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## **Influence of board and ownership structure on bank profitability: evidence from South East Europe**

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We investigate the impact of board and ownership structure on profitability of 74 commercial banks from four transition economies of South East Europe over the 2005–2010 period. We analyse this relation using Ordinary Least Squares regression analysis on an unbalanced panel data-set of 377 observations. We find negative and significant relationship between board size and bank profitability, while the proportion of independent directors on the board is negatively, but insignificantly related to bank profitability. Impact of ownership concentration on bank profitability is negative, but weak. We also find that privately held domestic banks outperform state-owned and foreign banks. Important factors influencing bank profitability in South East Europe are also bank size and bank capitalisation.

**Keywords:** commercial banks; board structure; ownership structure; bank profitability

**JEL classification:** G21, G34.

### **1. Introduction**

The objective of this article is to examine the profitability of banks operating in four South East European (SEE) transition economies, namely Bosnia and Herzegovina, Croatia, Macedonia and Serbia, and the impact of bank governance, ownership structure, and other bank specific factors on bank profitability. We focus on a specific industry in specific environment of transition economies for two reasons. First, although some aspects of governance in nonfinancial firms can be applied to banks, complexity of banking business increase information asymmetry and make it difficult to shareholders and other stakeholders to monitor bank managers. Banks are also a key element in the payment system, and are subject to more intense regulation than other firms. Second, weak institutional environment, weak protection of investors and high ownership concentration in transition economies give rise to conflicts between controlling shareholder and minority shareholders more often than between managers and shareholders. In this regard, La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2002) and Young, Peng, Ahlstrom, Bruton, and Jiang (2008) stress that, unlike developed economies where principal-agent conflicts are major concern of corporate governance, principal–principal conflicts are major issue in emerging economies requiring solutions beyond those devised in standard agency theory.

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More specifically, we focus on SEE transition economies for two reasons. Firstly, with the economic and political stabilisation in the middle of 1990s, SEE economies finally initiated real economy and banking industry reforms, but with a delay in comparison to Central and East European (CEE) economies due to numerous political and institutional obstacles, macroeconomic instability and structural weaknesses (see Radzic & Yuce, 2008). All the CEE economies became EU members by 2004, while among SEE economies only Bulgaria and Romania are EU members (since 2007). Differences in the transition process and level of development between CEE and SEE transition economies may have differently influenced the performance of the banks operating in these two regions. Secondly, despite some problems and delays, SEE economies have conducted many banking industry reforms and eventually developed privately-owned banking industry and interbank market. Bearing in mind that a competitive and efficient banking system is important to reduce the gap between SEE economies and the rest of Europe, it is of interest to investigate how well banking industries of SEE economies perform and what factors influence bank performance.

This article reports on an investigation of the relationship between board structure and bank performance on a sample of 74 commercial banks in Bosnia and Herzegovina, Croatia, Macedonia and Serbia over the 2005–2010 period. The basic question that we want to answer is whether corporate governance and ownership structure can significantly influence performance of a bank operating in SEE transition economy. We use the board composition (BC) and board size (BS) as the corporate governance variables, ownership concentration ratio and ownership type as the ownership structure variables, while the bank performance is approximated with return on assets (ROA), which is consistent with some previous studies (Bektas & Kaymak, 2009; Stančić, Čupić, & Barjaktarović Rakočević, 2012). By studying a single (banking) industry in economic conditions specific for transition economies, we aim at explaining the way governance affects performance and whether this relationship can be expected to differ across different industries and different economic systems. Since this research covers the years 2005 through 2010 we analyse possible influence of financial crisis on the relationship between bank governance and performance.

The investigation of the possible determinants of bank performance can have several implications relevant for policymakers and investors in SEE transition economies. Analysis of the relations between ownership structure and bank performance, and differences in profitability between state, foreign and private domestic banks has implications for policies toward privatisation, entry barriers and investor protection. Analysis of the relation between bank governance (ownership concentration and board structure) and performance has implications for investors developing effective bank governance policies, and policymakers developing legal and institutional framework for bank governance. This study contributes to the literature that analyses bank performance, especially those operating in transition economies, and literature that deals with influence of ownership structure and bank governance on performance of banks operating in transition economies.

The structure of this study is as follows. Section 2 presents related literature. Section 3 describes our data and methodology. In Section 4 we present our results. We conclude in Section 5.

## 2. Literature review

In this section we review theoretical and empirical studies on the impact of ownership structure and corporate governance on bank performance. We pay special attention to banks in emerging and transition economies.

### 2.1. Ownership structure and bank performance

The general Berle-Means model of corporate governance, aimed at resolving the agency problem that arises between agent (manager) and principal (shareholders), is typical for the developed economic systems with strong legal protection of investors where publicly traded firms are generally widely held, while the roles of managers and owners are clearly separated (La Porta et al., 2002; Young et al., 2008). On the other hand, corporate governance in transition economies is characterised by underdeveloped capital market, poor investor protection and high ownership concentration (Bobirca & Miclaus, 2007) which make the enforcement of agency contracts more costly. Due to weak investor protection, publicly traded firms operating in transition economies often have large (controlling) shareholder, who is able to monitor and discipline managers more efficiently than small shareholders. However, controlling shareholder has the power to expropriate minority shareholder rights, which results in frequent conflicts between controlling shareholder (La Porta et al., 2002; Young et al., 2008). In this article we investigate possible influence of ownership structure on bank profitability in the specific context of SEE transition economies characterised by underdeveloped stock market, high ownership concentration, high foreign ownership and weak investor protection (Radzic & Yuce, 2008; Suljkanovic, 2007; Stančić, Todorović, & Čupić, 2012a).

Since Demsetz (1983) argued that there is no reason to expect a systematic relationship between profitability and ownership structure, numerous studies have been published finding evidence for this argument (e.g. Agoraki, Delis, & Staikouras, 2010; Bektas & Kaymak, 2009; Demsetz & Villalonga, 2001; Iannotta, Nocera, & Sironi, 2007). Nevertheless, many authors find strong relationship between ownership concentration and firm performance. Kapopoulos and Lazaretou (2007) find a positive relationship between ownership concentration and firm performance in Greece. The authors explain that this result suggests that the greater the ownership concentration, the more effectively management behaviour is monitored and disciplined, thus resulting in better performance. Claessens and Djankov (1999) argue that the significant positive relationship between ownership concentration and firm performance of Czech companies question the value of distributing shares to a large number of shareholders in an environment that gives them little chance to exercise their ownership control rights. Earle, Kucsera, and Telegdy (2004) find that increased concentration of ownership in the hands of a single large shareholder is associated with improved corporate performance of Hungarian publicly listed firms.

Many authors investigating ownership concentration in transition and emerging economies find negative influence of ownership concentration on firm performance (Filatotchev, Kapelyushnikov, Dyomina, & Aukutsionek, 2001; Ivashkovskaya, Ivantsova, & Stepanova, 2012; Stančić et al., 2012). To interpret their results, Filatotchev et al. (2001) argue that ownership concentration in transition economies may provide negative effect on performance because inadequate protection of minority shareholders may provide majority shareholder with a possibility to expropriate substantial amounts of corporate wealth. Stančić et al. (2012) find that the profitability of banks

operating in Serbia decrease with the increase in ownership concentration. Based on investigation of bank governance in Bosnia and Herzegovina, Matic and Papac (2010) argue that ownership concentration can cause serious problems in foreign banks operating in the context of weak institutional context. Given the results of many prior studies examining the samples from transition economies, we expect to find a negative correlation between bank profitability and ownership concentration ratio.

Many studies also investigate relation between type of bank ownership (foreign, state and private–domestic) and bank profitability. Majority of studies find that private–domestic banks are more profitable than state-owned banks, while foreign banks are more profitable than private–domestic banks operating in emerging and transition economies (Claessens, Demirguc-Kunt, & Huizinga, 2001; Jemrić & Vujičić, 2002; Micco, Panizza, & Yanez, 2007; Tochkov & Nenovsky, 2011). Micco et al. (2007) find that state-owned banks located in developing countries are less profitable than their private counterparts and stress that their result may be due to the fact that developing countries are less than high-income countries equipped to deal with the distortions that arise from government ownership of banks. However, they add that public banks operating in developing countries still play a development role and their low profitability may be due to the fact that, rather than maximising profits, they respond to a social mandate. Claessens et al. (2001) find that in developing economies foreign banks tend to have higher interest margin, profitability, and tax payments than domestic banks. They argue that their result is consistent with hypothesis that entry of foreign banks may improve the functioning of national banking markets, with positive implications for banking customers.

Nevertheless, there are studies finding negative relation between foreign ownership and bank profitability in developing economies. Ivashkovskaya et al. (2012) find that foreign ownership is a negative value driver for banks in emerging markets because of a lack of motivation and negotiation power of foreign shareholders comparing to domestic ones. They also find that state ownership has a positive impact on bank profitability in the period of global crisis in emerging markets, mainly due to the fact that government-owned banks have an access to special benefits such as government subsidy and loans with the interest rate lower than the market one which may help them to survive in times of financial crisis. Unlike the majority of previous studies finding strong influence of ownership type on firm profitability, Košak (2011), Košak and Čok (2008) and Suljkanovic (2007) find only limited differentiation in the profitability between foreign and domestic banks across SEE economies. However, based on results of previous studies examining influence of ownership type on bank profitability we expect to find that private–domestic banks are more profitable than state-owned banks, while foreign banks are more profitable than private–domestic banks.

## **2.2. Board structure and bank performance**

In economies with weak legal protection of investors, corporate governance is the means by which minority shareholders are protected from expropriation of their rights by managers and controlling shareholder. Institutions that are important external governance mechanisms in developed economies, such as capital market, securities regulators, institutional investors, judiciary, are weak in transition economies. High quality of disclosure and strong boards of directors are, therefore, potentially important internal governance mechanisms in these economies (Stančić et al., 2012a). Dahya, Dimitrov, and McConnell (2008) argue that the board is the most important part of a firm corporate

governance structure. They also argue that the role of the board in firms with a dominant shareholder operating in conditions of weak legal protection of investors could be understood in two ways. It can be assumed that the board of directors in such circumstances can improve company performance more than in countries with strong legal protection of investors, where other governance mechanisms are efficient. However, it could be argued that the board has no power in countries with weak protection of investors, since the board is at the mercy of the dominant shareholder. The empirical studies on board effectiveness, both in nonfinancial and financial firms, focus mainly on two board characteristics – BC and BS.

The BC varies according to the representation of insiders, outsiders and shareholders, which have different monitoring capacities and interests. The literature has focused mainly on the proportion of independent or outside directors. Although there are some studies finding negative relationships between board independence and firm performance (e.g. Ivashkovskaya et al., 2012), numerous studies have indicated that a board with a high proportion of independent directors can protect the interests of minority shareholders and improve company performance in economies with weak legal protection of investors. For example, Dahya et al. (2008) and Durnev and Kim (2005) find that a strong board can offset the market value discount in firms with a dominant owner, much more in a country with weak, than in countries with strong, legal protection of investors. Bektas and Kaymak (2008) and Pathan, Skully, and Wickramanayake (2007) find significant positive relation between board independence and bank performance of Turkish and Thai banks, respectively. There are, nevertheless, studies (Adams & Mehran, 2008; Stančić et al., 2012) finding no significant relation between BC and bank performance. Stančić et al. (2012) show that large shareholders in Serbian banks tend to appoint weak boards, which can lead to serious conflicts between dominant and minority shareholders. Based on results of studies on corporate governance in developing countries with weak protection of investors we expect to find a positive relationship between board independence and bank performance.

The important question is whether BS affects performance. Several studies have indicated a negative correlation between BS and firm performance. For example, Hermalin and Weisbach (2003) argue that excessive boards lead to problems of coordination, control and flexibility in decision-making. Many authors confirm this argument in their empirical investigations (Pathan et al., 2007; Stančić et al., 2012; Yermack, 1996). Yermack (1996) finds a statistically significant negative relationship between BS and Tobin's Q of US industrial corporations. Stančić et al. (2012) find a negative relationship between BS and profitability for a sample of banks operating in Serbia, while Pathan et al. (2007) report similar result for sample of Thai banks. On the other hand, Dalton, Daily, Johnson, and Ellstrand (1999) suggest that larger boards may be beneficial because they increase the pool of expertise available to an organisation. Adams and Mehran (2008) show that large boards have no negative impact on bank performance. There are, nevertheless, studies finding no significant or weak relationship between BS and firm performance (Bektas & Kaymak, 2009; Dahya et al., 2008; Ivashkovskaya et al., 2012). Based on results of previous studies on influence of BS on firm performance we expect to find negative relationship between BS and bank performance.

Since this research covers the 2005–2010 period it will indirectly point to the role of the bank board during the periods of financial crisis. In this regard, our study complements studies such as Erkens, Hung, and Matos (2009) and Beltratti and Stulz (2009). Erkens et al. (2009) found that financial firms with higher proportion of independent directors on the board have suffered greater losses during the crisis. They find

that firms with more independent boards were more likely to raise capital during the crisis and to disclose larger write-downs than other firms. Beltratti and Stulz (2009) found that banks with more shareholder-friendly boards performed worse during the period from July 2007 to December 2008. They, however, explain that their result does not mean that board independence is bad, but that banks that were directed by their boards to maximise shareholder wealth before the crisis took risks that were understood to create shareholder wealth, but were costly afterwards because of outcomes that were not expected when the risks were taken. To take into consideration possible influence of financial crisis on the relationship between bank governance and performance we split our sample into two subsamples – before and after the financial crisis.

### 3. Sample, methodology and data

#### 3.1. Sample

To assemble our sample, in the first step we identified the total population of commercial banks in the surveyed countries. The total population of banks decreases linearly from 127 banks in 2005 to 112 banks in 2010. In the next step we eliminated banks for which we could not find annual reports and data on board structure, as well as banks with unclear ownership structure, usually owned by investment funds. Finally, we excluded banks without a dominant shareholder. Like La Porta et al. (2002), we believe that a company has a dominant shareholder if this shareholder has more than 10% of direct and indirect voting rights. In cases where a dominant shareholder is publicly traded company, it is necessary to find the dominant shareholder of the dominant shareholder, and so on, until dominant controller of the votes is found. We identify all shareholders with at least 10% of the banks voting rights. In banks with more than one such shareholder, the dominant shareholder is the one that has the largest share of voting rights. In banks with few shareholders who have more than 3% of voting rights, we check to determine whether two or more of these shareholders are affiliated, so that the percentage of their joint ownership of voting rights exceeds that of the largest individual shareholder. In such cases, joint owners are treated as the single largest shareholder.

Using present sampling procedure we identify a sample of 74 commercial banks from four transition economies of South East Europe – Bosnia and Herzegovina, Croatia, Macedonia and Serbia, representing about 55% of the total population of the banks, about 65% of banking assets, about 66% of loans and about 68% of deposits in surveyed countries. The structure of the sample by country approximates the structure of the entire sample (Table 1). We build an unbalanced panel data of 377 bank-year

Table 1. Number and share of sample banks in total banking system assets by country and year.

	Bosnia and Herzegovina	Croatia	Macedonia	Serbia	Pooled
2005	13 (49.15)	20 (72.20)	7 (50.66)	18 (65.48)	58
2006	15 (65.01)	17 (63.25)	9 (56.11)	19 (67.94)	60
2007	18 (69.11)	17 (63.47)	11 (62.79)	20 (68.83)	66
2008	19 (61.54)	16 (62.22)	11 (63.89)	18 (70.50)	64
2009	18 (62.16)	17 (60.24)	11 (65.16)	20 (70.57)	66
2010	16 (60.36)	16 (60.03)	12 (87.46)	19 (68.57)	63
Pooled	99	103	61	114	377

Notes: Share of sample banks in total banking system assets is in brackets.  
Source: Authors' calculation.

observations. We assemble data on share ownership and board structure, as well as financial and market data for the 2005–2010 period, available in the banks' annual reports or proxy statements and on company websites, as well as in the reports of the key financial institutions in surveyed countries (national banks, securities and exchange commissions, stock exchanges).

### 3.2. Methodology

To examine the impact of bank governance, ownership structure and other bank-specific factors on bank profitability, we use the regression analysis. We use the following Ordinary Least Squares (OLS) specification:

$$ROA_{it} = \alpha_i + \sum_k \beta_k BG_{it,k} + \sum_m \beta_m OWN_{it,m} + \sum_n \beta_n BNK_{it,n} + \sum_o \beta_o IND_{it,o} + \varepsilon_{it}, \quad (1)$$

where ROA stands for return on assets, proxy for bank profitability, BG for bank governance variables, CONC for ownership structure variables, BNK for bank-specific variables and IND for banking industry characteristics and macroeconomic environment. We report three alternative models of the regression equation – for the whole sample and two subsamples: before and after the financial crisis.

### 3.3. Data

As shown in equation (1), we use ROA as proxy for bank profitability. Majority of governance studies focus on ROA (i.e. Bektas & Kaymak, 2009; Košak, 2011; Stančić et al., 2012) and/or Tobin's q ratio (i.e. de Andres & Váallelado, 2008; Dahya et al., 2008), as proxies of bank performance. However, Tobin's q might not accurately reflect bank performance if stock market efficiency and liquidity deviates from the standards of the developed stock markets, which is the case with SEE transition economies. Therefore, we use only ROA, calculated as the ratio of income before taxes to the book value of assets.

The potential determinants of profitability are grouped into four categories. Bank governance variables are BS and BC. Banks in our sample have clear two-tier board structure with separate supervisory and executive body. Like in some other studies on bank governance (Busta, 2007; Stančić et al., 2012; Stefanelli & Cotugno, 2010), in banks with two-tier board structure, BS is defined as the number of supervisory board members. In order to determine the proportion of independent directors on the board (BC), we use the criteria similar to those developed by Dahya et al. (2008). We believe that the director is affiliated if he is: (1) the dominant owner; (2) employee of the bank; (3) employee of any company or subsidiary of any company that is positioned above the sample bank in the ownership tree; (4) employee of another firm in which the dominant shareholder has at least 10% of voting rights, regardless of whether this company is in the same ownership tree; (5) politician or employee of a government agency, when the dominant shareholder is government; or (6) employee of a company domiciled in the same country as the dominant shareholder when the dominant shareholder is a foreigner. Directors who are not affiliated are considered independent. BC is the number of independent directors divided by the total number of directors on the board.

Bank ownership variables are ownership concentration ratio and ownership type. To account for potential principal–principal conflict, we include ownership concentration

ratio (CONC) into our analysis since this variable may have implications for firm performance and board structure (La Porta et al., 2002). The ownership concentration ratio is determined as the percentage of shares owned by the dominant shareholder. Many studies examined whether ownership type (i.e. state, private and foreign ownership) is related to bank efficiency. To account for ownership type we include following three dummy variables: FRGN which equals one if more than 50% of bank shares are owned by foreign owner, STAT which equals one for banks with more than 50% of state ownership, and PRIV which equals one if more than 50% of bank shares are owned by the residents.

Bank-specific variables are bank activity, capitalisation, and size. The ratio of loans to total assets measures differences in banking business (LA), while the capital ratio is a proxy for capital structure (CAR). To account for bank size we include the following dummy variables: SMALL which equals one if bank has total assets below €100 million, MEDI which equals one if bank has total assets of €100 million to €800 million, and LARGE which equals one if bank has total assets over €800 million. Nominal variables are expressed in Euro and deflated using individual country GDP deflators (2005 is a base year). Banking industry and macroeconomic environment variables are the ratio of bank deposits over GDP (DEP) which measures the relevance of the bank deposits in each country, percentage share of five largest banks in country's bank assets (BC5), which measures the degree of concentration in the banking sector, and the real GDP growth rate (GGR). We also use country and time dummies.

## 4. Empirical results

### 4.1. Descriptive statistics

Table 2 shows average values of ROA and potential profitability determinants for overall sample and by country. The average board has almost six directors, out of which 26.67% are independent, indicating that there is one independent director on the average bank board. In only 59 out of 377 bank-year observations (15.65% of observations) there is a majority of independent directors on the board, while in 114 observations (30.24%) there are no independent directors on the board. The average board is smaller and less independent than the average board reported by some other studies on financial (Adams & Mehran, 2008; de Andres & Vallelado, 2008), and non-financial firms (Dahya et al., 2008; Yermack, 1996). These studies report that the average bank board has 16–18 directors and up to 80% independent directors, while the average board in a non-financial firm has 7–12 directors and at least 38% of independent directors. Small boards made of majority of affiliated directors may point to a representation problem for minority shareholders, although it should be noted that the board structure of average bank in our sample changes constantly. Average BS decrease slightly from 5.71 directors in 2005 to 5.68 directors in 2010, while the average proportion of independent directors increase from 24.45% to 29.41%.

Croatian banks have the highest CONC, and at the same time smallest and least independent boards. This could imply that dominant shareholders with larger ownership share tend to appoint smaller and less independent board, which again might point to a representation problem for minority shareholders. A slightly different relationship can be noted when looking at the average values by ownership type. Foreign banks have the highest average CONC, largest and least independent boards, while privately held domestic banks have the lowest CONC, smallest boards and the highest BC. Croatian

Table 2. Average values of ROA and potential profitability determinants by year, country, bank ownership and size.

	Obs.	ROA	BS	BC	CONC	Assets	LA	CAR
Average by year								
2005	58	1.69	5.71	24.45	78.23	549.75	54.71	21.55
2006	60	1.25	5.82	23.93	78.46	671.47	54.24	22.24
2007	66	0.96	5.77	25.20	75.29	707.52	53.20	20.82
2008	64	0.47	5.69	27.07	79.44	720.25	59.69	19.97
2009	66	-0.10	5.74	29.58	77.38	678.90	57.80	19.21
2010	63	0.32	5.68	29.41	78.22	724.46	59.39	17.94
Average by country								
Bosnia and Hezegovina	99	0.23	5.33	23.45	79.19	309.80	59.38	19.62
Croatia	103	0.97	5.25	22.53	82.54	1,511.81	60.77	13.59
Macedonia	61	1.23	6.18	32.00	77.67	209.76	53.51	23.31
Serbia	114	0.72	6.28	30.35	72.39	493.26	51.87	25.19
Average by ownership type								
FRGN	223	0.40	6.02	17.20	88.17	970.62	57.20	17.11
STAT	74	0.36	5.77	34.91	75.98	338.72	53.84	27.62
PRIV	80	2.06	4.91	45.46	50.61	173.75	57.21	22.21
Average by size								
Small	113	0.59	5.41	35.59	72.66	59.60	50.98	32.34
Medium	179	0.58	5.68	27.38	75.95	270.48	58.17	15.81
Large	85	1.30	6.29	13.31	88.55	2,356.04	60.51	13.53
Pooled	377	0.74	5.73	26.67	77.81	677.49	56.54	20.25

Source: Authors' calculation.

banks are also the largest, have the lowest proportion of foreign ownership and the highest proportion of private-domestic ownership, and have relatively high average ROA. On the other hand, Macedonian banks have relatively large boards and the highest BC, they are the smallest and have highest proportion of foreign ownership, and at same time they are the most profitable. This could imply that banks may be equally successful even though they have extremely different governance and ownership structure. This is consistent with the view that the flexibility of the structure, and not the structure itself, is really crucial (Błaszczuk, Hashi, Radygin, & Woodward, 2003).

Table 2 also shows that BS and CONC increase, while the board independence decreases monotonically with the increase in bank size. This result may be connected with differences in average values between different types of ownership. Namely, foreign banks are the largest and, therefore, have the characteristics of large banks, although the opposite may also be the true. Foreign investors entering emerging markets usually buy large shareholdings of domestic banks or start wholly-owned subsidiary in order to secure control over the bank activities in the conditions of weak investor protection. Shleifer and Vishny (1997) cite the example of one Russian investor (which could easily be applied to SEE economies) pointing out that a Western investor can control a Russian company with 75% ownership, whereas a Russian investor can do so with only 25% ownership, because he can use a variety of techniques against foreign investors, including declaring some of their shares illegal, requiring super majorities to bring issues on the agenda of shareholder meetings, losing voting records, etc. In our sample, foreign dominant shareholder have less than 50% of voting rights in only 25 observations (11.21% of foreign banks), and less than 75% of voting rights in only 85 observations (38.12% of foreign banks).

#### 4.2. Univariate analysis

Table 3 shows the Pearson's correlation matrix between variables included in the analysis along with their corresponding significance level. The matrix shows that ROA is negatively and significantly correlated with BS and CONC, but positively and significantly correlated with capital ratio and real GDP growth rate. This result implies that we can expect to find that banks with higher CONC and larger boards are less profitable. On the other hand, important drivers of bank profitability are bank capitalisation and real GDP growing rate. Matrix shows a positive but not statistically significant correlation between ROA and BC. BC is found negatively and significantly correlated with CONC. This is highest inter-correlation between two variables that appear together as predictor variables in the analysis (0.48), so we do not expect problems with multicollinearity.

#### 4.3. Regression analysis

In this section we analyse the impact of bank governance, ownership structure, and other bank-specific factors on bank profitability using the OLS regression specification presented in equation (1). We rely on some earlier studies of this relationship, including Stančić et al. (2012), Bektas and Kaymak (2009) and Pathan et al. (2007). Our dependent variable is ROA. To eliminate problems regarding the standard errors, which affect inference and the significance of the results, we undertake a heteroskedasticity robust estimation using the White heteroskedasticity consistent standard errors method. Table 4 presents OLS regression estimates. We report three alternative models of the regression equation – for the whole sample and two subsamples: before and after the financial crisis. Before the financial crisis subsample include data-set of commercial banks over the period 2005–2007, while after the financial crisis subsample covers the period 2008–2010.

The estimated coefficients of the bank governance variables indicate that bank profitability decrease with increase of BS. This finding is consistent with the argument that excessive boards lead to problems of coordination, control and flexibility in decision-making, as well as with the findings of some studies on bank governance in emerging economies (e.g. Pathan et al., 2007; Stančić et al., 2012). Furthermore, this means that smaller boards are effective in monitoring bank managers and can contribute to bank profitability more than large boards. Negative influence of BS on profitability of banks in our sample may be due to the fact that large majority of banks in our sample do not have nominating committee, nor predefined succession policy, so they may appoint directors that do not have necessary experience, skills and expertise. In addition, BS significantly negatively influence bank profitability before and after the occurrence of financial crisis, which could be due to the ability of smaller boards to make decisions faster in periods of extreme uncertainty.

BC is negatively, but insignificantly related to bank profitability. This result implies that BC does not influence profitability of banks operating in SEE economies, which is surprising given previous studies finding significant and often positive influence of board independence over bank profitability in emerging economies (Bektas & Kaymak, 2008; Pathan et al., 2007). Non-correlation between board independence and bank profitability can be explained with argument that the board has no power in countries with weak protection of investors, since the board is at the mercy of the dominant shareholder (Dahya et al., 2008) which is able to directly control bank activities and impose

Table 3. Pearson's correlation matrix.

	ROA	BS	BC	CONC	LA	CAR	DEP	BC5	GGR
ROA	1.00								
BS	-0.14***	1.00							
BC	0.04	-0.07	1.00						
CONC	-0.14***	-0.08	-0.48***	1.00					
LA	0.04	-0.07	-0.04	0.09*	1.00				
CAR	0.25***	0.03	0.21***	-0.11**	-0.19***	1.00			
DEP	0.00	-0.2***	-0.05	0.12**	0.20***	-0.29***	1.00		
BC5	0.08	-0.15***	-0.05	0.12**	0.17***	-0.21***	0.44***	1.00	
GGR	0.15***	0.03	-0.05	-0.00	-0.14***	0.10**	-0.27***	-0.07	1.00

Note: Statistically significant at 1% (\*\*\*), 5% (\*\*) and 10% (\*).  
 Source: Authors' calculation.

Table 4. Results of the OLS regression analysis of profitability determinants.

Dep. ROA	2005–2010	2005–2007	2008–2010
Obs.	377	184	193
Intercept	7.242 (1.182)	-3.520 (-0.274)	12.110 (1.326)
Bank governance			
BC	-0.007 (-1.377)	-0.010 (-1.148)	-0.011 (-1.506)
BS	-0.406*** (-4.998)	-0.441*** (-3.892)	-0.316*** (-2.590)
Bank ownership			
CONC	-0.010* (-1.654)	-0.021** (-2.164)	-0.003 (-0.458)
FRGN	-1.767*** (-3.841)	-1.504** (-2.268)	-2.212*** (-3.531)
STAT	-1.740*** (-4.241)	-1.923*** (-2.954)	-1.567*** (-3.199)
Bank variables			
SMALL	-2.001*** (-4.293)	-0.861 (-1.304)	-3.246*** (-5.312)
LARGE	1.785*** (6.929)	1.469*** (3.636)	1.996*** (5.566)
LA	0.004 (0.328)	0.022 (1.050)	-0.014 (-1.028)
CAR	0.084*** (5.813)	0.068*** (3.508)	0.105*** (5.453)
Banking industry			
DEP	-0.034 (-1.036)	-0.084 (-1.090)	-0.060 (-0.582)
BC5	0.012 (0.148)	0.158 (0.808)	-0.051 (-0.380)
GGR	-0.049 (-0.325)	0.198 (0.526)	0.022 (0.109)
Time dummies	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes
R <sup>2</sup>	0.345	0.316	0.404
Adjusted R <sup>2</sup>	0.309	0.246	0.346
F-value	9.388***	4.503***	6.976***

Notes: t-statistics are in parentheses. Statistically significant at 1% (\*\*\*), 5% (\*\*) and 10% (\*).

Source: Authors' calculation.

its own interests. Banks in our sample have highly concentrated ownership, and very often one dominant (controlling) shareholder, while the legal and institutional system do not provide strong institutional support to independent directors and protection of minority shareholders rights. Also, although independent directors are expected to better perform monitoring function than insiders, their ability to perform this function may be fostered when there is additional expertise and resources (information) afforded by a large board (see Abdul Kader, Adams, Hardwick, & Jean Kwon, 2011), and Table 2 shows that average bank board in our sample is relatively small. Our findings of the influence of the board structure over bank profitability are consistent with the conclusions from previous studies summarised by Hermalin and Weisbach (2003). They find that previous research has established that BC, as measured by the insider–outsider

ratio, is not correlated with firm performance, while the number of directors on a firm's board is negatively related to the firm's financial performance.

CONC is negatively, but weakly related with bank profitability. This relation is significant only for the whole sample ( $p < 0.1$ ) and period before the crisis ( $p < 0.05$ ). In the period after the financial crisis CONC loses its significance. This result is consistent with the argument that ownership concentration in transition economies may provide negative effect on performance because inadequate protection of minority shareholders may provide majority shareholder with a possibility to expropriate substantial amounts of corporate wealth (Filatotchev et al., 2001). After controlling for bank specific factors, we also find that privately held domestic banks outperform both state-owned and foreign banks, which is surprising given the findings from previous studies finding that foreign banks outperform domestic banks (Claessens et al., 2001; Jemrić & Vujčić, 2002; Micco et al., 2007; Tochkov & Nenovsky, 2011). This finding may be due to the fact that privately held banks in our sample have much lower CONC and smaller boards, as factors negatively related with bank profitability, than state-owned and foreign banks. Mian (2003) finds that flatter hierarchical structure of private domestic banks allows them to use 'soft information' to lend more at higher interest rate, which is consistent with results in Table 2 showing that privately held domestic banks hold more assets in form of loans than foreign and state banks. The same author adds that greater cultural distance can make it more costly for foreign banks to collect and communicate soft information.

Our results show that large banks are more profitable than small and medium sized banks. Large banks are usually considered to have more professional management and to be more cost conscious (Isik & Hassan, 2003). Their size allows them to exploit economies of scale and have easier access to international financial markets (Brissimis, Delis, & Papanikolaou, 2008). Bank capitalisation is positively and significantly related to bank profitability which can be explained with lower funding costs and lower bankruptcy and agency costs. Well-capitalised banks are able to attract more deposits with lower interest rate because they offer implicit deposit insurance. Also, in accordance to theory of moral hazard, managers of banks with less capital, which are often close to bankruptcy, tend to make riskier decisions and pursue their own goals instead of shareholder goals (Grigorian & Manole, 2006). At the same time, the owners with less capital to lose have less incentive to make sure that bank is operating efficiently. However, it is not necessarily the level of capitalisation that defines the risk taking, but vice versa. It should be noted that banks in our sample are well capitalised because of high national requirements and high perceived risk of banks operating in transition economies. We find no significant relation between loan production, proxied by ratio of loans to assets, and bank profitability.

As a sensitivity test of our results we analyse the impact of bank governance, ownership structure, and other bank-specific factors on bank profitability proxied by return on equity (ROE) which is in line with some previous studies (Kořak, 2011; Kořak & Ćok, 2008; Pathan et al., 2007). We calculate ROE as the ratio of income before taxes to the book value of equity. Table 5 shows average values of ROE for overall sample, by country and by year.

To eliminate problems regarding the standard errors we undertake a heteroskedasticity robust estimation using the White heteroskedasticity consistent standard errors method. Table 6 presents OLS regression estimates. We report three alternative models of the regression equation - for the whole sample and two subsamples: before and after the financial crisis. Before the financial crisis subsample include data-set of commercial

Table 5. Average values of ROE by year and by country.

Var. ROE	Bosnia and Herzegovina	Croatia	Macedonia	Serbia	Pooled
2005	8.55	12.32	10.47	6.03	9.30
2006	6.03	9.52	10.30	-1.15	5.39
2007	5.04	7.99	11.07	3.92	6.47
2008	-0.52	7.88	5.64	1.48	3.20
2009	-2.58	-3.36	1.98	-4.20	-2.51
2010	1.12	-5.85	4.76	-7.01	-0.51
Pooled	0.83	5.04	2.56	7.03	

Source: Authors' calculations.

Table 6. Results of the OLS regression analysis of profitability determinants.

Dep. ROE	2005–2010	2005–2007	2008–2010
Obs.	377	184	193
Intercept	99.047** (1.980)	37.971 (0.668)	118.917* (1.804)
Bank governance			
BC	-0.027 (-0.766)	-0.014 (-0.433)	-0.077 (-1.060)
BS	-1.560*** (-3.435)	-1.175** (-2.324)	-1.535* (-1.677)
Bank ownership			
CONC	-0.056* (-1.825)	-0.079** (-2.106)	-0.033 (-0.716)
FRGN	-7.195** (-2.112)	-3.096 (-1.042)	-12.518** (-2.040)
STAT	-8.374*** (-3.347)	-5.499** (-2.262)	-11.802*** (-2.741)
Bank variables			
SMALL	-10.124*** (-4.286)	-4.230 (-1.487)	-17.763*** (-4.701)
LARGE	11.555*** (5.133)	8.584*** (3.659)	12.857*** (3.820)
LA	0.006 (0.108)	0.109 (1.444)	-0.051 (-0.634)
CAR	0.241*** (3.719)	0.062 (0.343)	0.555*** (4.040)
Banking industry			
DEP	0.099 (0.579)	0.066 (0.206)	0.335 (0.436)
BC5	-0.924 (-1.383)	-0.283 (-0.332)	-1.483 (-1.267)
GGR	0.547 (0.550)	1.365 (0.743)	0.334 (-0.146)
Time dummies	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes
R <sup>2</sup>	0.259	0.251	0.272
Adjusted R <sup>2</sup>	0.217	0.175	0.201
F-value	6.212***	3.269***	3.838***

Notes: t-statistics are in parentheses. Statistically significant at 1% (\*\*\*), 5% (\*\*) and 10% (\*).

Source: Authors' calculations.

banks over the period 2005–2007, while after the financial crisis subsample covers the period 2008–2010. Table 6 shows that the regression coefficients when ROE is dependent variable are almost the same like when ROA is dependent variable. BC is still not correlated with bank profitability, while BS is negatively and significantly correlated with bank profitability, although significance of this result is lower than with ROA. Concerning ownership structure, the only difference is with foreign ownership in the period before crisis, because this result is not significant. Interestingly, bank capitalisation is not significantly related with bank profitability measured by ROE in the period before crisis, implying that bank capitalisation can protect bank profitability especially in the periods of crisis and after the crisis.

## 5. Conclusions

We study 74 commercial banks from four transition economies of South East Europe to explore the impact of bank governance, ownership structure and other bank specific factors on bank profitability. We find that the average board is smaller and less independent than the average board of financial and non-financial firms in both emerging and developed economies. Small boards made of majority of affiliated directors may point to a representation problem for minority shareholders, although it should be noted that the average BS decreases, while the average proportion of independent directors increases. We also find that foreign banks have the highest average ownership concentration ratio, largest and least independent boards, while privately held domestic banks have the lowest ownership concentration ratio, smallest boards and the highest proportion of independent directors. This result may be explained with tendency of foreign banks to increase ownership stake in order to secure control over the bank activities in the conditions of weak investor protection.

We use a panel data OLS regression model to examine the impact of bank governance, ownership structure and other bank specific factors on bank profitability. As we expected, we find negative and significant relationship between BS and bank profitability which may be due to the fact that large majority of banks in our sample do not have nominating committee, nor predefined succession policy, so they may appoint directors that do not have necessary experience, skills and expertise. In addition, BS significantly negatively influence bank profitability before and after the occurrence of financial crisis, which could be due to the ability of smaller boards to make decisions faster in periods of extreme uncertainty. Like we expected, the proportion of independent directors on the board is negatively related to bank profitability. However, this result is statistically insignificantly. This result can be explained with argument that the board has no power in countries with weak protection of investors, since the board is at the mercy of the dominant shareholder who is able to directly control bank activities and impose their own interests.

In line with some previous studies and like we expected, ownership concentration ratio is negatively, but weakly related with bank profitability. This result is consistent with the argument that ownership concentration in transition economies may provide negative effect on performance because inadequate protection of minority shareholders may provide majority shareholder with a possibility to expropriate substantial amounts of corporate wealth. We also find that privately held domestic banks outperform both state-owned and foreign banks. This result is surprising given many previous studies. This may be due to the fact that privately held domestic banks in our sample have much

lower ownership concentration ratio and smaller boards, as factors negatively related with bank profitability, than state-owned and foreign banks. Finally, we find that large and well capitalised banks are more profitable than smaller and less capitalised banks.

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