

Čerović, Slobodan; Stanišić, Nemanja; Radojević, Tijana; Radović, Nikica

## Article

# The Impact of Ownership Structure on Corporate Performance in Transitional Economies

Amfiteatru Economic Journal

## Provided in Cooperation with:

The Bucharest University of Economic Studies

*Suggested Citation:* Čerović, Slobodan; Stanišić, Nemanja; Radojević, Tijana; Radović, Nikica (2015) : The Impact of Ownership Structure on Corporate Performance in Transitional Economies, Amfiteatru Economic Journal, ISSN 2247-9104, The Bucharest University of Economic Studies, Bucharest, Vol. 17, Iss. 38, pp. 441-454

This Version is available at:

<https://hdl.handle.net/10419/168926>

### Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

### Terms of use:

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



<http://creativecommons.org/licenses/by/4.0/>

## THE IMPACT OF OWNERSHIP STRUCTURE ON CORPORATE PERFORMANCE IN TRANSITIONAL ECONOMIES

Slobodan Čerović<sup>11</sup>, Nemanja Stanišić<sup>2</sup>, Tijana Radojević<sup>3</sup> and Nikica Radović<sup>4</sup>  
<sup>1)2)3)4)</sup> *Singidunum University, Belgrade, Serbia*

---

### Please cite this article as:

Čerović, S., Stanišić, N., Radojević, T. and Radović, N., 2014. The Impact of Ownership Structure on Corporate Performance in Transitional Economies. *Amfiteatru Economic*, 17(38), pp. 441-454

---

### Abstract

The relationship between ownership structure and corporate performance might be remarkably strong and informative within transition economies. In this research, we explore this relationship, referring to the example of the Republic of Serbia. For that purpose, appropriate linear models have been fitted to the panel dataset compiled from financial reports of 2101 non-financial companies actively operating during the period 2008-2013. The results indicate that, after controlling for size effect, companies characterised by state, dispersed or/and foreign ownership have significantly lower profitability in comparison to their counterparts. We would argue that an intensified agency problem and lack of entrepreneurial spirit might be the root of the profitability problem.

**Keywords:** ownership structure, profitability, agency problem, linear mixed models

**JEL Classification:** M210, G32, L25.

---

### Introduction

The relationship between ownership structure and corporate performance has been the subject of intense research in both transition and market economies (Claessens and Djankov, 1999). Certain characteristics of companies, such as state ownership, dispersed ownership and foreign ownership allow them access to substantial financial resources and improve their overall financial flexibility. However, along with benefits that companies with these characteristics have in common, they are also faced with certain shared challenges and inefficiencies. We would argue that these challenges are intensified agency problem (distant or/and marginalized business owners) and inhibited entrepreneurial activity. Some interesting arguments from the existing literature that might support this view are presented and discussed in this paper. Based on our understanding of the local market, and the reassuring findings of the relevant literature, we propose the hypothesis that, with regard to companies which are operating in environments with weak financial and legal institutions (typical for transition economies), the inherent inefficiencies of the

---

<sup>1</sup> Corresponding author, Nemanja Stanišić – nstanisic@singidunum.ac.rs

aforementioned characteristics considerably outweigh their corresponding benefits. Therefore, the goal of this research is to conduct an appropriate analysis of the association between each of these characteristics and the profitability levels of a sample of companies operating in a transitional economy. Despite the motivation to illustrate a general state of affairs within transitional economies, the scope of this specific analysis is in effect limited to companies operating in the Republic of Serbia in the period between 2008 and 2013.

### **1. Review of the scientific literature**

The negative impact of large government (Aidis et al., 2010) and bureaucracy (Sørensen, 2007) on entrepreneurial entry is well documented in the existing literature. It is advocated that substantial improvement in productivity might be achieved by simplifying and reducing government economic intervention (Lash and Batavia, 2013). The existence of ties with government has been proven to be beneficial for companies (Hillman et al., 2004), but recent research (Okhmatovskiy, 2010) reveals that ties to state operated enterprises (SOE) might be even more advantageous. While the beneficiary companies have the upper hand in this reallocation process, it is quite obvious that SOEs (along with the rest of the economy via fiscal redistribution) have the other one, which means that their earnings will deteriorate.

Yet another reason for the relatively low profitability of SOEs, as Bozec et al. (2006) remind us, is the fact that non-commercial objectives are commonly imposed upon them. For example, CEOs are inclined to maintain a number of employees on economically unjustifiable high levels for social and political reasons. The practice of appointing CEOs and board members to reward their political acceptance and loyalty (Hu and Leung, 2009) rather than for their competence is also not unheard of. On a more positive note, they also seem to be more environmentally responsible (Earnhart and Lizal, 2006) in comparison to private companies.

The second challenge for companies operating in transition countries is dispersed ownership structure. The period since the third quarter of the nineteenth century has been characterised by the demise of the entrepreneur in favour of the modern corporation (O'Kelley, 2006). The corporate form has important advantages over other business forms such as relaxing financing constraints, reducing legal obstacles and allowing higher growth. However, research shows that these advantages actually only manifest themselves in countries with well-developed financial and legal systems (Demirguc-Kunt et al., 2006). In the countries where financial and legal institutions are not as developed, the negative characteristics may outweigh the positive ones.

While concentrated ownership is, in many regards, restrictive, it naturally stimulates the active role of the entrepreneur in running business operations, and also as a consequence, agility in determining and altering a strategic course. Contrary to that, the absence of a dominant shareholder imposes challenges that can be typical of (but arguably fatal for) socialism. That is to say, if corporations are accountable to all, they are actually accountable to none (Sternberg, 2000). Some reasons to believe that this kind of challenge is particularly prominent in developing countries are given in Stulz's twin agency concept (2005). He stresses that both those who control a firm and those who control the state can use their power for their own benefit. They are able to prosper together because they feed on each other. He states that, as agency problems worsen (which we hypothesise

to be true in transitional economies), concentrated ownership becomes more efficient than diffuse ownership.

Even if the incorporated entity does not have a dispersed ownership structure, its legal form still poses challenges. Due to the typically weak regulatory framework of transitional economies, large shareholders are able to use its controlling position in firms to extract private benefits at the expense of minority shareholders (Villalonga and Amit, 2006), creating additional issues named agency problem - type II.

The cult of the entrepreneur has been recently rekindled in the form of the modern chief executive officer (CEO) (O'Kelley, 2006), which is at the top of the massive and well-defined administrative pyramid. Although hierarchical bureaucracies can (and do) emerge in any organization, public companies (along with SOEs) are particularly prone to experience them. In this kind of bureaucracy, tasks are broken into simple parts, each the responsibility of a different layer of employees, each defined by specific rules and regulations (Gore, 1993). For that reason, corporations are known to be less entrepreneurial (Manne, 2011) with more emphasis on management. It makes them slow to react to the changing demands of managerial, employee and customer needs (Nica, 2013). Procedures, protocols, processes, systems and controls are put in place in order to minimise the surprises and optimise resource-use efficiency in conditions where the output and input was well known and understood (Vale and Addison, 2002). Innovation and discovery is often said to be accomplished "despite the company" (Vale and Addison, 2002).

Management structures that complement the modern CEO also tend to be challenging, since individuals who are supposed to mastermind and oversee the business strategy are banded together into boards (a two tier board system is used in Serbia) and have limited downside risks in cases of poor performance. This practice does not support the feeling of personal responsibility and may lead to the psychological effect which is known as diffusion of responsibility. Strict and authoritarian hierarchies also raise problems of transmitting accurate images across successive levels. As a consequence of that, another burden may be that massive hierarchies bring with them so called influence costs. They arise as a consequence of attempts to influence central office management to use their power to one or another individual's or group's advantage (Meyer et al., 1992). These attempts are recognised as being difficult to ignore by managers who enjoy broad discretion (Williamson, 1967).

As Williamson (1967) states, the larger and more authoritarian the organisation, the better the chance that its top decision makers will be operating in purely imaginary worlds. We believe that countries with high power distance such as Serbia (Hofstede, 2011) can be a fairly encouraging and stimulating environment for such phenomena.

Corporations are also more rigorously regulated than private businesses, and administrative costs associated with added regulations are a constant drain on profitability.

The third factor of our interest in this research is foreign ownership. Multinational corporations are physically dispersed in environmental settings that represent very different economic, social, and cultural milieu (Ghoshal and Bartlett, 1990). Physical dispersion and cultural differences can impair the effectiveness of coordination of business processes and communication in general, and intensify the agency problem. Also, strict procedures and rigid rules that are designed and put in place with the aim of ensuring quality and compliance across multiple regions and countries might not leave enough room for

entrepreneurial activities, which are essential for success (Zahra et al., 2001). In contrast to domestic investors, who are somewhat unresponsive to performance and tend to maintain relational business ties with investing firms, foreign investors (especially mutual funds and other institutional investors) are inclined to divest when the financial performance is poor (Colpan et al., 2011). First on the list for divestments are developing countries (which are understandably perceived as more risky). This was particularly noticeable during global financial downturns, when companies operating in minor markets were first closed or deprived of financial resources (Petrović and Čerović, 2011).

## 2. Research methodology

In this section, we operationalize the concepts of interest into quantitative variables, state the hypothesis, describe the data set used in the analysis and specify appropriate statistical models.

- Operationalization of the concepts

As a measure of profitability (the dependent variable), we use return on invested capital (ROIC), which is calculated as follows:

$$ROIC = EBIT / Invested\ capital = EBIT / (Equity + Interest-bearing\ liabilities - Excess\ cash\ holdings) \quad (1)$$

The value of ROIC is interpreted as a pre-tax return on equity if entities were financed solely through equity and had no excess cash holdings. As entities may have different levels of financial flexibility merely for the reason that they are organised in different legal forms (for instance, private companies might be more financially constrained than public ones), or have different ownership structure (domestic companies might be more financially constrained than the foreign ones), accounting for the consequences of financial decisions might give rise to misleading conclusions. Focusing on profitability of entities' business operations allows us to draw conclusions about the quality of management in the company.

As the calculation of ROIC is heavily dependent on the estimated values of excess cash holdings (see the equation (1)), the estimation procedure will be fully explained along the following lines. The excess cash held by company  $i$  in period  $t$  is estimated as the difference between actual cash holdings and model-predicted baseline cash holdings for a company:

$$Excess\ cash\ holdings_{it} = Actual\ cash\ holdings_{it} - Predicted\ cash\ holdings_{it} \quad (2)$$

For estimating predicted levels of cash holdings, the IBM SPSS 21 implementation of the Exhaustive CHAID algorithm has been used. As a measure of liquidity, similarly to Opler (1999) we have used ratio of liquid cash holdings to non-cash assets of the company

$$Liq = (Cash\ and\ cash\ equivalents / (Total\ assets - Cash\ and\ cash\ equivalents)) \quad (3)$$

with the difference that we have classified short term financial investments as non-cash assets rather than cash assets. The reason for that is limited liquidity of local financial markets and heterogeneity of this balance sheet item (they might include short-term loans to related parties).

Predictors of cash holdings level  $Liq_{it}$  were:

$LnRAssets_{it}$  - Ln(Value of total assets scaled by CPI for the Euro Area (OECD,2014))

$LnRRevenue_{it}$  - Ln(Value of total revenue scaled by CPI for the Euro Area)

$LnNEmployees_{it}$  - Ln(Average of number of employees at the end of each month)

*IndustryCode* -Local equivalent of SIC two-digit classification.

*Year* -Annual reporting period

Selection of the predictor variables is based on findings of the earlier studies which report that cash holdings are related to size (Opler,1999; Duchin, 2010), are industry-specific (Harford et al., 2008; Fresard, 2010) and fluctuate between time periods (Harford et al., 2008; Pinkowitz et al., 2013).

After setting the parameters<sup>2</sup>, and running the classification algorithm, we obtained the predicted liquidity levels (63 nodes, of which 44 are terminal), which are then back-transformed into absolute predicted cash values and, as such, used in equation (2).

The ownership characteristics that are expected to be associated with performance have been operationalized using the following three explanatory variables:

- Ownership type:

We use information from statistical annex<sup>3</sup> item number 603- Type of ownership. Originally, categories are coded in the following way: socially-owned enterprises [1], privately-owned business entities [2], co-operatives [3], mixed ownership structures [4] and state-owned enterprises [5].

Given the purpose of the study, co-operatives are excluded from the analysis. Also, due to the high degree of similarity, socially-owned enterprise and state-owned enterprises were merged into a single category named a state/socially-owned enterprise.

Finally, after restructuring, ownership categories are recoded as follows: privately-owned business entity [1], state/socially-owned enterprise [2] mixed ownership structure [3].

- Ownership dispersion:

We use information from statistical annex items number 623, 625, 627, 629, 630, 631 and 632- Paid in capital. These items disclose values of paid in capital associated with

<sup>2</sup>In order to avoid excessive over-fitting, minimal parent and child node sizes are limited to 300 and 100 items respectively and the maximum number of levels is limited to 3. The significance level for splitting nodes was 0.05 adjusted by a Bonferroni correction. The number of intervals for scale variables was set to 10. The time variable (Year) was excluded during the procedure due to its low discriminatory power.

<sup>3</sup>The statistical annex is an integral part the set of financial reports which contains some supplementary non-financial information on legal entity, as well as financial information that are presented in a more analytical form in comparison to balance sheet and income statement.

shareholders', limited liability, along with partnerships, state-owned, socially-owned, co-operative and other contributions respectively. As we are interested in ownership dispersion, which is typical in joint stock companies, we focus on share capital. Based on the value of share capital (item 623), we can compute a dummy variable. If the value of share capital is greater than 0, the dummy variable is coded as 1 and otherwise as 0.

At this point, it is necessary to call attention to the fact that this variable might not be a flawless proxy for dispersed ownership structure. While the existence of share capital clearly indicates the possibility that ownership structure is dispersed, the relationship is not clear cut<sup>4</sup>. This fact represents a limitation of this study, and the reader should bear it in mind when interpreting the results.

- Foreign ownership:

We use information from statistical annex items numbers 624, 626 and 628-Paid in capital. These items disclose values of paid in capital associated with shareholders', limited liability, and partnership, contributions respectively, which is owned by foreign investors. The variable is computed in the following way:

$$\text{Foreign ownership \%} = (624+626+628) / (623+625+627+629+630+631+632) \quad (4)$$

Descriptive statistics of the variables of interest are summarised in Table no. 1.

**Table no. 1: Descriptive statistics of the variables of interest**

		ROIC	Ownership type			Ownership dispersion		Foreign own.
		Mean	State/socially-owned	Mixed	Private	Joint stock	Other	Mean
			Row N %	Row N %	Row N %	Row N %	Row N %	
Year	2008	10,38%	13,4%	9,0%	77,5%	30,5%	69,5%	14,42%
	2009	8,19%	12,7%	8,3%	79,0%	31,2%	68,8%	14,92%
	2010	7,53%	13,1%	8,1%	78,8%	31,4%	68,6%	15,53%
	2011	8,15%	13,1%	7,9%	78,9%	31,6%	68,4%	15,77%
	2012	6,27%	13,1%	8,0%	78,9%	30,7%	69,3%	16,07%
	2013	4,05%	12,9%	7,3%	79,7%	30,1%	69,9%	16,11%

- Hypothesis statement

After accounting for the size effect, companies in the sample which are owned by the state, have a more dispersed ownership structure and a higher share of foreign ownership exhibit relatively lower profitability levels, as measured by ROIC.

<sup>4</sup>For instance, all companies which have been subject to privatisation were required by law to change its legal form to a joint stock corporation.

- Data processing

The initial dataset (raw data) consisted of the comprehensive financial statements of 4701 unique non-financial companies,<sup>5</sup> from six annual reporting periods (2008-2013). The vast majority of them were classified as being of large or medium size according to local classification. The total sum of company-year observations in the sample was 21897. At this point, the dataset was unbalanced due to some missing observations, which were present due to changes in the indicated status and size of the entity.

The following changes were made to the initial dataset:

- Any company-year observation with ROIC values greater than 100% or less than -100% has been excluded from the analysis.
- Any company-year observation with labels other than 'actively operating' has been excluded from the analysis.
- Finally, cases which after the preceding two steps have had less than six observations (incomplete cases) have been excluded. By doing this, we have excluded all the companies with profitability levels that are considered to be extreme (outliers), and all the companies that have become bankrupt or have been voluntarily liquidated during the observation period (to minimize the survivorship bias).

The final dataset was balanced, and consisted of the financial statements of 2101 unique non-financial companies, from six consecutive annual reporting periods (2008-2013).

- Model specification

Performing the analysis in a single statistical model gives the opportunity to sort out the individual effects of the characteristics while taking into account their coexistence and correlation (for instance, as share of capital held by foreign investors approaches 100%, the chances of being a state operated entity or having a dispersed ownership structure approach 0). Given the nature of the panel data, there are three possible types of variability that we might want to explore: intersectional (between-companies) variability, time series (within-companies) variability and combined variability.

As entities do not change their ownership structure and legal form regularly, we primarily focus on intersectional information in the sample. For that purpose, we can specify a 'between' effect model:

*Between effect model*

$$\overline{ROIC}_{i*} = \alpha + \beta_1 \times \overline{LnRAssets}_{i*} + \beta_2 \times \overline{LnRRevenue}_{i*} + \beta_3 \times \overline{LnNEmployees}_{i*} + \beta_4 \times \overline{State/socially - owned}_{i*} + \beta_5 \times \overline{Mixed ownership structure}_{i*} + \beta_6 \times \overline{Share cap}_{i*} + \beta_7 \times \overline{Foreign}_{i*} + \varepsilon_i \quad (5)$$

<sup>5</sup>Data were collected from the official website of the Serbian Business Registers Agency. Authors accept the responsibility for any errors or other inaccuracies that may possibly result from data collection and data processing activities. Sample consists of more than 80% actively operating entities that are classified as middle and large sized.



In order to explore the hypothesized effect within the subjects, we also specify a fixed effect model. As a time-dependent variation in profitability is apparent (see Table 1) a time fixed effect is included, along with individual effect in the form of dummy variables.

*Fixed effect model*

$$\begin{aligned}
 ROIC_{it} = & \alpha_i + \beta_1 \times (LnRAssets)_{it} + \beta_2 \times (LnRRevenue)_{it} + \beta_3 \\
 & \times (LnNEmployees)_{it} + \beta_4 \times (State/socially - owned)_{it} + \beta_5 \\
 & \times (Mixed ownership structure)_{it} + \beta_6 \times (Share cap)_{it} + \beta_7 \\
 & \times (Foreign)_{it} + \beta_8 \times (Y2008)_{it} + \beta_9 \times (Y2009)_{it} + \beta_{10} \\
 & \times (Y2010)_{it} + \beta_{12} \times (Y2011)_{it} + \beta_{13} \times (Y2012)_{it} + \varepsilon_{it}
 \end{aligned} \tag{6}$$

Finally, we employ a mixed effect model with random individual effect and fixed time effect that is expected to efficiently combine the two former types of variability.

*Mixed effect model*

$$\begin{aligned}
 ROIC_{it} = & \alpha + u_i + \beta_1 \times (LnRAssets)_{it} + \beta_2 \times (LnRRevenue)_{it} + \beta_3 \\
 & \times (LnNEmployees)_{it} + \beta_4 \times (State/socially - owned)_{it} + \beta_5 \\
 & \times (Mixed ownership structure)_{it} + \beta_6 \times (Share cap)_{it} + \beta_7 \\
 & \times (Foreign)_{it} + \beta_8 \times (Y2008)_{it} + \beta_9 \times (Y2009)_{it} + \beta_{10} \\
 & \times (Y2010)_{it} + \beta_{12} \times (Y2011)_{it} + \beta_{13} \times (Y2012)_{it} + \varepsilon_{it}
 \end{aligned} \tag{7}$$

where

$$u_i \sim N(0, \tau^2) \tag{8}$$

and

$$e_{it} \sim N(0, \sigma^2) \tag{9}$$

For running the three aforementioned models we have used the *plm* package as developed by Croissant and Millo (2008) that is available for use in R software environment for statistical computing (R Core Team, 2014). The default method (Swamy and Arora, 1972) of estimation for the variance components in the random effects model has been selected.

### 3. Results and discussion

In this section we present the results of the previously specified linear models, and provide some guidelines for their adequate statistical interpretation.

The parameters of the three models that have been specified in the previous section are provided in Table no. 2.

Table no. 2: Estimates of the three linear models (standard errors are in parentheses)

	Between Model 1	Fixed Model 2	Random Model 3
Ln of real assets	-0.038*** (0.003)	-0.016*** (0.005)	-0.037*** (0.002)
Ln of real revenue	0.061*** (0.003)	0.088*** (0.003)	0.073*** (0.002)
Ln number of employees	-0.025*** (0.003)	-0.067*** (0.004)	-0.039*** (0.002)
State/socially owned enterprise	-0.073*** (0.009)	-0.014 (0.014)	-0.046*** (0.007)
Mixed ownership structure	-0.060*** (0.010)	-0.026* (0.014)	-0.047*** (0.008)
Share capital	-0.039*** (0.007)	-0.013 (0.016)	-0.025*** (0.006)
Foreign ownership	-0.045*** (0.008)	-0.025* (0.014)	-0.043*** (0.007)
Year 2008		0.046*** (0.004)	0.048*** (0.004)
Year 2009		0.034*** (0.004)	0.034*** (0.004)
Year 2010		0.027*** (0.004)	0.027*** (0.004)
Year 2011		0.028*** (0.004)	0.031*** (0.004)
Year 2012		0.014*** (0.004)	0.015*** (0.004)
CONSTANT	0.071*** (0.020)		-0.021 (0.018)
Observations	2,101	12,606	12,606
R-squared	0.346	0.097	0.144
Adjusted R-squared	0.345	0.080	0.143
F statistic	158.521*** (df = 7; 2093)	93.560*** (df = 12; 10493)	175.910*** (df = 12; 12593)
Notes:	***p < .01; **p < .05; *p < .1		

As mentioned earlier, the independent variables exhibit minimal variation within each unit, and for that reason we are primarily interested in the results of the 'between' model. As this model estimates the effect of the group mean of the explanatory variable on the group mean of the dependent variable (Snijders and Bosker, 1999), we should be assured that the interpretation of its parameters is coherent with its specification.

The results indicate that, after controlling for size effect, all three hypothesized factors have negative associations with profitability. The ownership type appears to be the most influential. Both state and socially owned enterprises have been significantly less profitable during the observed periods in comparison to privately owned entities (reference groups in the model). However, the difference between the profitability levels of the two groups of companies that are being run by the government does not seem to be significant. Results indicate that the typical effect of dispersed ownership is also negative, and that entities fully owned by foreign investors are expected to be significantly less profitable when compared to their domestic-owned counterparts. The confidence intervals are fairly narrow and provide convincing evidence of the hypothesized associations.

Next, we shift our focus to the results of the fixed effect model to explore if the same effects are present in within-subject variation. Since the changes in independent variables are irregular and infrequent (sluggish variables), and their hypothesised stimulus to profitability might take more than a year to take effect, the fixed effect model, as expected, has not revealed much valuable information. However, according to this model, from the variables that are focused on here, mixed ownership structure and foreign ownership do have weakly significant ( $p < .1$ ) negative associations with profitability, and the signs of the coefficients of the other explanatory variables are consistent with those obtained from the 'between' model. These results provide some support for the conjecture that, if examined over a more extensive time horizon, all the supposed effects might be statistically detectable.

The primary motivation for specifying the fixed effect model was the fact that it allows us to subsequently explore the appropriateness of the random effect model which (under some conditions) efficiently combines between and within subject variation, and hence makes better use of available information in the data set. This is commonly performed using the Hausman test, which compares the vectors of coefficient between the fixed effect and random effect models. The results of the test ( $\chi^2 = 105.44$ ,  $df = 12$ ,  $p < .0001$ ) indicate that the random model is biased and inconsistent (Hausman, 1978), and that as a consequence, the fixed effect should be preferred.

However, Clark and Linzer (2012) suggest that the Hausman test is neither a sufficient, nor necessary condition for choosing a fixed effect model, and that the decision must be determined by the amount of data and the underlying level of correlation between the unit effects and explanatory variables. Based on simulated data, they show that, in the case of sluggish independent variables, if there are many units but few observations per unit and the level of the correlations is low (less than 0.3 to 0.5) random effect models usually outperform<sup>6</sup> fixed effects models. In our case, we have 2101 units with 6 observations, and the correlations of unit effects with covariates 1 through 7 (see Table 2) in the fixed model are -0.26, -0.24, 0.03, -0.04, -0.02, 0.05 and -0.12, respectively. Therefore, gaining an insight in the results of the random model might be worthwhile. Conveniently, the results of the random effect model are consistent with the results of the 'between' model regarding the signs of the coefficients of the explanatory variables, with some differences in the estimated magnitude of their effects and the associated precision.

---

<sup>6</sup>More specifically, they have better variability/bias trade-off

## Conclusions

In this study, we hypothesize that the disadvantages associated with certain characteristics of ownership structure might overshadow the respective advantages for companies operating in countries with weak financial and legal institutions. These characteristics are state ownership, dispersed ownership and foreign ownership. We can assume that what is common for them is that they intensify the agency problem and impede the entrepreneurial spirit. Therefore, negative associations are expected to exist between them and profitability.

The results have confirmed that these associations exist, and that they are both statistically and practically significant. After accounting for the size effect, companies with state and mixed ownership structures seem to have lower returns on invested capital when compared to their privately owned counterparts, with average differences of -7.30% and -6.00% respectively. Moreover, a positive relationship between ownership concentration and financial performance can be observed. The average difference in ROIC between joint stock and other legal forms is estimated to be -3.90%, which is consistent with some previous studies on the topic (Claessens and Djankov, 1999; Thomsen and Pedersen, 2000; Staniscic et al., 2012). Although companies that have higher shares of foreign ownership do nominally have slightly higher levels of profitability, once we control for the size effect, the difference in values of ROIC between companies fully owned by foreign investors and the ones fully owned by domestic investors turns out to be -4.50%.

The findings support the opening hypothesis. They also raise the questions of whether the observed associations between ownership structure and profitability should be alarming, and if so, what action should be undertaken in order to address this issue properly. From a macroeconomic perspective, the strengthening of the financial and legal institutions is always a reasonable thing to do. It is even more so if our assumption that their poor performance contributes to worsening of agency problems and discouraging entrepreneurial mind-sets within the companies is correct. On the other hand, from the microeconomic aspect, a careful examination of the existing literature might provide some valuable insights. Economic concepts of social entrepreneurship (Seelos and Mair, 2005; Fernández et al., 2012), corporate social responsibility (Georgescu and Herman, 2014; Lungu et al., 2014; Dinu, 2011; Portney, 2010), corporate entrepreneurship (Morris et al., 2010; Dess, 2003; Wolcott and Lippitz 2007) and dispersed entrepreneurship (Williams and Lee, 2011; Lee and Williams 2007) might be quite instructive for managers of companies operating in transitional economies.

While our analysis does provide rather solid evidence of the existence of the hypothesized negative association between the ownership structure types and profitability, it should not suggest that this association is of a causal nature, nor breed confidence that the theoretical explanations provided in this study are factual. In order to examine the plausibility of such a causal relationship, an appropriate confirmatory structural equation model (SEM) needs to be specified and tested. The specification of such a model, in which the three ownership type variables would be treated as latent constructs, would certainly require additional procedures such as design of an appropriate questionnaire and data collection. We strongly recommend further research in this direction.

## References

- Bozec, R., Dia, M. and Breton, G., 2006. Ownership-efficiency relationship and the measurement selection bias. *Accounting & Finance*, 46(5), pp.733-754.
- Clark, T.S. and Linzer, D.A., 2012. *Should I use fixed or random effects?* [pdf] The Society for political methodology. Available at: <<http://polmeth.wustl.edu/mediaDetail.php?docId=1315>> [Accessed 20 June 2014].
- Claessens, S. and Djankov, S., 1999. Ownership concentration and corporate performance in the Czech Republic. *Journal of Comparative Economics*, 27(3), 498-513.
- Colpan, A.M., Yoshikawa, T., Hikino, T. and Del Brio, E.B., 2011. Shareholder heterogeneity and conflicting goals: Strategic investments in the Japanese electronics industry. *Journal of Management Studies*, 48(3), pp.591-618.
- Croissant, Y. and Millo, G., 2008. Panel data econometrics in R: The plm package. *Journal of Statistical Software*, 27(2), pp.10-15.
- Demircuc-Kunt, A., Love, I. and Maksimovic, V., 2006. Business environment and the incorporation decision. *Journal of Banking & Finance*, 30(11), pp.2967-2993.
- Dess, G., 2003. Emerging issues in corporate entrepreneurship. *Journal of Management*, 29(3), pp.351-378.
- Dinu, V., 2011. Corporate Social Responsibility – Opportunity for reconciliation Between Economical Interests and Social and Environmental Interests. *Amfiteatru Economic*, 13(29), pp. 6-7.
- Duchin, R., 2010. Cash holdings and corporate diversification. *The Journal of Finance*, 65(3), pp.955-992.
- Earnhart, D. and Lizal, L., 2006. Effects of ownership and financial performance on corporate environmental performance. *Journal of Comparative Economics*, 34(1), pp.111-129.
- Fernández, M.T.F., Martínez, A.F.-A. and Herrero, D.B., 2012. Promotion of social entrepreneurship through public services in the Madrid Region: Successful aspects. *Amfiteatru Economic*, 14(Special No. 6), pp.774-785.
- Fresard, L., 2010. Financial strength and product market behavior: The real effects of corporate cash holdings. *The Journal of Finance*, 65(3), pp.1097-1122.
- Georgescu, M.A. and Herman, E., 2014. Social corporate responsibility regarding household consumer satisfaction with the electric power supply services. *Amfiteatru Economic*, 16(35), pp. 123-137.
- Ghoshal, S. and Bartlett, C.A., 1990. The multinational corporation as an interorganizational network. *Academy of Management Review*, 15(4), pp.603-626.
- Gore, A., 1993. *From red tape to results: Creating a government that works better & costs less*. Darby: DIANE Publishing.
- Harford, J., Mansi, S.A. and Maxwell, W.F., 2008. Corporate governance and firm cash holdings in the US. *Journal of Financial Economics*, 87(3), pp.535-555.
- Hausman, J., 1978. Specification tests in econometrics. *Econometrica*, 46(6), pp.1251-1271.
- Hillman, A.J., Keim, G.D. and Schuler, D., 2004. Corporate political activity: A review and research agenda. *Journal of Management*, 30(6), pp.837-857.

- Hofstede, G., 2011. Dimensionalizing cultures: The Hofstede model in context. *Online Readings in Psychology and Culture*, 2(1), pp.1-26.
- Hu, F. and Leung, S., 2009. *Appointment of top political executives and subsequent performance and corporate governance: Evidence from China's listed SOEs*. [pdf] SSRN. Available at: <<http://www.ssrn.com/abstract=1361617>> [Accessed 28 July 2014].
- Lash, N.A. and Batavia, B., 2013. Government economic intervention and corruption. *The Journal of Developing Areas*, 47(2), pp.1-15.
- Lee, S.H. and Williams, C., 2007. Dispersed entrepreneurship within multinational corporations: A community perspective. *Journal of World Business*, 42(4), pp.505-519.
- Lungu, C.I., Dascalu, C., Caraiani, C. and Balea, E.C., 2014. Econometric approach of the scenarios regarding the impact of the consumer's empowerment and companies' responsibility for environment sustainability on the electricity market performance. *Amfiteatru Economic*, 16(35), pp. 187-200.
- Manne, H.G., 2011. Entrepreneurship, compensation, and the corporation. *Quarterly Journal of Austrian Economics*, 14(1), pp.3-24.
- Meyer, M., Milgrom, P. and Roberts, J., 1992. Organizational prospects, influence costs, and ownership changes. *Journal of Economics & Management Strategy*, 1(1), pp.9-35.
- Morris, M., Kuratko, D. and Covin, J., 2010. *Corporate entrepreneurship & innovation*. 3rd ed. Boston: Cengage Learning.
- Nica, E., 2013. Organizational culture in the public sector. *Economics, Management, and Financial Markets*, 2013(2), pp.179-184.
- O'Kelley, C.R.T., 2006. The entrepreneur and the theory of the modern corporation. *Journal of Corporation Law*, 31(3), pp.753-777.
- Opler, T. 1999. The determinants and implications of corporate cash holdings. *Journal of Financial Economics*, 52(1), 3-46.
- Organisation for Economic Co-operation and Development, 2014, *Consumer Price Index: Harmonized Prices: Total All Items for the Euro Area* [CPHPTT01EZM661N], [Home > FRED® Economic Data > Categories > International Data > Institutions][online] Available through: FRED, Federal Reserve Bank of St. Louis <<https://research.stlouisfed.org/fred2/series/CPHPTT01EZM661N/>> [Accessed 30 June 2014].
- Petrović, P. and Čerović, S., 2011. The characteristics of foreign direct investments in Serbia. *Journal of Knowledge Management, Economics and Information Technology*, 1(6), pp.1-12.
- Pinkowitz, L.F., Stulz, R.M. and Williamson, R.G., 2013. *Is there a U.S. high cash holdings puzzle after the financial crisis?* [pdf] SSRN. Available at: <<http://papers.ssrn.com/abstract=2253943>> [Accessed 12 June 2014].
- Portney, P.R., 2010. Corporate social responsibility. In: B. L. Hay, R. N. Stavins and R. H. Vietor, eds. 2010. *Environmental Protection and the Social Responsibility of Firms - Perspectives from Law, Economics, and Business*. London: Routledge, p. 108.
- R Core Team, 2014. R. (3.0.3). [computer program] The R Foundation. Available at: <<http://www.r-project.org>> [Accessed 30 June 2014].
- Seelos, C. and Mair, J., 2005. Social entrepreneurship: Creating new business models to serve the poor. *Business Horizons*, 48(3), pp.241-246.

- Snijders, T.A.B. and Bosker, R.J., 1999. *Multilevel analysis: An introduction to basic and advanced multilevel modeling*. Thousand Oaks: Sage Publications Inc.
- Stanisic, N. et al., 2012. Capital efficiency analysis of Serbian companies. *Singidunum Journal of Applied Sciences*, 9(2), pp.41-49.
- Sternberg, E., 2000. *Just Business: Business Ethics in Action*. 2nd ed. Oxford: Oxford University Press.
- Stulz, R.M., 2005. The limits of financial globalization. *The Journal of Finance*, 60(4), pp.1595-1638.
- Swamy, P.A.V.B. and Arora, S.S., 1972. The exact finite sample properties of the estimators of coefficients in the error components regression models. *Econometrica*, 40(2), pp.261-275.
- Thomsen, S. and Pedersen, T., 2000. Ownership structure and economic performance in the largest European companies. *Strategic Management Journal*, 21(6), pp.689-705.
- Vale, P.A. and Addison, M., 2002. Promoting entrepreneurship and innovation in a large company: Creating a virtual portfolio. *Journal of Change Management*, 2(4), pp.334-343.
- Villalonga, B., and Amit, R. 2006. How do family ownership, control and management affect firm value? *Journal of Financial Economics*, 80(2), 385-417.
- Williams, C. and Lee, S.H., 2011. Political Heterarchy and Dispersed Entrepreneurship in the MNC. *Journal of Management Studies*, 48(6), pp.1243-1268.
- Williamson, O.E., 1967. Hierarchical control and optimum firm size. *Journal of Political Economy*, 75(2), p.123.
- Wolcott, R.C. and Lippitz, M.J., 2007. The four models of corporate entrepreneurship. *MIT Sloan Management Review*, 49(1), pp.75-82.
- Zahra, S.A., George, G. and Dharwadkar, R., 2001. Entrepreneurship in the multinational corporation: The effects of corporate and local contexts. *Academy of Management Proceedings*, 2001(1), pp.G1-G6.