
12	LOGCNGGDP	Log of relative change in GDP
13	LOGCNGFXRATE	Log of relative change in the official foreign exchange rate
14	EBRDBANK	EBRD index of banking sector reform

Source: BankScope, IFS, EBRD

The third set of the variables consists of the macroeconomic variables. The STOCKGDP variable is calculated as the stock market capitalization to GDP ratio in each country. The LOGCNGGDP variable is log of the GDP growth rate and LOGCNGFXRATE is log of the local foreign exchange growth rate. The EBRDBANK variable is the EBRD index of banking sector reform as regularly published in the EBRD Transition reports.

5.2. Methodology

In order to investigate bank specific and environmental factors that affect the performance indicators of banks in selected SEE countries, the following general model is applied:

$$\pi_{it} = a + \sum_{j=1}^J b_j X_{it}^j + \sum_{m=1}^M c_m X_{it}^m + \sum_{l=1}^L d_l X_{it}^l + \varepsilon_{it}$$

where i refers to an individual bank, t refers to year and j refers to specific country. The dependent variable π_{it} denotes a selected performance measure observed for bank i in year t , X_{it}^j stands for a set of J bank specific variables, X_{it}^m for M banking sector variables that vary across banking markets and time, but not across individual banks within a country, X_{it}^l for L macroeconomic variables that vary across countries and time, but not across individual banks within a country. ε is an error term.

The structure of the available data implies the use of panel data estimation techniques. First, the appropriateness of fixed effects model as opposed to random effects model was tested with the Hausman test. The test was performed for different model specifications and three different sample subsets: pooled data, a subset of foreign-owned banks and a subset of domestic-owned banks. Test results are presented in Table 5. With the exception of one model specifications (domestic banks and ROAA dependent variable) use of fixed effects model was indicated.

Table 5: Summary of Hausman test Chi2 statistics and significance levels for different model specifications

Depend. Variable/Subsample	ROAA	ROAE	NIM	PBTTA
Pooled	73.98	102.34	58.83	65.24
	0.0000	0.0000	0.0000	0.0000
Foreign	41.47	50.12	42.6	23.87
	0.0001	0.0000	0.0001	0.0475
Domestic	18.34	34.92	22.09*	50.77
	0.1915	0.0015	0.0000*	0.0000

* Breusch-Pagan test for random effects. The test procedure renders a failure in meeting asymptotic assumptions of the Hausman test.

Source: Authors' calculation

Fixed effect estimation technique was thus employed to estimate s series of models, using various bank performance measures ($ROAA_{ij}$, $ROAE_{ij}$, NIM_{ij} , $PBTTA_{ij}$) interchangeably as a dependent variable π_{it} .

The model is specified as follows:

$$\begin{aligned} \pi_{it} = & a + \sum_j b_j (SIZE_{it} + EQTASUR_{it} + LOANFUND_{it} + CIR_{it} + LLPTA_{it} + NEATA_{it} + OONIR_{it}) + \\ & + \sum_m b_m (SPREAD_{kt} + HHITACEL_{kt} + MKTSHARE_{kt} + EBRDBANK_{kt}) + \\ & + \sum_l b_l (STOCKGDP_{kt} + LOGCNGGDP_{kt} + LOGCNGFXRA_{TE_{kt}}) \end{aligned}$$

The estimation results are presented in Tables 1A to 4A in the Appendix.

6. Empirical results

First we present the results of the mean equality tests for four performance measures between foreign-owned and domestic-owned banks for all SEE-6 countries separately. Then we pool the data for all countries and use econometric analysis to establish which indicators are significant determinants of bank performance.

6.1. Performance of foreign vs. domestic banks

Four accounting based indicators were used to assess the differences in bank performance in SEE-6 countries. Since the ambition of the comparison was to detect the performance differences resulting from ownership structure characteristics, banks were separated in two groups: foreign owned and domestic banks. Banks were considered to be foreign owned if foreign shareholders controlled more than 50 percent of the shares and analogously they were considered to be domestic if domestic shareholders controlled more than 50 percent of the stakes. Mean equality tests were performed separately for two periods: 1995-1999 and 2000-2004 period in order to capture developments in the performance-ownership relationship. The two timeframes approximated two typical evolution periods in banking sectors of Eastern European countries. The first timeframe covered the early years of transition, and was characterised by intensive consolidation and privatisation processes, resulting in foreign bank dominance in most of the countries. The second timeframe covered the period after year 2000 when consolidation was largely finished and banking sectors started to develop more intensively. The results of group mean testing are presented in Table 6.

Contrary to our expectations the results for the two most widely used performance (profitability) indicators across countries were highly insignificant, meaning that substantial differences in ROAA and ROAE between foreign-owned and domestic banks were statistically undetectable. The only exceptions were Bulgaria and Croatia in the 2000–2004 period, where foreign-owned banks outperformed the domestic ones in terms of ROAE. In case of Albanian banking sector it was not possible to

carry out the standard t-tests due to a small number of banks in one of the groups (i.e. the group of domestic banks).

The best discriminator between foreign-owned and domestic banks was net income margin (NIM). The differences were statistically significant in two countries (Bulgaria and Romania) in the first observed period (1995-1999), and in three countries (Bulgaria, Romania and Croatia) in the second observed period (2000-2004). The results show that only in case of Bulgaria foreign-owned banks outperformed the domestic ones, while in case of Croatia and Romania the situation is just the opposite: domestic banks operated on average with a higher NIM than foreign-owned banks. This findings are surprising to some extent, since foreign owned banks are typically expected to operate with lower NIM due to their indisputably better access to lending funds via their parent banks in Western Europe.

Statistical insignificance of results is found also with the fourth performance variable, PBTTA, which means that also the pre-tax profitability of foreign owned banks does not really differ from the profitability of domestic banks before the taxation. This finding might indicate the absence of any major differences in taxation of banking operations in the studied countries.

Table 6: Group mean equality test for four selected performance variables (ROAE, ROAA, NIM and PBT/TA) in six SEE countries for 1995-2004

Period	ROAA	AL	BG	CS	HR	MK	RO
1995 - 1999	Mean value - Domestic (%)	0.0	-1.9	2.8	0.9	3.0	5.8
	Mean value - Foreign (%)	0.2	2.9	6.7	0.7	5.5	1.6
	t =	---	-1.411	-1.566	0.303	-1.281	1.324
	Pr(T > t) =	---	0.164	0.128	0.763	0.211	0.195
2000 - 2004	Mean value - Domestic (%)	1.3	0.7	-0.4	1.3	2.3	-0.5
	Mean value - Foreign (%)	1.3	1.3	-0.8	1.4	2.0	0.5
	t =	---	-0.872	0.140	-0.234	0.348	-0.949
	Pr(T > t) =	---	0.385	0.889	0.815	0.730	0.345

Period	ROAE	AL	BG	CS	HR	MK	RO
1995 - 1999	Mean value - Domestic (%)	0.0	-11.7	21.1	1.6	9.2	22.8
	Mean value - Foreign (%)	1.9	12.2	31.3	-0.9	14.9	10.7
	t =	---	-1.537	-0.830	0.292	-1.218	0.988
	Pr(T > t) =	---	0.130	0.413	0.771	0.233	0.330
2000 - 2004	Mean value - Domestic (%)	11.2	5.2	-8.8	7.2	8.2	2.0
	Mean value - Foreign (%)	-8.8	12.7	-6.4	12.2	4.2	6.2
	t =	---	-1.999	-0.176	-2.858	1.112	-0.629
	Pr(T > t) =	---	0.048	0.861	0.005	0.272	0.531

Period	ROAA	AL	BG	CS	HR	MK	RO
1995 - 1999	Mean value - Domestic (%)	0.0	-1.4	9.5	6.9	8.0	23.4
	Mean value - Foreign (%)	1.6	5.2	13.7	5.7	12.6	11.3
	t =	---	-2.016	-1.059	1.304	-1.354	2.500
	Pr(T > t) =	---	0.049	0.298	0.196	0.187	0.018
2000 - 2004	Mean value - Domestic (%)	3.1	4.4	8.8	5.3	6.0	15.8
	Mean value - Foreign (%)	4.9	5.9	8.1	4.5	6.1	7.3
	t =	---	-3.251	0.641	1.981	-0.137	7.803
	Pr(T > t) =	---	0.002	0.523	0.050	0.891	0.000

Period	PBT / TA	AL	BG	CS	HR	MK	RO
1995 - 1999	Mean value - Domestic (%)	0.0	-1.5	2.3	1.0	3.4	8.1
	Mean value - Foreign (%)	2.9	5.9	5.5	0.9	6.0	2.6
	t =	---	-1.013	-2.038	0.579	-1.416	1.681
	Pr(T > t) =	---	0.315	0.048	0.564	0.166	0.099
2000 - 2004	Mean value - Domestic (%)	1.2	0.8	-1.2	1.4	2.4	0.3
	Mean value - Foreign (%)	1.5	1.6	-1.6	1.4	2.0	0.8
	t =	-1.869	-1.114	0.420	0.335	0.272	-0.726
	Pr(T > t) =	0.071	0.268	0.675	0.738	0.787	0.469

Explanation of the abbreviations: Albania (AL), Bulgaria (BG), Serbia and Montenegro (CS), Croatia (HR), Macedonia (MK), Romania (RO).

Source: Authors' calculation

6.2. Determinants of bank performance in selected SEE-6 countries

The estimation outcomes are separately reported in four different sets of results in Tables 1A through 4A in the Appendix. Table 1A displays regression results for ROAA equation, Table 2A for ROAE equation, Table 3A for NIM equation and Table 4A for PBTТА equation. Each of the equations was estimated first for the entire sample of banks and then for foreign-owned and domestic banks separately.

Dependent variables in each equation represent three groups of explanatory factors, as discussed in section 4: variables describing individual characteristics of banking firms, variables representing banking market characteristics; and variables reflecting macroeconomic characteristics of individual countries in the SEE-6 group.

6.2.1. Bank-specific determinants

The *size* (*SIZE*) of a banking firm does not seem to be an important determinant of bank performance measures. Postulated positive relationship is detected only between *SIZE* and ROAE for the entire sample of banks, while in a sub-sample of foreign banks, a negative relationship with ROAA and PBTТА proved to be statistically significant. A possible explanation for such an outcome could be found in different market positioning of foreign as opposed to domestic banks in SEE countries. Namely, foreign-owned banks usually experience above average growth rates immediately after the entry in the market. With increase in size, foreign-owned banks also improve their performance, which is typically poor at the beginning of their operations in a new market (e.g. because of initial investments) and is gradually improving when the entrant is gaining market share and customers. A positive relationship between size and bank profitability is for example reported by Williams (2003) for foreign-owned banks in Australia, while Goddard et al. (2004) and Athanasoglou et al. (2006) didn't detect any statistically significant association between size and profitability.

Capital strength parameter (*EQTASUR*) is significant for the entire sample and for the sub-sample of domestic banks. According to Goddard et al. (2004) the capital–profitability relationship is expected to be negative, since overcapitalization of banks is generally a sign of unused investment opportunities, which is also in line with Thakor (1996). On the other side some authors point out, that well capitalized banks normally have lower needs for external funding which can lead to better profitability (Pasiouras and Kosmidou, 2006). In our setting a positive relation of *EQTASUR* to ROAA needs to be observed together with a negative relationship between *EQTASUR* and ROAE. In our opinion higher *EQTASUR* enables banks to invest more aggressively on account of the extra capital coverage, which eventually can lead to higher return on assets. However, at the same time, higher *EQTASUR* does not enable banks to operate with significantly higher ROE indicators. The latter is

confirmed with insignificant coefficients in the ROAE equation for the entire sample and the sub-sample of foreign-owned banks. In case of domestic banks even the association between EQTASUR and ROAE is confirmed to be positive. A positive relationship between capital strength and profitability is confirmed also in the NIM and PBTТА equation. The latter indicates that different taxation regimes should not have any significant impact on the capital strength determinant.

Liquidity management determinant (LOANFUND), does not have any impact on performance indicators in our analysis. All estimated parameters, with the exception of the LOANFUND parameter in ROAA equation for domestic banks, are statistically insignificant.

Cost efficiency (CIR) is the next factor that importantly determines banking performance. The estimated coefficients (with only one exception) are highly significant and according to prior expectations also negative.

Credit risk exposure, measured by the LLPTA variable, which demonstrates the proportion of loan-loss provisions in total banking assets is expected to be inversely related to different profitability measures. Only the relationship with the NIM measure is expected to be positive, since NIM represents a basis for the formation of loan-loss provisions, meaning that a bank which has intention to build up loan-loss provisions needs to create sufficient net interest and net non-interest margin. Given that banks in developing markets predominantly rely on traditional banking activities we expect the net interest income to be prevalent in the banking income structure and accordingly net interest margin is expected to demonstrate a relatively high degree of association with loan-loss provisioning capabilities. The estimated LLPTA parameters conform to prior expectations. In three profitability equations (ROAA, ROAE and PBTТА) the coefficients are negative and highly significant. In the NIM equation coefficients are statistically significant as well, but all have a positive sign. It is important to note that the obtained results do not detect any significant differences between foreign owned and domestic banks, with regard to the LLPTA variable, so we can conclude that foreign and domestic banks behave in a similar way.

The impact of *bank asset structure* is captured by only one variable: *NEATA* (non-earning assets to total assets), which reflects the proportion of assets that directly enable a bank to generate banking income. However, the estimated coefficients in all the profitability equations (ROAA, ROAE and PBTТА) are statistically insignificant, indicating no relationship between asset structure and bank profitability. Only the NEATA parameter in NIM equation, estimated for the entire sample of banks proved to be significant and negative. There is no straightforward explanation for this particular result, unless one believes that higher proportion of non-earning assets in total assets would absolutely imply higher loan-loss provisions. In any case, this particular issue needs detailed investigation. Alternative asset structure variables (e.g.

loans to total asset ratio) that were also employed in some other studies instead of NEATA variable did not render any improvements in the significance of the results.

Analogously to the bank asset structure, the *bank income structure* was investigated by employing the *OOINIR* (other operating income to net interest revenues ratio) variable. The variable should explain the importance of non-interest income for the profitability of banking operations. Only in the PBT TA equation the OGINIR coefficient proves to be significant. The result shows that OGINIR is positively related to PBT TA, when the relationship is tested for the entire sample of bank and for the sub-sample of foreign-owned banks. The detected positive relationship indicates that profitability of banks is sensitive to the proportion of non-interest income in total income structure. For the sub-sample of domestic banks a negative, although not very strong, relationship is detected, so we could infer a greater dependence of domestic bank profitability on interest income as compared to the relationship detected with foreign-owned banks. This interpretation is partly supported by estimation results for the ROAE and ROAA equation, although not all the parameters are significant.

6.2.2. Market-specific determinants

Interest rate spread (SPREAD) measures earning potential in the market (i.e. the greater the interest spread the greater is the earning potential of financial intermediaries) and indirectly also competitiveness in the market, since greater interest spread reflects lower competitiveness, while a narrower spread indicates more intense competition in the market. In all the equations the results for the entire sample and for the sub-sample of foreign-owned banks are in line with our prior expectations. In both samples spread proves to be positively related to profitability indicators ROAA, ROAE and PBT TA. This means that on average, an increasing interest rate spread can be associated with better profitability opportunities. Surprisingly, the results are just the opposite for the sub-sample of domestic banks, where the estimated coefficient has a negative sign and in most cases also significant. One of the explanations for a different reaction of domestic banks could be in their lower profitability efficiency as compared to foreign banks. Obviously the results obtained on the entire sample are influenced by the impact of foreign owned banks which dominate the sample.

The degree of *banking market concentration* is measured by HHI index based on total assets (*HHITACEL*). In three (ROAA, ROAE, NIM) out of four equations the estimated coefficient proves to be significant only for the sub-sample of domestic banks, but not for the sub-sample of foreign owned bank or for the entire sample. The estimated HHITACEL parameters for domestic banks are also strictly negative, meaning that higher market concentration adversely affects the profitability of domestic banks. One possible explanation is that the banking market concentration is increasing at the expense of domestic banks, which loose their position in the market. Additionally, we could also assume that foreign-owned banks on average

have certain competitive advantages over domestic banks (Berger et al., 2004), which results in market share losses of domestic banks.

In order to control for the impact of the *market share* we include the *MKTSHARE* variable, which is calculated as a share of total assets of each individual bank in the total assets of the entire banking sector. The estimated parameters are significant only for NIM equation for the entire sample of banks and for the sub-sample of foreign-owned banks. Both coefficients are positive, which means that on average, foreign-owned banks improve their net interest margins (NIM) by increasing their market shares. This result is to a large extent consistent with market concentration results.

6.2.3. Macroeconomic determinants

As suggested by previous research (e.g. Havrylchyk and Jurzyk, 2005; Pasiouras and Kosmidou, 2006) we control for *stock market capitalization* by including *STOCKGDP* variable (stock market capitalization to GDP ration) reflecting the development level of the stock market in each individual country. Negative relationship between stock market capitalization and bank profitability is expected. In our case only one coefficient in the ROAA equation turns out to be significant and also negative. However, all other coefficients are not significant

Most performance models control, directly or indirectly, for the GDP growth in the local economy. In our sample, *GDP growth rate (LOGCNGGDP)* is statistically significant predictor of ROAA, ROAE and PBTТА for the entire sample and of ROAA and ROAE for the sub-sample of foreign banks. According to our expectations it has a positive sign. Again we can conclude that foreign-owned banks are more successful in taking advantage of favourable macroeconomic conditions.

Similar results as observed in case of *growth rate of the foreign exchange rate* in domestic economy (*LOGCNGFXRATE*). A positive growth rate of the foreign exchange rate indicates depreciation of national currency, which should stimulate export industry. Analogously to GDP growth rate we expect the sign of the *LOGCNGFXRATE* to be positive. In fact, positive regression coefficient is detected for the entire sample of banks and for the foreign-owned banks in ROAA, ROAE and PBTТА equation and for the foreign-owned banks in NIM equation. Coefficients for the sub-sample of domestic banks are mostly insignificant.

EBRDBANK variable indicates the *general development level of the banking sector*. The direction of the association with the dependent variables is the same for foreign-owned and domestic banks, although the estimated coefficient proves to be significant only for all three parameters in the ROAA equation, one parameter in ROAE equation and two parameters in the PBTТА equation. The obtained results are consistent with findings of previous studies.

7. Conclusions

The purpose of this paper was to investigate the relationship between bank ownership (foreign vs. domestic) and bank performance in selected set of six South-East European countries (SEE-6): Albania, Bulgaria, Croatia, FYR Macedonia, Romania and Serbia & Montenegro.

The entire region was characterized by a substantial influx of foreign investors in local banking markets in the last 10 – 15 years. In most of these countries (the only exception was Serbia & Montenegro) the market share of foreign owned banks was close to 50 percent or even well above it. Foreign investors (mostly larger Western European banks) entered East European markets either by establishing greenfield operations or by acquiring domestic banks, in most cases heavily troubled. Intuitively one would expect that a significant presence of foreign-owned banks would be reflected in performance indicators of the banking industry.

Our analysis was based on the bank level, industry level and macroeconomic data for the period 1995 – 2004. The data were obtained from the BankScope database, IFS dataset provided by IMF and from the EBRD publications. The first part of the analysis consisted of a series of the mean equality tests for four performance measures between foreign owned and domestic banks in each of the studied countries. The second part of the analysis relied on the econometric investigation of the bank performance determinants in selected banking sectors.

Our results obtained in the first part of the analysis demonstrated only a limited differentiation between the performance indicators for foreign-owned banks and domestic banks across countries. The most pronounced differences between domestic and foreign owned banks were detected only with the net interest margin indicator, while with the other performance indicators statistically significant differences appeared to be rare. Any systematic differences in equality testing for both sub-periods (1995-1999 and 2000-2004) were not detectable.

The econometric investigation of bank performance explanatory factors offered only limited evidence on the relationship with performance determinants. While bank specific factors reflecting capital strength, cost efficiency and credit risk exposure proved to be associated with performance measures according to prior expectations, liquidity management and bank asset structure factors did not demonstrate any statistically significant link to performance indicators. The results with size and income structure were mixed and could not lead to any systematic conclusions. Further, among market specific and macroeconomic factors only interest rate spread and HHI index and to some extent GDP growth rate and the growth rate of the foreign exchange rate proved to have significant explanatory power, whereas market share and stock market capitalization to GDP ratio turned out to be inconclusive.

Further research should rely on the employment of additional explanatory variables that could better reflect differences in banking business structure among banks. Control variables for the mode foreign bank entry into the market need to be added and state owned banks, although almost inexistent in some of the countries, should be treated as a separate group.

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Vlasnička struktura i profitabilnost bankarskog sektora: Rezultati iz regije jugoistočne Europe

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Sažetak

Namjena ovog rada je istražiti povezanost između vlasničke strukture i profitabilnosti bankarskih sektora u šest zemalja jugoistočne Europe (SEE-6): Hrvatska, Bugarska, Rumunjska, Srbija, Makedonija i Albanija. Isto tako kao i za većinu drugih zemalja istočne Europe u razdoblju tranzicije i za spomenutih šest balkanskih zemalja bio je tipičan velik volumen stranih investicija, prije svega iz zemalja zapadne Europe. Dok mnogi autori ističu povoljno djelovanje stranih banaka u razvijajućim zemljama istočne Europe, još uvijek je malo radova koji razmatraju utjecaj stranog vlasništva u bankarstvu na profitabilnost bankarskih sektora u SEE-6 regiji. Djelomično su ove zemlje bile uključene u neke šire studije, dok su istraživanja koja bi se fokusirala isključivo na ovu regiju rijetka. Empirička analiza temelji se na razpoloživim podacima za individualne banke u navedenim zemljama koji su pribavljeni iz baze podataka BankScope. Pokazatelji profitabilnosti su odabrani prema nedavno objavljenim studijama s tog područja. U prvom dijelu analize testirane su razlike u profitabilnosti između banaka u stranom vlasništvu i banaka u domaćem vlasništvu, dok su u drugome dijelu pomoću regresijske analize proučavane determinante odabranih pokazatelja profitabilnosti za banke u stranom i domaćem vlasništvu. Rezultati ne pokazuju značajnijih statistički signifikantnih razlika u mjerama profitabilnosti između banaka u domaćem i stranom vlasništvu, dok ekonometrički testovi ukazuju na nekoliko faktora koji se mogu povezati s profitabilnošću banaka.

Ključne riječi: bankarstvo, determinante profitabilnosti, vlasništvo, jugoistočna Europa

JEL klasifikacija: G21, P34

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Appendices

Table 1A: Estimation results for the ROAA equation estimated for the entire sample of banks, foreign owned and domestic banks

	ROAA_3 (All banks)	ROAA_1 (Foreign)	ROAA_0 (Domestic)
size	-0.003	-0.024*	0.003
	<i>-0.008</i>	<i>-0.011</i>	<i>-0.002</i>
eqtasur	0.154**	0.107	0.048***
	<i>-0.047</i>	<i>-0.082</i>	<i>-0.014</i>
loanfund	-0.004	-0.008	0.013**
	<i>-0.006</i>	<i>-0.008</i>	<i>-0.004</i>
cir	-0.055***	-0.113***	-0.046***
	<i>-0.009</i>	<i>-0.019</i>	<i>-0.004</i>
llpta	-0.348***	-0.420***	-0.543***
	<i>-0.055</i>	<i>-0.068</i>	<i>-0.059</i>
neata	-0.055	-0.007	0.005
	<i>-0.047</i>	<i>-0.079</i>	<i>-0.011</i>
ooinir	0.001**	0.001	0.000
	<i>0.000</i>	<i>-0.001</i>	<i>-0.001</i>
spread	0.507***	0.658***	-0.074**
	<i>-0.103</i>	<i>-0.154</i>	<i>-0.028</i>
hhitacel	-0.032	-0.037	0.033***
	<i>-0.020</i>	<i>-0.026</i>	<i>-0.009</i>
mktshare	-0.056	-0.083	-0.005
	<i>-0.082</i>	<i>-0.098</i>	<i>-0.017</i>
stockgdp	0.013	0.095	-0.037*
	<i>-0.087</i>	<i>-0.142</i>	<i>-0.015</i>
logcnggdp	-0.099***	-0.119***	-0.017
	<i>-0.015</i>	<i>-0.019</i>	<i>-0.010</i>
logcngfxrate	0.083***	0.101**	-0.003
	<i>-0.021</i>	<i>-0.032</i>	<i>-0.006</i>
ebrdbank	0.030*	0.040*	0.005*
	<i>-0.012</i>	<i>-0.019</i>	<i>-0.002</i>
Constant	-0.023	0.252*	-0.002
	<i>-0.090</i>	<i>-0.124</i>	<i>-0.021</i>
R-squared	0.218	0.267	0.495
N	518	318	200
F	16.392	15.153	18.072

SE values in italics

* p < 0.05, ** p < 0.01, *** p < 0.001

Source: Authors' calculation

Table 2A: Estimation results for the ROAE equation estimated for the entire sample of banks, foreign owned and domestic banks

	ROAE_3 (All banks)	ROAE_1 (Foreign)	ROAE_0 (Domestic)
size	0.189**	0.094	-0.007
	<i>-0.058</i>	<i>-0.080</i>	<i>-0.036</i>
eqtasur	-0.012	-1.058	0.323*
	<i>-0.332</i>	<i>-0.579</i>	<i>-0.126</i>
loanfund	0.005	0.000	0.038
	<i>-0.044</i>	<i>-0.054</i>	<i>-0.034</i>
cir	-0.272***	-0.562***	-0.180***
	<i>-0.066</i>	<i>-0.136</i>	<i>-0.020</i>
llpta	-2.607***	-3.501***	-1.693***
	<i>-0.388</i>	<i>-0.477</i>	<i>-0.361</i>
neata	-0.111	0.781	0.054
	<i>-0.331</i>	<i>-0.557</i>	<i>-0.116</i>
ooinir	0.007*	0.002	-0.022***
	<i>-0.003</i>	<i>-0.004</i>	<i>-0.004</i>
spread	5.060***	6.571***	-0.737*
	<i>-0.727</i>	<i>-1.091</i>	<i>-0.350</i>
hhitacel	-0.225	-0.267	0.238**
	<i>-0.142</i>	<i>-0.182</i>	<i>-0.086</i>
mktshare	-0.922	-1.381*	0.520
	<i>-0.584</i>	<i>-0.689</i>	<i>-0.960</i>
stockgdp	-0.211	0.109	-0.121
	<i>-0.617</i>	<i>-1.000</i>	<i>-0.214</i>
logcnggdp	-1.084***	-1.262***	0.069
	<i>-0.105</i>	<i>-0.137</i>	<i>-0.084</i>
logcngfxrate	0.681***	0.808***	-0.191**
	<i>-0.147</i>	<i>-0.229</i>	<i>-0.063</i>
ebrdbank	0.034	0.007	0.071*
	<i>-0.082</i>	<i>-0.136</i>	<i>-0.031</i>
Constant	-2.128***	-0.710	0.018
	<i>-0.636</i>	<i>-0.874</i>	<i>-0.382</i>
R-squared	0.249	0.347	0.629
N	518	318	200
F	22.757	21.738	21.25

SE values in italics

* p < 0.05, ** p < 0.01, *** p < 0.001

Source: Authors' calculation

Table 3A: Estimation results for the NIM equation estimated for the entire sample of banks, foreign owned and domestic banks

	NIM_3 (All banks)	NIM_1 (Foreign)	NIM_0 (Domestic)
size	0.009	0.004	0.007
	<i>-0.006</i>	<i>-0.006</i>	<i>-0.013</i>
eqtasur	0.178***	0.155***	0.132**
	<i>-0.036</i>	<i>-0.042</i>	<i>-0.047</i>
loanfund	0.001	-0.002	0.016
	<i>-0.005</i>	<i>-0.004</i>	<i>-0.013</i>
cir	-0.022**	-0.042***	-0.008
	<i>-0.007</i>	<i>-0.010</i>	<i>-0.007</i>
llpta	0.200***	0.080*	0.382**
	<i>-0.042</i>	<i>-0.034</i>	<i>-0.135</i>
neata	-0.124***	0.017	-0.030
	<i>-0.035</i>	<i>-0.040</i>	<i>-0.043</i>
ooinir	0.000	-0.001***	0.010***
	<i>0.000</i>	<i>0.000</i>	<i>-0.002</i>
spread	-0.199*	-0.053	-0.399**
	<i>-0.078</i>	<i>-0.078</i>	<i>-0.130</i>
hhitacel	0.033*	0.010	0.146***
	<i>-0.015</i>	<i>-0.013</i>	<i>-0.032</i>
mktshare	0.267***	0.203***	-0.186
	<i>-0.063</i>	<i>-0.049</i>	<i>-0.358</i>
stockgdp	-0.114	-0.043	-0.124
	<i>-0.066</i>	<i>-0.072</i>	<i>-0.080</i>
logcnggdp	0.006	-0.019	-0.020
	<i>-0.011</i>	<i>-0.010</i>	<i>-0.031</i>
logcngfxrate	0.012	0.045**	-0.042
	<i>-0.016</i>	<i>-0.016</i>	<i>-0.024</i>
ebrdbank	0.004	0.000	0.005
	<i>-0.009</i>	<i>-0.010</i>	<i>-0.011</i>
Constant	-0.044	0.019	-0.038
	<i>-0.068</i>	<i>-0.063</i>	<i>-0.142</i>
R-squared	0.069	0.088	0.528
N	518	318	200
F	9.098	10.841	16.67

SE values in italics

* p < 0.05, ** p < 0.01, *** p < 0.001

Source: Authors' calculation

Table 4A: Estimation results for the PBTТА equation estimated for the entire sample of banks, foreign owned and domestic banks

	PBTТА_3 (All banks)	PBTТА_1 (Foreign)	PBTТА_0 (Domestic)
size	0.001	-0.021*	-0.004
	<i>-0.006</i>	<i>-0.009</i>	<i>-0.008</i>
eqtasur	0.139***	0.066	0.082*
	<i>-0.041</i>	<i>-0.069</i>	<i>-0.032</i>
loanfund	-0.002	-0.005	0.015
	<i>-0.005</i>	<i>-0.006</i>	<i>-0.009</i>
cir	-0.060***	-0.097***	-0.043***
	<i>-0.008</i>	<i>-0.014</i>	<i>-0.005</i>
llpta	-0.373***	-0.409***	-0.308***
	<i>-0.044</i>	<i>-0.062</i>	<i>-0.052</i>
neata	-0.041	-0.010	-0.047
	<i>-0.040</i>	<i>-0.070</i>	<i>-0.027</i>
ooinir	0.003***	0.002***	-0.002*
	<i>0.000</i>	<i>-0.001</i>	<i>-0.001</i>
spread	0.352***	0.413**	-0.089
	<i>-0.089</i>	<i>-0.130</i>	<i>-0.083</i>
hhitacel	-0.019	-0.027	0.022
	<i>-0.017</i>	<i>-0.022</i>	<i>-0.019</i>
mktshare	0.045	0.054	0.123
	<i>-0.064</i>	<i>-0.075</i>	<i>-0.237</i>
stockgdp	0.000	0.054	-0.022
	<i>-0.076</i>	<i>-0.122</i>	<i>-0.052</i>
logcnggdp	-0.046***	-0.031	0.004
	<i>-0.013</i>	<i>-0.017</i>	<i>-0.015</i>
logcngfxrate	0.076***	0.090**	-0.011
	<i>-0.018</i>	<i>-0.027</i>	<i>-0.015</i>
ebrdbank	0.026**	0.037*	0.012
	<i>-0.010</i>	<i>-0.017</i>	<i>-0.007</i>
Constant	-0.050	0.210*	0.050
	<i>-0.073</i>	<i>-0.105</i>	<i>-0.090</i>
R-squared	0.344	0.416	0.352
N	581	351	230
F	24.795	21.55	29.708

SE values in italics

* p < 0.05, ** p < 0.01, *** p < 0.001

Source: Authors' calculation