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**Article**

## Ownership Concentration and Firm Performance in Transition Economies: Evidence from Montenegro

Journal of Central Banking Theory and Practice

**Provided in Cooperation with:**

Central Bank of Montenegro, Podgorica

*Suggested Citation:* Kalezić, Zorica (2015) : Ownership Concentration and Firm Performance in Transition Economies: Evidence from Montenegro, Journal of Central Banking Theory and Practice, ISSN 2336-9205, De Gruyter Open, Warsaw, Vol. 4, Iss. 3, pp. 5-64, <https://doi.org/10.1515/jcbtp-2015-0011>

This Version is available at:

<https://hdl.handle.net/10419/217577>

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OPEN

UDK: 330.111.62(497.16)

DOI: 10.1515/jcbtp-2015-0011

*Journal of Central Banking Theory and Practice*, 2015, 3, pp. 5-64

Received: 9 June 2015; accepted: 30 June 2015

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## **Ownership Concentration and Firm Performance in Transition Economies: Evidence from Montenegro**

**Abstract:** The relationship between ownership concentration and firm performance has been the focal point of corporate governance literature and the subject of rather rich empirical literature. However, the current literature lacks uniformity and consensus regarding the nature and direction of this relationship. This research aims to contribute to this literature by investigating the relationship in a small and open transition economy of Montenegro.

We use primary data<sup>1</sup> from the period 2004-2008 to analyse, for the first time, the impact of ownership concentration on firm performance in Montenegro. The results support the hypothesis that high ownership concentration enables effective monitoring by investors to protect their interests; i.e. in the specific circumstances of transition, ownership structure may be (temporarily) used as a viable substitute for the still underdeveloped corporate governance framework.

**Keywords:** ownership structure, concentration, firm performance, corporate governance, Transition Economies, Montenegro

**JEL classification:** G32, G34

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<sup>1</sup> The Author expresses gratitude to the Department in the Central bank of Montenegro dealing with financial statements data gathering, especially to its Head, Mr. Veselin Pavlicevic, who helped in the data compiling process.

## 1. Introduction

This research provides additional evidence on the relationship between ownership concentration and firm performance in the context of a small transition economy of Montenegro. In the analysis, we address two main questions: whether there is a causal relationship between ownership and performance; and which type of ownership may be considered as “superior” with respect to corporate performance criteria. Furthermore, the answer to these questions will allow us to analyse whether there is a significant difference in the sign and significance of this relationship between countries with developed corporate governance systems and those with a poorer corporate governance environment (TEs, including Montenegro). Using panel data from a sample of 204 Montenegrin joint stock companies listed on the Montenegrin Stock exchanges over a five-year horizon (2004-2008), the focus of our research is an assessment of whether outsider ownership is associated with better firm performance. In addition, we will also investigate whether domestic/foreign identity of owners affects this relationship, which would provide additional information concerning the quality and effectiveness of Montenegrin privatisation with respect to the choice of privatisation methods and the quality of strategic foreign investors chosen during the process.

This research makes two contributions: first is to the understanding of the effects of the Montenegrin privatisation in particular; and the second contribution is to a more general understanding of effects of privatisation in the context of transition economies.

Firstly, possibly because of its size or due to the fact that Montenegro obtained independence quite late (in 2006)<sup>2</sup>, it has not been in the spotlight of academic interest concerning the analysis of the process of privatisation, unlike other transition economies. This applies also to the literature that used comparative analysis of transition economies to analyse the process of privatisation, ownership characteristics, characteristics of corporate governance, etc. A possible explanation might be the lack of data, which represented the main challenge confronting this analysis. Thus, without further discussion on what is the cause of the lack of an empirical body of work on Montenegrin privatisation, we will try to fill the literature gap, assessing the quality of privatisation measured by its materialization through the potentially better performance of Montenegrin companies.

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<sup>2</sup> However, it is important to stress that Montenegro obtained its monetary independence earlier, in 1999, after the adoption of the German mark as the legal tender.

Secondly, we find that Montenegro is a very interesting setting for analysis of the privatisation process, changes in ownership concentration and its potential effect on firm performance. The core argument is that Montenegro underwent the process of privatisation quite late in comparison to other transition economies (that started from 1999) due to an unfavourable political setting accompanied by economic instability (financial sanctions, imposed by U.N. countries 1992-1995<sup>3</sup>; hyperinflation in 1993). The second argument is that Montenegro can be considered as a highly open, small country. This setting on one hand assures a fertile soil for dramatic institutional flexibility but, at the same time, the level of external exposure is likewise dramatic. As the IMF (2010) outlined: “A small and highly open economy like Montenegro is inherently more exposed to global ups and downs.”<sup>4</sup> Consequently, the policy framework is challenged to create sufficient funds which would diminish the exposure of the Montenegrin economy to global shocks. Official dollarisation (euroisation), the monetary strategy that Montenegro adopted since 1999 with the aim to anchor inflation expectations, simultaneously burdens fiscal policy, which is *de facto* the only viable mechanism for conducting economic policy. As the IMF (2010, p. 66) noted: “In order not to overload the fiscal policy tool, a high degree of flexibility in the Montenegrin economy is imperative, as is a proactive and effective banking sector policy.”

Montenegro offers an interesting setting to examine ownership concentration-firm performance issues. Montenegro is a very small and open economy with a shallow, underdeveloped capital market. At the same time, Montenegro also has poorly developed corporate governance mechanisms and extremely high ownership concentration. Thus, we would argue that this research adds to the literature on firm performance and specific ownership structures through the assessment of whether ownership concentration against the backdrop of poorly developed corporate governance mechanisms can be considered as an efficient substitute for management control, in turn contributing to better firm performance. We hope to obtain a sufficient body of empirical evidence to establish our final conclusions concerning the effectiveness of the privatisation process in Montenegro, and to assess:

1. changes in ownership structures and its consequence;
2. whether these contributed to better firm performance; and

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<sup>3</sup> The United Nations imposed financial sanctions against Serbia and Montenegro in May 1992. Financial sanctions were partially suspended in accordance with the terms of the Dayton Peace Agreement in 1995. The United Nations lifted all types of financial sanctions against Serbia and Montenegro in October 1996.

<sup>4</sup> IMF country report Montenegro (2010, p. 11)

3. whether ownership structure patterns in Montenegrin companies differ, by and large, from those in other transition countries and how different types of owners (with the focus on state vs. private) affect firm performance.

The research pursues these objectives and is organized as follows. Section 2 covers the evolution of ownership concentration in the post MVP period in Montenegro, while Section 3 provides information on the properties of the data set used for empirical estimation. Model specification and description of variables, the main descriptive statistics, together with the issue of endogeneity of ownership concentration will be discussed in Section 4. The analysis of the main findings of the empirical investigation on ownership concentration - firm performance relationship will be undertaken in Section 5. The final section (Section 6) concludes and delivers issues for further research.

## **2. Evolution of ownership concentration in the post MVP period in Montenegro**

In this subsection we provide analysis of the main characteristics of ownership evolution of Montenegrin companies in the post-mass voucher privatisation (MVP) period, focusing on the main trends and the strategic behaviour of different types of owners. Namely, similar to Grosfeld and Hashi (2004), Kocenda (2001) and Kocenda and Valachy (2001), we are interested in the change of the ownership structure after the MVP in Montenegro. Nevertheless, unlike the above mentioned studies we are not just interested on the effects of one particular privatisation program; rather, we are interested in how the overall privatisation design implemented in Montenegro (including MVP, auctions, direct sales, etc.) affected ownership concentration. This will enable us to draw a conclusion about whether efficient owners were found in the subsequent process of secondary privatisation and whether their activities materialized through better firm performance.

### **2.1 Changing patterns of ownership concentration: the extent of ownership concentration**

The first aspect of our analysis is the assesment of the magnitude of change in ownership concentration, measured by the share of respectively the largest, the three largest, the five largest, and the ten largest shareholders. Secondly, we analyze the change of ownership structure from the perspective of different types (identity) of owners. Moreover, taking into consideration Montenegro's exposure

to FDI inflows, we are particularly interested in assessing the change of ownership structure between domestic, state and foreign owners. Finally, we analyze whether there is a significant difference in the level of ownership concentration between voucher- privatized companies and companies that were not involved in MVP.

The results obtained from this analysis will be used to create a hypothesis concerning the relationship between ownership concentration and firm performance, the analysis of which is the main aim of this chapter. Furthermore, we will be able to compare the patterns of ownership concentration changes in Montenegro with that in other transition economies, primarily the Czech Republic, having in mind the similarity of the MVP schemes in these two countries.

To investigate the evolution of ownership structure in the post MVP period, we start by analyzing the changes in ownership concentration of single and then the top three, the top five and, finally, the top ten largest owners of Montenegrin joint stock companies. The data presented in Table 1 shows the change in ownership concentration of a panel of 160 joint stock companies, for which the data on ownership structure is available through observing the period 2004-2008. The table indicates that although the average holding of the largest shareholder was already quite substantial in 2004 (50%), it nonetheless increased progressively to 61.6% by 2008. This substantial increase reflects the very dramatic changes in the stock markets accompanied by strong FDI inflows, growth of disposable income, expansive lending by the banking sector and implementation of privatisation programme schemes.

**Table 1: The average share of the largest shareholder in joint-stock companies of Montenegro 2004-2008, in %**

	Top1 Largest Shareholder	Top3 Largest Shareholders	Top5 Largest Shareholders	Top10 Largest Shareholders
<b>2008</b>				
Mean	61.6	77.8	81.0	83.9
Std. Dev	24.1	17.7	16.7	15.4
Median	64.2	80.4	84.1	86.6
No. of firms	160	160	160	160
<b>2007</b>				
Mean	59.1	75.7	79.1	82.3
Std. Dev	24	18.3	17.1	15.5
Median	60.3	78.8	81.5	85.1
No. of firms	160	160	160	160

2006				
Mean	55.9	74.1	77.8	81.3
Std. Dev	24.1	18.8	17.6	16.1
Median	53.3	76.9	79.9	84.6
No. of firms	160	160	160	160
2005				
Mean	52.7	71.58	75.8	79.5
Std. Dev	23.7	18.63	17.7	16.6
Median	51.3	73.1	77.5	82
No. of firms	160	160	160	160
2004				
Mean	50	68.4	72.8	76.3
Std. Dev	23.1	18.2	17.3	16.4
Median	50.4	69.3	73.7	77.6
No. of firms	160	160	160	160

Source: Author's calculations using database sourced from the Central Bank of Montenegro

Further increases, although none as pronounced as an increase in the share of the largest shareholder, are also seen in the shares of the top3, top5 and top10 owners, indicating that the shareholding of other owners was decreasing during the period of analysis. To our knowledge, taking into consideration the findings of the empirical literature on the ownership evolution in the post privatization period, Montenegro has the most concentrated ownership structure among countries that conducted the MVP. For example, Hashi and Grosfeld (2004, p. 524) find for the Czech Republic that the average share of the largest shareholder in the firms privatized through the voucher scheme was 38.8% in 1996, increasing to 51.9% in 1999. Furthermore, in the case of the more closed MVP implemented in Poland they find a similar result, where the largest shareholder, on average, had a stake of 33.9% in 1996 increasing to 50.3% in 1999. Similarly, according to Blaszczyk and Woodward (2001, p. 15), the top five shareholders in Slovenia in 1999 (after MVP) were holding 61.5% of shares in MVP firms, comparing to 72.8% in Montenegro in 2004. Moreover, in the context of the Russian economy, Sprenger (2006) finds that the mean ownership of the largest outsider shareholder after conducting MVP in 1994 was 37.3%, while five years after this, the ownership share increased to 52%. There are various reasons why Montenegrin companies have a persistently increasing high ownership concentration.

The first reason is a relatively small size of firms, which goes in parallel with the country's size. Namely, the largest Montenegrin company using assets as the cri-

teria - is “EPCG AD”, with assets in 2009 of 945 million euros, while the average assets of the joint stock companies in the sample is 1.3 million euros.<sup>5</sup> Hence, it is clear that, according to financial criteria, the Montenegrin joint stock companies are small or medium sized companies. Moreover, according to Demsetz and Lehn (1985), ownership dispersion happens due to additional issuance of shares, which triggers risk-averse behaviour on the part of the existing largest owner, who will be willing to purchase additional shares only at a lower price. That is, the investor purchasing additional shares of the same company increases his risk of potential failure, due to an under-diversified portfolio. Yet, in the case of Montenegro, an investor has been able to purchase additional shares easily, in order to preserve his ownership stake, given that the size (i.e. the value of the asset) of Montenegrin joint stock companies is negligible from the perspective of the international capital market. Consequently, purchasing additional shares in the case of a small joint stock company may involve a lesser level of risk-averse behaviour compared to the level of risk that investor in the large company needs to undertake if he wants to keep its stake in the company when company grows.

The third reason, which may hold for all transition economies with a poorly developed corporate governance framework and underdeveloped capital markets, is that owners (predominantly being individuals or other companies) use ownership concentration as a substitute for underdeveloped or non-existing corporate governance instruments, at the same time increased the potential for expropriation of minority shareholders (Shleifer and Vishny, 1998).

Finally, the fourth argument is that the MVP in Montenegro was not designed to create dispersed ownership as in Slovenia, the Czech Republic and Poland. Instead, as in the case of Albania and Russia, only specific types of companies, with a fragment of ownership, were offered to citizens through the MVP scheme. Namely, according to Estrin et al. (2009, p. 704), MVP in the empirical literature is mostly described as a method that may yield “bad ownership structures”, reducing the effectiveness of the overall privatisation process. Furthermore, non-randomized selection of companies in the process of MVP may have adverse effects, which if not controlled, may distort results in respect of firm performance (Gupta et al., 2008).

The main findings on the changing patterns of ownership concentration based on the owners’ types (state, managers, other companies, privatization funds, state, foreign companies, etc.) are not presented due to space constraints (and can

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<sup>5</sup> Standard & Poor’s statistics for 2009 of the 500 largest companies in Eastern Europe did not contain any Montenegrin company.



be obtained from the author upon request). However, based on that part of the research, we can argue that the main characteristics of the “ownership transfer” in Montenegrin companies are:

1. Montenegrin companies have very high ownership concentration, and are usually run by other companies or individuals, similarly to the case of the Czech Republic and Poland (Błaszczuk and Woodward, 2001, p. 24);
2. migration of state to domestic and foreign ownership is gradual, characterized by a strategy of allowing “non-state” owners to acquire a controlling package of shares; and
3. institutional and financial owners - including privatization (investment) funds - are not interested in active control of firms’ management, whilst the state uses a gradualist approach in selling its stakes and retains its controlling stakes in the companies of special interest.

The evolution of ownership concentration in the post-MVP period in Montenegro to a certain extent resembles the evolution of ownership concentration in Poland and the Czech Republic. It differs mainly with respect to the level of concentration, which is extremely high, and the level of involvement and passive behaviour of banks and privatisation funds.

The empirical work consists of the discussion of data, the model specification and the empirical results. These are discussed in the next three subsections. In the context of the Montenegrin economy, we find accurate useful comparison in Boubakri et al. (2005,) who, by studying privatized firms worldwide during 1980-2001, find evidence over time of diminishing government control as well as an increase in private ownership concentration. Furthermore as Mathur and Banchuenvijit (2007, p. 106) summarize their findings “the cross-firm differences in ownership concentration are explained by firm size, firm growth, industry affiliation, privatization method, the level of institutional development, and the level of investor protection.” This conclusion summarizes also the behaviour of Montenegrin companies and, accordingly, suggests that these factors should be controlled in the model specification for estimating the relationship between ownership concentration and firm performance in Montenegro.

### 3. Data

The sample comprises all joint stock companies listed on either or both of the Montenegrin stock exchanges –*Montenegroberza AD* and *Nex-Montenegroberza*

AD - over the five-year period from 2004 to 2008.<sup>6</sup> The data set was created by the author, using individual data for each company obtained from the Central Bank of Montenegro.

We started our research using all joint stock companies with shares listed and traded on either of the two stock exchanges that appear in the data set. From the number of companies in the sample (204) it is evident some joint stock companies did not submit their annual financial reports, while annual reports could not be used for others due to their technical deficiency. Simultaneously, we excluded from the sample broker and dealer houses, insurance companies, the non-governmental sector, and investment funds, together with management companies that run investment funds because of the nature of the activity of these companies as well as the type of external supervision of these companies (Schmid and Zimmermann, 2008, pp. 187). Concerning that part of the database referring to the ownership structure of the joint stock companies, the author used data obtained from the Central Depository Agency of Montenegro (hereinafter: the CDA). The CDA provides, on a daily basis, a list of the 10 largest shareholders for each company, disclosing simultaneously the origin of shareholders (domestic vs. foreign).

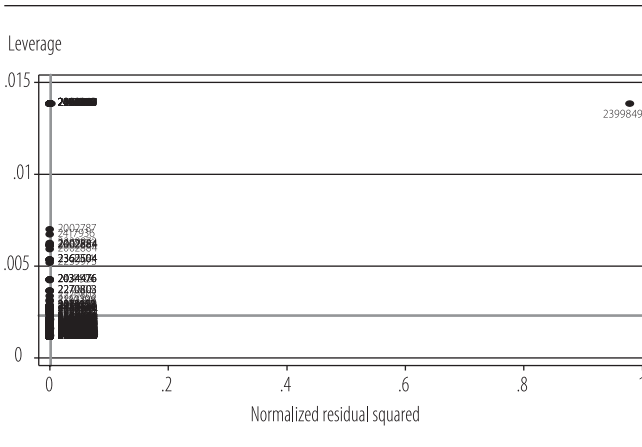
We started our empirical investigation with an unbalanced panel consisting of 936 observations on 215 companies (for the five-year period 2004-2008) with shares listed and traded on the *Montenegroberza AD Stock Exchange* or/and the *NEX Montenegro AD Stock Exchange*. From this initial sample, we excluded two insurance companies, five broker-dealer houses and three insurance companies. As Mancinelli and Ozkan (2006) argue, companies from the financial sector have distinctive financial accounts, which make comparison of certain variables with the corporate sector impossible: for example, solvency or liquidity ratios, which are under special scrutiny for the insurance companies; and the treatment of loss.

In addition, we dropped all observations for which financial statements were inconsistent (for example, balance sheets that reported a negative value of capital). Furthermore, we excluded all companies with financial ratios suggesting that these firms do not operate. Namely, when inspecting our dataset, we observed that due to poor quality of some financial statements, or due to the fact that some

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<sup>6</sup> Although the author obtained the firm level data for 2009, we decided not to include it in the data set. Montenegro was hit by the effects of the global financial crisis in 2009: the overall corporate sector was heavily hit by spillover effects from the financial sector to the real sector, leading to heavy losses in the corporate sector estimated at the level of 270 million euros. It is not the purpose of our model to explain this structural break, which may be assumed to dominate corporate performance in 2009.

**Figure 1: An examination of outliers and leverage points on ownership concentration and firm performance (Pooled OLS)**



Source: Author's calculation Stata 2011

to sales ratio less than 0.3 based on the general criteria provided by Lebahar-Friedman (1999). Finally, after initial ordinary least squares (OLS) estimation, we checked for undue leverage and outliers. According to Figure 1, showing the leverage versus the squared residuals for each observation, we observed that in the case of one company (*Crnogorska Plovidba AD*) a potential problem of high leverage may exist. Accordingly, in order to preclude a likely source of bias in our estimates, our strategy was to exclude from the sample the four observations for this company.

These adjustments narrowed the initial database, resulting in a final unbalanced panel consisting of 755 observations from 204 companies over the period 2004-2008.

#### 4. Model specification and description of variables

The choice of variables in the model will build on the model foundations proposed by Demsetz and Villalonga (2001), which have been widely adopted and replicated in the context of different economies (Welch, 2003; Fishman et al., 2008; Himmelberg et al., 1999; Hu and Izumida, 2008; Gugler and Weigand, 2003; Kapopoulos and Lazaretou, 2007; Pedersen and Thomsen, 1999; de Miguel et al., 2004; etc.). The fundamental reasoning to follow the choice of variables

joint stock companies are barely operating, their financial ratios appeared to be rather odd. In order to prevent inclusion of those companies with dubious activities, we implement a set of “rule of thumb” filters for various financial indicators to exclude suspect observations from the data used for estimation: a leverage ratio higher than 0.7; a fixed asset to sales ratio greater than 0.001; and R&D

suggested by Demsetz and Villalonga (2001) and Demsetz and Lehn (1985) lies in the fact that these two papers provided thorough and systematic theoretical justification of the model specification used to assess the impact that ownership concentration might have on firm performance. Namely, taking into consideration that to our knowledge, no similar research has been conducted to cover Montenegro, the systematic and well-justified choice of variables and methodologies provided by Demsetz and Villalonga (2001) is the preferred platform for our own analysis. Nevertheless, besides the variables proposed by Demsetz and Villalonga (2001), in our model specification we include a set of additional variables that mainly reflect the country specific characteristics of the Montenegrin economy as a small and open economy in transition.

The initial challenge in the model specification is that we need to choose between four different measures of firm performance: *Tobin's Q*; Return on assets (*ROA*); Return on equity (*ROE*); and Net profit margin (*NPM*). These variables can be divided into market based (*Tobin's Q*) and accounting based (*ROA*, *ROE*, and *NPM*). As Demsetz and Villalonga (2001) and Himmelberg et al. (1999) argue, there is a significant difference between the market based and accounting type of measure. The first dimension is temporal. While *Tobin's Q* is forward looking, taking into consideration that, through the market, share values reflect the future expectations of investors (optimistic or pessimistic), *ROA*, *ROE* and *NPM* are accounting measures of firm performance oriented to what the firm has already accomplished. Secondly, both of these measures have limitations with respect to how they are calculated.

Accounting profit indicators are limited by accounting practice where, even while applying International Accounting Standards (IAS), practice allows for biased and looser assessment of, for example, the value of intangible assets or different methods of calculating depreciation. In contrast, while calculating *Tobin's Q*, the replacement value of the firm's tangible assets, part of the *Tobin's Q* denominator, does not include investments that the firm has made in intangible assets. This would imply that revenue is generated only from investments made in tangible assets, which consequently leads toward overestimation of the financial results, i.e. of firm performance.

In the context of the Montenegrin economy, both accounting and market value indicators of the firm's profitability can be considered as potentially unreliable. Namely, although the Montenegrin Law on Accounting and Auditing<sup>7</sup> requires accounting practice in Montenegro to be in line with the International Account-

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<sup>7</sup> Official Gazette of RM, no.41/08

ing and Auditing Standards, there is an evident implementation gap with respect to following IAS in domestic practice.<sup>8</sup> For example, the World Bank's Report on the observance of standard and codes (ROSC, 2007) for Montenegro provides an assessment of accounting, financial reporting, and auditing requirements. The general view on the accounting practice from this report is clear from the following excerpts (ROSC 2007, p. 3):<sup>9</sup> "The review of financial statements identified some systematic accounting issues that need to be properly addressed in practice. In addition to a lack of detailed disclosures required under IFRS, the review identified a number of common recognition and measurement issues, such as asset valuation (e.g. the lack of impairment tests), insufficient disclosure of related party transactions (including those involving the State), improper reflection of taxes in the annual financial statements, and pension accounting and practices within the enterprise and financial sectors in Montenegro."

Therefore, due to poor quality of accounting standards implemented in the national laws, this may imply that ROA, ROE and NPM are, to a certain extent, deficient estimates of firm performance. Thus, we had a challenging task to choose between two different types of firm performance measures, each having serious drawbacks concerning their reliability. Our choice of ROE was made by the criteria of which measure would create less bias to the estimated results and thus more accurately reflect firms' activities.<sup>10</sup>

Table 2: Summary statistics for the proxy variables of the firm performance

Variable	No. of Observations	Mean	Standard Deviation	Minimum	Maximum
ROA	962	-0.03	0.37	-7.93	4.59
ROE	962	-0.69	0.203	-5.43	13.62
NPM	904	-13.25	121.56	-2321.47	92.38
Tobins' Q	902	13.26	98.07	0.00	1797.24

Source: Author's calculation, Stata 2011

ROE presented in Table 2 is our choice as a proxy for firm performance in our preferred model specification. We argue that usage of different firm performance measures provides useful robustness checks on our preferred results. However,

<sup>8</sup> Official Gazette of RM, no.69/05 and no.80/08, Article 6a

<sup>9</sup> The Republic of Montenegro: Report on the Observance of Standards and Codes (ROSC), Accounting and Auditing, 2007

<sup>10</sup> Full discussion on the choice of ROE is not presented due to space constraints, and may be obtained from the author upon request.

usage of ROA is highly questionable, given that its usage would end up specifying a model in which assets appear on both sides of the equation.

Four ownership variables are investigated in the model: shareholdings of the largest shareholder (*Top1OC*); and shareholdings of the three largest (*Top3C*), five largest (*Top5OC*), and ten largest shareholders (*Top10OC*). Comprehensive empirical literature examining the impact of different types of owners (explained in Chapter 3) on firm performance addresses the issue of the difference between outsider and insider owners. Our empirical investigation was conducted primarily to bring into focus the impact of outsider ownership on firm performance. In the case of Montenegro, corporate governance measures such as performance bonuses for executives are rarely used to align the interests of managers and owners. Secondly, managers rarely appear as large owners in the Montenegrin corporate sector. Privatisation in Montenegro hardly supported the development of managerial ownership. Namely, unlike other transition economies, Montenegro did not conduct “managerial buy-outs” (MBO) privatization, which were characteristic for Poland (1993), Slovenia (1992), Hungary (1993), Croatia (1992) and Russia (1991). In these countries, BO was considered as a fast and efficient privatisation process in the case of small or medium sized companies (Ellerman, 1993).

Consequently, taking into the consideration that we are primarily interested in the impact of outsider ownership concentration on company performance, our preferred measure is the shareholding held by the five largest shareholders. We acknowledge that this measure has its disadvantages. As Demsetz and Villalonga (2001) point out, the fraction of shares held by the largest shareholder might not be a convincing measure of the outsiders’ ownership and of the degree to which investors are protected from managerial shirking and self-fulfilling actions in the case when management often holds enough shares to be the single largest shareholder. Moreover, we are fully aware that in the case where the largest owner is an individual, most probably he/she will be the Executive Director, on the Board of Directors and in the senior management team. This setting is characteristic for small firms in Montenegro. However, searching for managers’ stake in the group of largest shareholders is possible only in the context that the largest shareholder is an individual.<sup>11</sup> Following Demsetz and Villalonga (2001) we also use the fraction of the five largest shareholders as a proxy for ownership concentration.

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<sup>11</sup> Demsetz and Villalonga (2001, p. 1) argue: “the fraction of shares owned by the five largest shareholding interests is more likely to be representative of the ability of shareholders, as this term is ordinarily understood, to control professional management than the fraction of shares owned by management is to be representative of the ability of professional management to ignore shareholders.

Our general sentiment is similar to the findings of a very rich empirical literature based on transition economies' experience, which generally reports a negative, significant impact of ownership concentration on firm performance (Kuznetsov et al. 2011; Aukutsionek et al. 1998, Balsmeier and Czarnitzki 2010; etc.). These countries usually are characterized as economies with a weak, under-developed, poorly functioning legal framework created presumably to protect minority shareholders and with underdeveloped, illiquid and shallow capital markets, in which share prices do not usually reflect the quality of firms' performance. This reminds us that Demsetz's theory of corporate value maximization irrespective of the ownership concentration is based on the assumption of perfect market mechanisms ("vote" and "exit strategy", developed corporate governance instruments and liquid, developed secondary markets), which may not be considered as applicable or even as relevant in the case of transition economies, including Montenegro.

Empirical literature on transitional economies does not face the problem of interconnecting theoretical concepts with their empirical findings. Instead, there are numerous theoretical explanations supporting the conclusion of a significant negative relationship between ownership concentration and firm performance. Castaneda (2006) notes that, in the case when the stock market is illiquid, and minority shareholders are not well protected, and share prices do not reflect the quality of firm performance, large owners (the ones that bear the most risk) are disabled with respect to assessing asset allocation efficiently, resulting in their choice of low-risk, low-productive projects, which leads to poorer firm performance. However, we would argue that the negative impact of ownership concentration on firm performance in transition economies is considerably present due to expropriation of minority shareholders (Shleifer and Vishny, 1997). In addition, there is also the problem of insufficient incentives for the largest owners to attempt timely and efficient restructuring of firms to maximize their value over the long-term horizon. Desai and Goldberg (2000) provide a very critical analysis of Russian and CIS countries which, through MVP, witnessed heavy asset-stripping conducted by poorly monitored managers, the absence of restructuring due to poor monitoring mechanisms, accompanied by distortive contracts between government and investors in order to assure the protection of local employment, even at the expense of company efficiency. Furthermore, they argue, given the illiquidity of secondary markets, managers do not have the necessary incentive to increase the value of shares; instead, they sell assets by themselves as a way of valorising their control rights.

Still, empirical evidence on the impact of ownership concentration on firm performance in the context of transition economies is not uniform in suggesting a negative effect. For example, comprehensive analysis by Balsmeier and Czarnitzki (2010) based on the experience of 28 transition economies, including Montenegro (using the EBRD BEEPS data for the period 2002-2008), suggests that in the case of an underdeveloped institutional framework, ownership concentration, as a distinctive feature of lack of the corporate governance mechanisms, may substitute for institutional shortfalls. Furthermore, as Shleifer and Vishny (1997) pointed out, ownership concentration may act as an equivalent to standard corporate governance mechanisms, efficiently monitoring managers and contributing to better firm performance.

Hence, we are left with two contrasting theories, preventing us from concluding one way or the other regarding the expected sign on the relationship between ownership concentration and the firm performance. We have strong empirical evidence suggesting the positive effect of ownership concentration on firm performance due to diminished agency costs. Conversely, especially in the case of highly concentrated ownership, missed investment opportunities and high private benefits of control might lead to a negative relationship between ownership concentration and firm performance. Therefore, in the context of the Montenegrin economy, given its uncommonly high ownership concentration, we are not sure concerning whether the impact might be positive or negative. Whether the argument of better monitoring potential of ownership concentration or escalation of the private benefits of control will emerge or not is difficult to anticipate at this point of analysis.

Without further discussion, we tend to agree with the conclusion of La Porta et al. (1999) that, in the contexts of small countries with highly concentrated firm ownership by families or individuals, owners of those firms might gain significant political power. Additional political power may be used for expropriating additional sources and mitigation of potential business barriers that can be used to obtain better firm performance.

In the model we control for the firm's leverage calculated as the debt to asset ratio. According to Demsetz and Villalonga (1985), Himmelberg et al., (1999) and Welch (2003, p. 294) leverage has a negative impact on firm performance.



In line with the pecking order theory, there is an inverse relationship between the financial results of the firm and the level of its debt.<sup>12</sup> In contrast, according to the agency theory, higher leverage leads toward better performance, through additional monitoring of managers by institutions that provided external finance, or through threat of liquidation, which leads to a more responsible attitude of managers who are afraid of losing salaries, reputation or bonuses (Grossman and Hart, 1982 and Williams, 1987). Moreover, according to agency theory, a higher leverage ratio might mitigate potential conflicts between owners and managers concerning the choice and the level of risk of additional investments (Jensen and Meckling, 1976). That is, the agency theory would support the hypothesis that an increasing leverage ratio triggers diminishing “agency costs of outside equity and improvement of firm performance, all else held equal” (Berger and di Patti, 2002).

In addition, in the model we control for the size of the company (*Ln\_Asset*). According to Demsetz and Lehn (1985, p. 1185), a smaller share stake is needed in order to obtain the desired level of control in larger firms. Consequently, we would hypothesise that firm size would have a negative impact on ownership concentration. They argue that in the attempt of shareholders to preserve the same level of ownership concentration, they would be willing to purchase additional shares only at a lower - risk compensating - price, i.e. they will have risk-averse behaviour.

Concerning the impact of firm size on firm performance, a large empirical literature on this issue is equally as inconclusive as the literature assessing the relationship between ownership concentration and firm performance. A limited literature review (taking into consideration that exhaustive assessment of this relationship is beyond the scope of this thesis) examining the link between ownership concentration and firm's size supports the idea of its pronounced inconclusiveness. The additional information that might be obtained from this variable

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<sup>12</sup> “The pecking order theory of capital structure is based on the assumption that firms have a preferred hierarchy in financing decisions. The first choice is to use internal financing (retained earnings) before deciding to use any form of external funds. Namely, internal funds incur no flotation costs and require no additional disclosure of proprietary financial information that could lead to more severe market discipline and a possible loss of competitive advantage” Myers and Majluf (1984). However, if a firm is forced to use external funds, there is a gradual list, based on managerial will to maintain control over the firm's decisions, concerning which funds will be used first: debt; convertible securities; preferred stock; and, finally, common stock (Myers, 1984). This scale is based on the incentive of financial managers to preserve control of the firm (since only common stock has a “voice” in management), reduce the agency costs of equity, and avoid the negative market reaction that will be raised with a new equity issue (Hawawini and Viallet, 1999).

is to assess whether firm size really matters in the context of the Montenegrin economy, consisting in large part of small and medium enterprises.

The literature on this issue starts with the famous Gibrat's law (1931), or the so-called "Law of Proportionate effect," which argues that firm performance is proportionate to firm size, growing independently. This is supported by findings of Hymer and Pashigian (1962) and Mansfield (1962). Bhattacharyya and Saxena (2009) argues that this applies only in the case of large firms "that have overcome the minimum efficient scale of a given industry". On the other hand, we would argue that a sea-change occurred with Baumol (1959), supported later by empirical findings of Hall and Weiss (1967), Gale (1972), Shepherd (1972) and Punnose (2008), who find a positive impact of firm size on firm performance. According to Power and Reid (2003), firms that are considered small (which is the case for most joint stock companies in Montenegro) need to remain small, i.e. firms "need to adjust downwards in size" in order to achieve better firm performance and to be long lived. Contrariwise to previous findings, Marcus (1969), Evans (1987) find a weak negative impact of firm size on firm performance arguing that larger firms would have lower profit rates because of diminishing returns to the fixed factors of production. However, these studies were relying on the cross sectional databases, neglecting the dynamics existing between a firm's size and a firm's performance. Thus, in our model specification we cannot provide a definite hypothesis concerning the sign and significance of the relationship between firm size and firm performance in the context of the Montenegrin economy, taking into consideration widely varying empirical evidence of this relationship. Nonetheless, assessing the dataset characteristics, the general impression is that large privatized companies achieve better performance, taking into consideration that they have easier access to international capital markets.

Similarly, we intended to include variables to control for firm risk (*Firm\_risk*) and market specific risk (*Market\_risk*). However, for reasons explained below, eventually these variables were not included. These variables control for the fact that different levels of risk are attached to investment in different companies. According to Demsetz and Lehn (1985), the profit potential of one company is related to the instability of its market environment. The noisier the environment, the more difficult it is to ensure efficient managerial behaviour and profit maximization. Changes in prices, changes in market structures, technologies, etc. will induce increase of ownership concentration, as a reflex of owners to ensure satisfactory management monitoring. Thus, we need to control for two effects, changes in the firm's environment measured by the market risk and reaction of the firm to the changes in the market environment, i.e. firm specific risk.

The variable we use to capture the effect of the Market risk represents the value of the beta coefficient obtained from regressions of monthly stock returns of a particular company on monthly market returns. Because the Montenegrin Stock Exchange does not provide beta for any of the listed joint stock companies, these coefficients had to be calculated by the author, for all 204 joint stock companies in our sample for the period 2004-2008. The beta coefficients were obtained using OLS estimation from 1020 regressions of monthly stock returns on monthly market prices, which are approximated by the MONEX20 cumulative stock exchange index.

According to Demsetz and Lehn (1985, p. 1160) we need also to control for firm specific risk, arguing that the firm specific risk is “the factor most strongly associated with the type of instability for which control is most useful”. In other words, Demsetz and Lehn (1985) claim that the owners believe that they can control the success (firm performance) of their firms. However, in the case when the firm’s environment is noisier- i.e., more uncertain (due to price changes, technological changes, changes in the market positions, etc.) - monitoring of managers becomes more difficult because the signals with respect to the behaviour of the firm are difficult to monitor, becoming “non-readable” due to the changes in the company’s environment. Thus, with increase of the firm’s uncertainty and noisiness of signals from the market, ownership concentration increases as a reaction to the increased difficulties faced by owners of efficiently monitoring managers; i.e. we expect that ownership concentration will increase with the increase of firm specific risk.

As a proxy for the firm specific risk, we use the variable *Firm\_risk*, which is the standard error obtained from the regression used to estimate the beta coefficient (i.e. market risk). Demsetz and Lehn (1985) suggest two other measures: the standard deviations of annual accounting profit rates; and the standard deviations of monthly stock market rates on return (Pedersen and Tomsten, 1997; Demsetz and Villalonga 2001; Siqueira, 1998; Rogers et al. 2008). However, we decided to use the measure considered as “mainstream” in the empirical literature dealing with this topic (Perrini et al., 2008; Welch et al., 2003; etc). Moreover, in the case of Montenegro, fluctuations of the standard errors of the beta coefficient are less pronounced in comparison to the standard deviation of the monthly stock market rates of return of Montenegrin joint stock companies. We use this variable with caution.

The Montenegrin capital market experienced dramatic expansion during the period 2004-2008, due to an exogenous shock triggered by extensive FDI inflow in real-estate, credit growth and nominal wage growth. Consequently, during this

period the capital market (measured by market turnover volume) increased by more than 14 times, accompanied by the bubble on the real-estate market where prices increased by more than 147% over two years. Accordingly, the calculated values of the beta coefficient for this period do not reflect changes of firms' performance, or the noisiness of the "normal" business environment, so much as they may reflect the speculative activities of investors (usually individuals who obtained money from selling real estate on the Montenegrin coast) who typically were completely unaware of the real status and performance of companies in which they were investing. Therefore, these two risk variables were not included, given that they did not yield informative results when included in the model.

Although we concluded that the risk variables in our particular context could not fulfil their intended function, we did include additional firm specific variables in the model specification, *RD\_Sale* and *Fix\_Sale*, which are, respectively, proxies for research and development expenditures (R&D) and gross fixed assets as a fraction of annual revenue. These two variables in the model specification, proposed by Demsetz and Villalonga (2001), are used for two reasons. Firstly, to control for the extent to which the firm invested in intangible capital (R&D to sales ratio) and to control for accounting differences stemming from different approaches to fixed assets depreciation (fixed assets to sale ratio). In particular, the proxy for the level of intangible assets is used to control for distortion of Tobin's Q, taking into consideration that the book value of assets, which represents the denominator of Tobin's Q, usually does not include the value of all intangibles. Demsetz and Villalonga (2001, p. 14) argue that it is necessary to include fixed assets to take into consideration that accounting decisions affecting Tobin's Q originate from poor assessment of fixed assets depreciation. Given that we do not use Tobin's Q in our model as a proxy for company performance due to the severe distortion of share prices during the credit boom in 2005, 2006 and 2007, we decided to include those variables for the first set of reasons provided by Demsetz and Villalonga (2001). Simultaneously, we use the *RD\_Sale* variable as an alternative to the potentially unreliable beta coefficient as an indicator for the firm specific uncertainty, as suggested by Hashi and Grosefeld (2001).

As already accentuated, in line with Demsetz and Lehn (1985), in the case when a firm operates in a less certain environment, it faces various external factors such as market competition, technology changes, government policy shifts, etc., which magnifies the importance of the control of management. Namely, as we argue in relation to a noisier environment, owners will have incentives to monitor more closely managers by increasing their ownership share. Thus, assuming that large ownership would not affect managerial initiative, which might lead toward a worsening of the firm's results, we may argue that, in the context of the Monte-

negrin economy, a positive relationship can be expected. As Hashi and Grosefeld (2001) argue, it is difficult to find a good proxy for the degree of uncertainty in the firm environment. As noted, due to overheating of the Montenegrin economy, followed by creation of price bubbles in the capital and real estate markets, firm levels as well as market Beta coefficients obtained for the period 2004-2008 are of a very poor quality. Namely, prices were driven primarily by speculative demand, fluctuating independently of the real quality of listed companies. Consequently, the beta coefficient is very much misleading as a proxy for firm specific risk, although often used in similar research. Instead, we use R&D expenditure as an alternative proxy of firm specific environmental noise. We are fully aware that this proxy is of poor quality, which might be reflected through its low precision in the estimated regression; yet we argue that it is a preferable option to the Beta coefficient.

As previously explained, in our model specification, instead of Tobin's Q, we use alternative accounting measures of firms' profitability: Return on Equity (ROE). Still, we are interested to see how intangible assets might affect firm performance. The literature on R&D and its impact on firm performance and productivity are very rich, covering both macro and micro levels. According to Holak et al. (1991) and Morebey (2003), R&D might have either a positive or a negative impact on firm performance, depending on the level of investment in R&D; i.e. it is necessary that firms exceed a certain threshold in investing in R&D in order to have a positive impact on firm performance. Similarly, O'Mahony and Vecchi (2009), Griliches, (1979); Grossman and Helpman (1991); Coe and Helpman (1995), Cuneo and Mairesse (1984); Mairesse and Cuneo (1985); Griffith et al., (2006); Bloom and Van Reenen (2002); Harhoff (1998), etc., find in the context of various countries (the OECD countries, USA, France, UK, Germany) that investment in knowledge based capital positively affects firms' productivity. However, it is necessary to emphasize that the impact of R&D investment on firm performance, or its spill over effects on the economy (Romer, 1986), is not the focus of our research. Instead, in our model specification we control for intangible assets, using the ratio of R&D expenditures to sales, with the main aim to use this variable as a potentially valuable proxy variable, which at the same time captures accounting distortions in evaluating the level of firms' intangible assets.

Concerning the Fixed assets to annual sales ratio, we include this variable to control for distortions in the accounting evaluation of fixed assets (level of depreciation) and its impact on firm performance. Namely, at present there is evident debate among managers, investors, accountants and capital market regulators about "disclosure and recognition of long-term nonfinancial assets at estimated value, rather than at depreciated historical cost" (Aboody et al., 1999). As stated

in their work, upward revaluations of fixed assets significantly positively affect changes in future performance in the context of UK firms. Simultaneously, fixed assets indicate capital intensity, which would imply that those companies with higher capital intensity might have better firm performance (Chhibber and Majumdar, 1998) due to the fact that firms “operating with higher capital-to-sales ratio impose entry barrier and enjoy better control over the market, than it would have been otherwise” (Kumar, 2004, p. 13).

In addition, we include a *Regulation dummy*, which controls for the regulation effect on the financial sector in a setting where regulation severely circumscribes what management (insiders) and outsiders can do with the assets owned by firms. Namely, according to Demsetz and Lehn (1985, p. 1161), in industries which are under special supervision due to their importance for the financial stability of a country, additional regulation is provided, which on the one hand restricts the behaviour of owners, but on the other hand provides stricter monitoring of the management, relaxing the necessity for ownership concentration. Indeed, the Montenegrin Banking Law contains articles that directly affect the identity and the structure of owners<sup>13</sup> as well as the behaviour of managers<sup>14</sup> in line with its purpose of ensuring financial stability in Montenegro. Strict regulation environment affects the magnitude of management manoeuvre when it comes to investment decisions, revenue generation and profit allocation. Therefore, a general expectation is that a strict, risk averse regulatory environment might have a negative impact on profitability. The same conclusion stands for certain types of utility industries controlled by strict rules concerning other types of sensitivity (e.g. environmental), which are controlled by the *Utility\_dummy*.

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<sup>13</sup> According to Article 9 of the Law: “No legal or natural person may acquire qualified participation in a bank without prior approval of the Central Bank. A party with qualified participation may not further increase participation in capital or voting rights in a bank, on the basis of which it acquires 20%, 33%, or 50% or more of participation in voting rights or in the capital of the bank, without the prior approval of the Central Bank. A legal person that is engaged in non-financial activity and in which a bank has participation in capital or voting rights of at least 20%, may not acquire participation in capital or voting rights in that bank of 5% or more.”

<sup>14</sup> If the Central Bank establishes irregularities in the bank’s operations, it may take one of the following measures: “...order a bank to discharge a member of the Board of Directors, an executive director or an official with special powers and responsibilities and set the timeframe for conducting the procedure of their relieving of duty and, as a rule, prohibit these persons to further perform their functions until the completion of the ordered procedure; revoke the previously granted approval to a board of directors member; order the bank to reduce overhead expenses, including the imposing of restrictions to salaries and other benefits of the bank’s executive directors and other officials with special powers and responsibilities”; etc.

Following the Demsetz and Lehn (1985) specification, we include another indicator variable, *Media\_dummy*, in order to control for “amenity potential” in the media industry. According to Demsetz and Villalonga (2001, p. 222) “amenity potential” is described as “a characteristic of the good produced by the firm that allows for the creation of non-profit related utility for owners of the firm” or creation of the “the private benefits of control” (Grossman and Hart, 1988). Namely, according to Djankov et al. (2001, p. 5) who assessed the ownership structure of media firms around the globe, the amenity potential reflects potential non-financial benefits, such as fame and indirect influence, obtained by controlling a newspaper or a television station. These nonfinancial benefits for controlling a media company or a famous sport team must be considerably higher than those from controlling a firm of comparable size in, say, a hotel or pottery industry. However, this “non-pecuniary benefit of control” (Villalonga and Amit, 2010, p. 876) cannot be utilized if the ownership structure is diffuse. Therefore, it is expected that owners will be more concentrated for those special firms that have a potential to exhibit high amenity potential; with the aim to enjoy in it. Simultaneously, amenity purchases made by owners are driven not purely for profit maximization, but forgiven benefits that arise from exploiting amenity potential, and should result in reduced profit (Demsetz and Villalonga, 2001, p. 223).

As mentioned, although our aim is to include those variables suggested by Demsetz and Lehn (1985) and Demsetz and Villalonga (2001), we include an additional set of variables that might have impact on corporate performance, along with a set of variables that should control for country specificities of the ownership concentration patterns of Montenegrin companies. We include the variable *Liquidity* to control for the effect of a company’s financial position on performance. According to Couderc (2005) and Gitman (1984), excessive cash holdings within the firm - i.e. putting too much focus on liquidity - cause poorer firm performance due to underinvestment. On the other hand, Kim et al., (1998), argue that those companies that want to achieve better financial results need to have higher liquidity, in order to fund their operations and sales growth. Thus, we would expect either a negative or a positive impact of liquidity on firm performance; or a non-significant effect if both theories are valid and so offset one another in their practical realisation. We can make an argument for potential simultaneity, i.e. potential reverse impact of firm performance on liquidity. The same issue arises in relation to firm solvency as an addition to the core variables of Demsetz and Lehn (1985) and Demsetz and Villalonga (2001).

Moreover, in the model specification we introduce the solvency ratio (*Solvency*). Taking into consideration that solvency is usually defined as the ability of a firm to meet its long-term fixed expenses and to accomplish long-term expansion and

growth, or as the ability of a business to have enough assets to cover its liabilities, we may argue that solvency is the *condition sine qua non in achieving better firm performance* (Yu and Liang, 2011; Hu and Izumida, 2008). However, versatile empirical literature on this issue simultaneously indicates that better firm performance might be achieved with firms that *have lower solvency ratios*. For example, Collin (1998, p. 29) argues that firms with a low solvency levels will be under pressure to allow their debt holders to impose their actions on the managers and a “stable but not an exceptionally high profit could be expected”. On the other hand, Rajan (1992) argues that those companies that have solvency problems may be the subject of excessive rent extracting enforced by their lenders that, in the case when company’s debt capacity is reached, have stronger negotiating power.

Although the solvency ratio is not part of the core model introduced by Demsetz and Villalonga (2001), we include the solvency ratio within the model specification. In analysing the database, we observed that there are numerous companies with poor financial ratios (solvency, liquidity and profitability), supporting the impression that these companies have problems in maintaining their business activity at a satisfactory level. Similarly to liquidity, we can hypothesise potential simultaneity (endogeneity) between firm performance and solvency ratio. In the event, however, attempting to instrument these variables either individually, together, or in combination with size – another potentially endogenous variable – demanded too many instruments in relation to the number of observations. (We discuss the problem of “too many instruments” in the context of system GMM estimation below).<sup>15</sup>

In addition, as noted by Mura (2007), it is important to distinguish between different types of large block-holders in assessing the quality of firm performance. Namely, following Djankov and Murrell (2002), Frydman et al. (1999), and Anderson et al. (2000), transition country ownership was, in large part, exogenously determined by political and administrative processes. These processes contributed to the creation of many different types of owners, examined by a large empirical literature. The prevailing sentiment in the empirical literature for transition economies is that privatisation, resulting in change in ownership patterns, contributes to economic growth, faster transformation and restructuring and, finally, better performance of companies. This is supported by Carlin et al. (2001) in the case of 25 transition economies; Djankov (1999) in case of Georgia

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<sup>15</sup> This was evident in poor model diagnostics and the failure of the model to yield useful results. Accordingly, we instrument only what is essential (ownership concentration, our variable of interest) rather than what in principle might be desirable (i.e. instrumenting, in addition, liquidity, solvency and size). In doing so, we follow the usual practice in the literature of instrumenting ownership concentration but not other potentially endogenous variables in the model.



and Moldova; Earle and Estrin (1997) in the case of Russia; Estrin and Rosevear (1999) in the case of Ukraine; Grigorian (2000) in the case of Macedonia; Roberts et al (1999) for the case of Kirgiz Republic, etc. Thus, in the model, similarly to Djankov and Murrell (2002), in order to assess the relative effectiveness of different types of owners, we include five different variables controlling for different types of owners: *Individual\_dummy* (taking value of one if an individual is the largest owner, zero otherwise); *Other\_Company\_dummy* (taking value of one if another company is the largest owner, zero otherwise); *Financial\_Institution\_dummy* (taking value of one if the bank is the largest owner, zero otherwise); *Privatisation\_Fund\_dummy* (value of one if a Privatisation fund is the largest owner, zero otherwise); and *State\_dummy* (taking value of one if the state is the largest owner, zero otherwise).<sup>16</sup> Each of these controls is for different types of owners. However, unlike Djankov and Murrell (2002) and their eleven overlapping groups<sup>17</sup>, we tried to make a division that avoids overlapping, which may induce problems of multicollinearity in the model specification. According to Pound (1988) and Almazan et al. (2005), institutional investors are more efficient monitors due to their better expertise and analytical capacities. This would imply that institutional investors on average have a stronger (positive) impact on firm performance.

We introduce a set of dummy variables to control for the type of controlling owner with respect to whether they are foreign (*Foreign\_own*), domestic (*Domestic\_own*), or state owners (*State\_dummy*). We want to explore how different identity of owners may affect firm performance. As it can be noticed, the *State\_dummy* variable overlaps with the previous set of dummies that controls for different type of investors. Therefore, we will investigate two separate specifications, the first one exploring the impact of different type of owners; and the second one exploring the impact of different owners' identities. As previously explained, due to political issues and economic sanctions during the 1990s, Montenegro was left almost without domestic capital. The strategy accentuated in the milestone document "Development of Montenegro 2002-2006" created a tax environment

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<sup>16</sup> In our empirical investigation, we control for the identity of the largest owner, no matter what is the percentage, i.e. instead of using a threshold e.g.: Estrin and Rosevear, (2003) $\geq 0\%$ ; Jones and Mygind, (1999) $\geq 50\%$ ; or Classens and Djankov, (2002) $\geq 33.3\%$ .

<sup>17</sup> Djankov and Murrell (2002) identified eleven different types of owners, some of which overlap: traditional state ownership (100% state that have not been the part of a privatisation program); commercialized state-enterprises that underwent the process of privatisation and where there is no infliction of the state in the management decisions of the enterprise, enterprise insiders-includes workers and managers; outsiders-a group consisting of non-employee and non state owners; workers; managers; foreign owners of all types; banks; investment funds; block-holders-concentrated outsider ownership; and diffuse outsider-dispersed outsiders.

that resulted in a high level of FDI inflow. Extensive literature on this issue predominantly argues that foreign owned firms, on average, experience better firm performance (Alan and Steve, 2005; Piscitello and Rabiosi, 2005; Douma et al., 2006; Aydin et al., 2007, etc.). Moreover, the *EBRD Transition Report* (1999, p. 33) findings supports the idea that “unambiguously positive results have been found only for those enterprises privatised to strategic foreign investors or to other types of concentrated outside owners”.

The general argument supporting the idea is that foreign investors provide better corporate governance practice, increase productivity, and ensure cheaper sources of financing, higher value added to output and greater capital intensity (Willmore, 1986), transfer of knowledge and know how (Blomstrom and Kokko, 1998), which translates to better firm performance of foreign owned companies in comparison to domestic owned ones. According to Yasar and Paul (2007) foreign owned companies in Moldova, Tajikistan, Uzbekistan and the Kyrgyz Republic have better performance in comparison to domestic owned companies, due to higher productivity, export shares and capital intensity. However, although we would assume that this hypothesis is particularly correct for transitional and less developed economies, empirical literature regarding the effectiveness of foreign ownership is not so conclusive in the case of developed economies (Ayedin et al., 2007, p. 106). For example, Barbosa and Louri (2003) do not find evidence that multinational corporations perform better than domestic firms in the case of Portugal and Greece. Similarly, Konings (2001) fails to support the argument that foreign ownership is superior to domestic ownership in the case of the Czech Republic and Bulgaria, although this is the case for Poland. On the other hand, Mickiewicz et al. (2005) in the context of Poland, while arguing that privatisation has a positive impact on the employment growth three to six years after the process of privatisation, provide evidence that State owned companies are achieving lower sales growth.

Conversely, Lizal and Svejnar (2002) find that foreign owners do ensure better performance of firms. Similarly, Smith et al. (1997) in the case of Slovenian companies find that foreign ownership is associated with higher increase of value added in comparison to ownership of employees. However, Mickiewicz et al. (2005) argue that there is a reasonable doubt that behaviour (i.e. performance) of newly privatised companies would be affected by inherited labour surpluses or by privatisation contracts which, usually, prohibit lay-off of workers for a considerably long period after privatisation. This practice holds for most companies sold to strategic investors in Montenegro. Conversely, the privatization scheme in

Montenegro was created on the “cherry picking” principle<sup>18</sup>, with the aim that the best strategic companies should be sold to strategic domestic or foreign investors. We assume that in the context of the Montenegrin economy foreign ownership should contribute to better performance.

Given the poor institutional environment and corporate governance environment, we introduce three dummies to control for the type of controlling owner with respect to whether they are state (*State\_50*), foreign (*Foreign\_50*), domestic (*Domestic\_50*). Controlling owner in the context of Montenegrin legislation regarding corporate governance is the one that has more than 50% of voting rights, i.e. a large enough percentage of shares such that one share holder or a coalition of stock holders are not able to block decisions by the controlling owner.

Although it is not the primary focus of our empirical analysis, we want to highlight that the literature in the case of transition economies faces problems in creating a definite theoretical concept concerning the impact of different privatization programs on ownership structure evolution. Possibly the most comprehensive analysis was provided by Dyck (2000), who tried to compare how different privatisation designs contributed to growth at the national level as well as to creation of the legal framework on corporate governance protection.

As explained in the introductory section, Montenegro started with the process of privatisation a decade later (starting in 2001) than most transition economies (from CIS and EEC countries). To our knowledge, the existing empirical literature lacks evidence on the impact of privatisation on ownership structure and consequent firm performance for Montenegro. Thus, this research contributes to filling a knowledge gap, with assessment on how different ownership identities

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<sup>18</sup> One of the issues not fully covered is the fact that the design of privatization methods and their impact (success) on corporate performance is that firms are not chosen for the process of privatization randomly. A “cherry-picking” strategy was characteristic for firms’ sales to strategic investors (tenders, auctions or direct negotiation). This issue may contribute to bias when assessing effectiveness of the privatization methods. For example, Szenpeteri and Telegedy (2010, p. 298) argue that in the process of firm selection for the state, “employment concerns played a key role, even if efficiency gains had to be sacrificed.” The empirical survey of Gupta et al., (2008) reveals that the absence of controlling for the problem of non-randomized choice of firms that are going to be privatised, creates biased results of empirical research that are estimating effectiveness of different privatisation designs. Djankov and Murrell’s (2002) Meta analysis survey indicates that one-half of the studies do not treat the issue of selection bias at all, whilst Hanousek, Kocenda and Svejnar (2007, p. 17), who managed to capture nonrandomized selection of companies, claim, “the other half suggests that many treat the issue in a relatively haphazard way.” In contrast (and we are supportive of this premise in the context of Montenegrin economy), Hamm, King and Stuckler (2012) argue that non-randomized choice of companies for privatisation is a delusional task due to dubious quality of financial data.

affect firm performance and whether certain types of privatisation affected the current performance of the Montenegrin economy.

Consequently, we include an *MVP\_dummy*, a dummy variable to control for the impact of MVP on firm performance. Namely, the extensive empirical literature remains vague concerning the effectiveness of this privatisation method with respect to economic growth and creation of effective corporate governance. According to Megginson and Netter (1999), the MVP, on average, performed worse in comparison to other privatization programs. Yet, they argue that voucher privatisations at the same time “foster free and efficient markets, and promote effective corporate governance.” Similarly, Miller (2006) argues that in the case of Bulgaria, MVP have performed less well than firms privatized by other privatisation methods. Pistor and Spicer (1996) provide extensive grounds for critique of MVP, finding that citizens in Russia and the Czech Republic became owners of the worst privatized firms, while insiders became owners of the best performing firms.

Our general sentiment is that we may expect a negative coefficient on the MVP variable. Namely, in the context of the Montenegrin economy, it is evident that different privatization processes resulted in a very mixed yet concentrated ownership structure. According to Shleifer and Blasi (1996), in the absence of a developed capital market, as was the case in Montenegro, which prevents fast re-trading of shares, the ownership structures created after the MVP have a more persistent effect on enterprise actions and consequently on its performance. Taking into consideration that the main downside of the MVP is creation of granulated, ineffective and unskilled shareholders (Gray, 2001), delayed or insufficiently fast re-trading of shares due to the underdeveloped capital market may additionally worsen the performance of companies that were the subject of MVP. In addition, according to Megginson and Netter (2001), privatisation tends to have a positive impact on firm performance, including the state owned companies, in an environment with readily competitive markets. In contrast, the rationale for privatisation is less compelling in markets where monopolistic behaviour is prevalent. This is the case in Montenegro, which can be described as a small, highly monopolized market, where certain sectors are occupied by only one to four companies; i.e. we would argue that some industries are to a certain extent monopolized. For instance, the energy sector consists of only one company<sup>19</sup>, the construction industry consists of eight large companies, around 75% of the retail trade consists of three large retail trade chains<sup>20</sup>, while telecommunication

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<sup>19</sup> “ElektroprivredaCrne Gore AD Nikšić”

<sup>20</sup> “Voli DOO”, “MEX DOO”

services are provided by two companies<sup>21</sup>. Lastly, we introduce a set of industry dummy variables to control for industry effects.

Table 3 sets out the list of variables used in our model specification, their corresponding symbols and expected signs, according to both existing theories and to the distinctive characteristics of the Montenegrin economy.

**Table 3: Symbols and description of variables used in the empirical analysis**

Symbol	Description	Expected Sign
<b>Dependent variable</b>		
ROE	Firm Performance – Return on Equity	
<b>Independent variables</b>		
InSize	Size- natural logarithm of the average book value of assets	+/-
Leverage	Leverage-the ratio of year-end debt to the year-end book value of assets	-
IntopOC5	Ownership concentration - $\ln(\text{OCTOP5} / (100 - \text{OCTOP5}))$ , where OCTOP5 is the percentage of ordinary shares owned by the top 5 shareholders. Following established practice in the literature, this variable is specified as a natural logarithm	+/-
Liquidity	Liquidity ratio– (Liquidity indicator: cash +accounts receivable + short term investment)/current liabilities	+/-
FixSale	Fixed asset to sales ratio - the ratio of the gross fixed assets to annual sales	-
Solvency	Solvency ratio–Solvency indicator used to measure a company's ability to meet long-term obligations, measured as the ratio of the after tax net profit plus depreciation to long and short term liabilities	+
R&DSale	R&D to sales ratio-the average ratio of annual research and development expenditure to annual sales	+
Media_dummy	Dummy for media and sport clubs companies (equal to 1 if the firm operates in the media or sport industry, and 0 otherwise)	+
Utility_dummy	Dummy for utility company (equal to 1 if the firm operates in the utility industry, and 0 otherwise)	+
Finance_dummy	Dummy for finance company (equal to 1 if the firm operates in the finance industry, and 0 otherwise)	+

<sup>21</sup> “Pro Monte–Telenor AD” and “T-Mobile AD Podgorica”

Individual_dummy	Dummy for investor's identity (equal to 1 if the firm's largest owner is an individual, and 0 otherwise)	+
State_dummy	Dummy for investor's identity (equal to 1 if the firm's largest owner is the state, and 0 otherwise)	-
Other_company	Dummy for investor's identity (equal to 1 if the firm's largest owner is another company, and 0 otherwise)	+
Bank_dummy	Dummy for investor's identity (equal to 1 if the firm's largest owner is a bank or other finance company, and 0 otherwise)	+
PF_dummy	Dummy for investor's identity (equal to 1 if the firm's largest owner is a privatisation fund, and 0 otherwise)	-
State_50	Dummy for investor's identity (equal to 1 if the firm's controlling((larger than 50%) owner is state, and 0 otherwise)	-
Foreign_50	Dummy for investor's identity (equal to 1 if the firm's controlling((larger than 50%)owner is foreign, and 0 otherwise)	+
Domestic_50	Dummy for investor's identity (equal to 1 if the firm's controlling owner ((larger than 50%)is domestic, and 0 otherwise)	+
Foreign_dummy	Dummy for investor's identity (equal to 1 if the firm's largest owner is foreign investor, and 0 otherwise)	+
Domestic_dummy	Dummy for investor's identity (equal to 1 if the firm's largest owner is domestic investor, and 0 otherwise)	+
MVP	Dummy for type of privatisation (equal to 1 if the firm was involved in the MVP process, and 0 otherwise)	-
Industry Dummies (1-15)	Dummy for industry that a firm's main activity is grouped (equal to 1 if the firm's activity belongs to a certain industry, and 0 otherwise) <sup>22</sup>	/

Table 3 provides descriptive statistics for the continuous explanatory variables, while Table 4.13 provides descriptive statistics for the categorical (nominal) variables. The inclusion of these variables in an empirical specification may produce significant coefficients, taking into consideration very pronounced variation between companies. Descriptive statistics of quantitative explanatory variables reflect the level of financial stability of the Montenegrin economy on one hand, revealing a lack of good accounting practice on the other hand. That is, Monte-

<sup>22</sup> Industries are sorted according to MONSTAT's division (which does not correspond to NACE industry aggregation) as follows: 1-Agriculture, forestry and water management; 2 -Fishery; 3- Mining and quarrying; 4-Manufacturing Industry; 5-Production of electricity, gas and water; 6-Construction; 7-Wholesale and retail;8-Hotels and restaurants; 9-Transport, storage and communication; 10-Financial intermediation; 11-Real estate activities; 12-Public administration and social security; 13-Education; 14-Health and social work; 15-Community, social services.

negrin companies from the mean values presented in Table 4.12 may be considered as relatively indebted (Mean Leverage ratio=0.49), solvent (Mean Solvency ratio=2.2) but insufficiently liquid (Liquidity ratio=0.81). Simultaneously, they do not invest enough in Research and Development (mean R&D to sale ratio=0.03), while, on average, they inefficiently utilize their fixed assets to generate revenue (mean Fixed Asset to Sales ratio=6.99). An underlying characteristic of the data set is the poor quality of accounting practice used for financial reporting of companies used in the sample. Namely, we are very suspicious that certain companies do not have any fixed assets (minimum Fixed Asset to Sale ratio=0.0), or record a negative value of the Liquidity ratio (minimum Liquidity=0.0). Consequently, starting with an unbalanced panel, we introduced filters to exclude observations with unusual values of financial indicators, where these are included in the model specification.

**Table 4: Descriptive statistics of quantitative explanatory variables, 2004-2008**

Explanatory Variables	Mean	Std. Dev.	Min	Max
Return on Equity	-0.63	19.00	-587.45	13.42
Size	14.95	2.13	7.60	20.85
Ownership Concentration Lnoctop5	1.9	2.17	-2.86	9.210
Liquidity	0.81	7.95	0.00	185.6
Leverage	0.49	0.93	0.000	12.34
Solvency	2.22	7.28	-463.5	2,050.1
R&D to sale ratio	0.027	0.08	0.000	0.98
Fixed Asset to sale ratio	6.99	8.92	0.000	41.11

As noted, Table 4 shows descriptive statistics for the categorical (nominal) variables used in our preferred model specification. A compelling characteristic of the data set is that there are no missing observations in the quantitative explanatory variables. Descriptive statistics demonstrates that the majority of companies (71.0%) are domestically owned, while the rest are almost equally divided between state owned companies (14.9%), of which almost half had a state ownership higher than 50%, and foreign owned companies (14.6%), of which 10.6 p.p. refer to shareholdings higher than 50%. Furthermore, 38.1% of the sample refers to companies that underwent the mass voucher privatisation process.

**Table 5: Descriptive statistics of categorical explanatory variables, 2004-2008**

Explanatory Variables	Taking value 1 (%)	Missing
Media_Dummy	0.52	0.00
Utility_Dummy	0.52	0.00
Finance_Dummy	4.98	0.00
Individual_Dummy	31.5	0.00
State_Dummy	15.6	0.00
Privatization_fund_Dummy	7.2	0.00
Other_company_Dummy	40.1	0.00
Bank&Finance_Dummy	5.5	0.00
Domestic__Dummy	70.9	0.00
Foreign_Dummy	13.5	0.00
Domestic50_Dummy	44.7	0.00
State50_Dummy	9.6	0.00
Foreign50_Dummy	9.9	0.00
MVP	38.1	0.00
Industry 1	2.5	0.00
Industry 2	1	0.00
Industry 3	3.5	0.00
Industry 4	24.1	0.00
Industry 5	0.5	0.00
Industry 6	5.4	0.00
Industry 7	28.8	0.00
Industry 8	12.7	0.00
Industry 9	9	0.00
Industry 10	5	0.00
Industry 11	3.1	0.00
Industry 12	0	0.00
Industry 13	0.5	0.00
Industry 14	1.5	0.00
Industry 15	2.3	0.00

Lastly, although *Media\_dummy* is included to control for the amenity potential, and the *Utility\_dummy* to control for the presence of industries with special regulations affecting ownership concentration and firm performance, in the context of our sample, these two variables are capturing individual company effects (i.e. a fixed\_ effect), rather than the particular impact of amenity potential or regulation. Namely, in the sample, there is only one company in each of these



two categories (respectively, *Pobjeda-Daily AD* and *Elektroprivreda EPCG AD*). Consequently, we may find a high value of the coefficients for these two variables, which are capturing unobserved company fixed effects.

We specify our preferred dynamic panel-data model, to be estimated by GMM<sup>23</sup>, as follows:

$$ROE_{it} = c + \beta_1 ROE_{it-1} + \beta_2 Insize_{it} + \beta_3 Leverage_{it} + \beta_4 Fix\_Sale_{it} + \beta_5 R\&D\_Sale_{it} + \beta_6 Solvency_{it} + \beta_7 Media_{it} + \beta_8 Finance_{it} + \beta_9 Utility_{it} + \beta_{10} Individual_{it} + \beta_{11} Privatisation\_fund_{it} + \beta_{12} Other\_Company_{it} + \pi \sum_{t=2004}^{2008} year_t + u_i + v_{it}$$

where subscript  $i$  denotes the cross-sectional units and  $t$  denotes time period, so that  $i=(1,2,3,\dots,204)$  and  $t=(2004, 2005, \dots, 2008)$ ;  $\beta_{1,2,\dots,12}$  are parameters to be estimated;  $\pi$  denotes the vector of year effects to be estimated;  $u_i$  represents the group-specific error term, which controls for unobserved firm specific sources of heterogeneity affecting firm performance that can be assumed to be constant over the period of observation (or, at least, slowly moving); and, finally,  $v_{it}$  stands for the observation specific error term. The year dummy variables are included to control for period effects that affect all the banks in the sample in much the same way. These dummies may be informative economically – e.g. in capturing effects of events not specifically modelled such as the global financial crisis – but are also required for the statistical purpose of minimising the possibility of cross-group correlation among the observation residuals (Roodman, 2009).

## 4.1 Diagnostic tests

Before starting a discussion of the estimates, we will take a thorough model diagnostic testing in order to assess the validity of the GMM approach for estimating the relationship between ownership concentration and firm performance. In particular, we need to consider that GMM, by creating a great number of moments (hence, potential instruments) might have questionable reliability in the case of a finite sample. The GMM estimator enables the generation of many potential instruments, whose number grows quadratically in  $T$  (Roodman, 2007, p. 1). This entails a trade-off: on one hand, a larger number of instruments means using more information in estimation, which leads toward more statistically signifi-

<sup>23</sup> Discussion on the issue of potential ownership structure endogeneity can be obtained from the author upon request.

cant results; on the other, this at the same time increases the risk of over fitting the model (with biased results) and reduces the power of the diagnostic tests. The corollary of this trade-off is that the maximum number of instruments is not necessarily the optimum number. Unfortunately, as Roodman (2007, 2009) argues, the literature does not provide rules and procedures for optimising the number of instruments in different sized samples. Consequently, we pay special attention to assessing the number of appropriate instruments, using the overriding criterion of obtaining the best possible model diagnostics and thus the greatest possible assurance concerning instrument validity and the corresponding integrity of our estimates.

Our final choice of model specification with respect to the instrument set was guided by the standard diagnostic tests: (i) tests for first and, most importantly, second order serial correlation among the differenced residuals (the  $m_1+m_2$  tests); and (ii) the Hansen test, which is a heteroskedasticity-robust version of the Sargan test of the over-identifying restrictions.

(i) First, we test for residual autocorrelation. Although GMM estimation does not require distributional assumptions (normality) and allows for heteroskedasticity (Pugh, 2009, p. 27), still it is based on the assumption that the differenced error terms are not autocorrelated. Taking into consideration that GMM estimators use lagged values as instruments, the residual independence assumption is a crucial condition for the exogeneity and hence validity of the instruments (Roodman, 2009, p. 97).

The GMM estimator is considered to be consistent if there is no second-order serial correlation in the error term of the first-differenced equation; i.e. it requires that  $E[\Delta e_{it} \Delta e_{it-2}] = 0$ . A test for the validity of the instruments (and of the corresponding moment restrictions) is a test of second-order serial correlation in these residuals,  $m_2$ .<sup>24</sup> If this condition does not hold, there is a reasonable doubt that the instruments may not be valid. As presented in Table 6, in all three specifications, the  $m_2$  test does not reject the null hypothesis of no second-order autocorrelation of the residuals ( $p=0.14$  in Specification 1 and Specification 3 and  $p=0.15$  in Specification 2), which is consistent with the validity of the instruments introduced in the model specification.

However, there is an argument that full confidence in the  $m_2$  test also requires rejection of the null hypothesis of no first-order autocorrelation in the differenced

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<sup>24</sup> For detailed explanation for testing the first- and second-order serial correlations see Arelanno and Bond (1991) and Pugh (2009).

error terms (meaning that there *is* first order autocorrelation in the differenced error terms). In different model specifications estimated by the GMM estimator, presented in Table 6, this problem arises, i.e. the  $m_1$  test fails to provide sufficient evidence that there *is* serial autocorrelation in the differenced error term. Because this issue is not much considered in the literature, we will consider it at some length.

Smith (2010, p. 13) argues that the  $m_1$  statistic has an assisting function in assessing the robustness and reliability of the  $m_2$  test. In the case when the levels error terms follow a random walk, it is impossible to reject second-order correlation of the differenced errors. If the errors in the levels follow a random walk, i.e. if  $\rho=1$  in  $e_{it}=\rho e_{it-1}+v_{it}$ , then (suppressing the pure white noise  $v_{it}$ )  $e_{it}=e_{it-1}=e_{it-2}=\dots=e_{it-n}$ . In this case,  $e_{it}-e_{it-1}=0$ ,  $e_{it}-e_{it-2}=0, \dots, e_{it}-e_{it-n}=0$ . Thus, in the specification of the  $m_2$  test,  $\Delta e_{it}=\lambda \Delta e_{it-2}$  resolves to  $0=\lambda_0$ . Hence, because  $\lambda$  can take any possible value, the null  $\lambda=0$  cannot be rejected. In this case, the  $m_2$  test loses power. Conversely, first-order serial correlation in the first differenced errors, i.e.  $0<\lambda<1$  in  $\Delta e_{it}=\lambda \Delta e_{it-1}$ , excludes a random walk in the first-order levels errors: because, in turn,  $e_{it}-e_{it-1}\neq 0$ ,  $e_{it}\neq e_{it-1}$  and  $0<\rho<1$ . Accordingly, the  $m_1$  test for first-order serial correlation in the differenced errors is a check on the validity of the  $m_2$  test. However, if genuinely there is no serial correlation at *any* order in the differenced error terms, then  $\lambda=0$  is an authentic result. In this case, the crucial  $m_2$  test remains valid. For example, if  $\rho=0$ , in which case each levels residual is pure white noise, then the differenced errors by definition are independent from each other: if  $e_{it}=\rho e_{it-1}+v_{it}$  then, when  $\rho=0$ ,  $e_{it}=v_{it}$ ,  $e_{it-1}=v_{it-1}, \dots, e_{it-n}=v_{it-n}$ , in which case  $\Delta e_{it}=e_{it}-e_{it-1}=v_{it}-v_{it-1}, \dots, \Delta e_{it-n}=e_{it-n}-e_{it-n-1}=v_{it-n}-v_{it-n-1}$ . Given that the difference between two white noise terms is also white noise, the successive lags of the differenced errors must be completely independent; i.e.,  $\lambda=0$ . Unfortunately, we are unable to identify the reason for the lack of serial correlation in the first differenced error terms: it may be a random walk in the levels errors, which invalidates the  $m_2$  test; or it may reflect a lack of serial correlation at any order among the first differenced error terms, which is consistent with the  $m_2$  test.

Unfortunately, the literature concerning the function and importance of the  $m_1$  test, and its implications in the case when the  $m_1$  null does not hold is scarce and divided. On one hand, we have developed the argument that the  $m_1$  tests can indicate the possibility of a random walk in the levels error term, which puts a question mark over the non-rejection by the  $m_1$  test of the null of instrument validity. On the other hand, Roodman (2006, p. 33) is dismissive of the  $m_1$  test: "...negative first-order serial correlation is expected in differences and evidence of it is *uninformative*." To our knowledge, this issue has not been resolved yet. However, to date, Roodman's view seems to prevail and may explain why the

$m_1$  statistic is typically not reported. Consequently, our approach is to note the potential problem with the  $m_1/m_2$  procedure given the test results reported in Table 4.14 and, correspondingly, to lean more heavily on the Hansen test of over-identifying restrictions in our discussion of model diagnostics as well as on a standard procedure to check the validity of dynamic panel estimates obtained by GMM approaches, which is reported below.<sup>25</sup>

Finally on this issue, in our model specification the  $m_1$  test is sensitive to the upper and lower limits placed on ROE. So far, we filtered our sample by imposing a very minimal restriction on ROE, removing only observations with ROE values greater than 10 or smaller than -10. If we take only a slightly less conservative approach to removing outliers, by modifying the ROE range to between -5.0 and +5.0, we reduce the sample size by only seven observations (from 755 to 748, i.e. by fewer than one per cent). Yet, in the first two specifications of our model, the  $m_1$  test now rejects the null hypothesis of no first-order autocorrelation in the differenced error terms (i.e. suggesting the anticipated presence of first order autocorrelation in the differenced error terms) at the 5% and/or 10% levels of significance (see Appendix 4.3). Given that estimation within a more restricted range of ROE yields results similar to those presented in Table 4.14, we conclude that these preferred results are not invalidated by the associated  $m_1$  statistics.

(ii) Given that GMM models can generate an enormous number of potentially “weak” instruments that can cause biased estimates, Roodman (2006) recommends reporting the number of instruments. Although there is no straightforward rule to answer the question as to how many instruments is “too many” (Roodman, 2006; 2007), we need to rely on the rule of thumb procedures that can be specified and replicated. Firstly, in the specifications presented in Table 4.14 the number of instruments range from 42 to 45, i.e. substantially smaller than the number of observations ( $n=755$ ). Moreover, the number of groups - 204 firms - exceeds the number of instruments in each model (between 42 and 45), which satisfies the “minimal” rule of thumb suggested by Roodman (2006, p. 13).

Furthermore, Hansen’s J is a robust alternative to the Sargan test of over-identifying restrictions. Indeed, Sargan’s statistic can be considered as a special case

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<sup>25</sup> The theory of dynamic panel modelling is still developing, which means that issues can be raised that have no agreed solution or even implications. The common indication of first-order serial correlation by the  $m_1$  test is one such issue. Another, which is at the frontiers of current debate on dynamic linear modelling, is the issue of “weak” instruments. The available diagnostics, which we implement in this Chapter, test the validity of the overidentifying instruments. As yet, tests for weak instruments have not been developed for dynamic models estimated by GMM methods.

of Hansen's J, under the assumption of homoscedasticity. The choice depends on whether we suspect non-sphericity in the errors (e.g. in the case of heteroscedastic errors), which will generally be the case in panel datasets (Roodman, 2006, pp. 11-12). Therefore, for robust GMM the Sargan t-statistic is inconsistent, which supports our choice of the Hansen J as the preferred diagnostic. In the results reported in Table 4.14 below, the Hansen test consistently yields p-values ranging between  $p_{Specification1}=0.51$  to  $p_{Specification2}=0.82$ , which are neither too low (of at least 0.25, suggested by Roodman, 2007, p. 10, as a rule of thumb for valid instruments) nor too high (approaching  $p=1$ , which suggests a weakening of the test; see Roodman, 2008, p. 10). We conclude that the estimated models reported in Table 4.14 are statistically well specified.

(iii) Furthermore, good practice suggested by Roodman (2006) is to report the approach used to obtain the "optimal" number of instruments. In practice, we employ the strategy suggested by Roodman (2006), and implemented using his *xtabond2* user-written programme for STATA, to investigate the potential problem of "too many instruments". We investigate the robustness of our results, giving priority to the model diagnostics by starting with the maximum (default) instrument set and then successively decreasing the number of instruments: first, we reduce the number of lags used to create the "internal" instruments; and, second, we use the command `>collapse<`, which reduces the instrument count still further by creating instruments for each variable only, instead of creating instruments for each time-period (T), variable and lag distance.<sup>26</sup> As noted by (Pugh, 2009, p. 22), in large samples `>collapse<` would reduce statistical efficiency. However, in the case of small samples, it can help to address the problems arising from "too many instruments".

Our sample of 755 observations could be regarded as small for GMM estimation, given that we have hundreds of observations rather than thousands. As previously noted, the number of groups - 204 firms - exceeds the number of instruments in each model (between 42 and 45), which satisfies the "minimal" rule of thumb suggested by Roodman (2006, p. 13). Moreover, the number of groups (firms) in our sample exceeds the 140 firms in the benchmark sample of Arellano and Bond (1991), which is also used by Roodman to demonstrate the capabilities of both difference and system GMM estimation of dynamic panels (2006, p. 14). Because we cannot be a priori certain as to whether the number of firms in our dataset is "small" or sufficiently large in relation to the number of instruments, we experiment with a number of other regressions in which we increase or de-

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<sup>26</sup> A detailed explanation of how the `>collapse<` command works is provided by Roodman (2009, pp. 107-108).

crease the number of instruments, including the use of the *collapse* approach to decrease the number of instruments. However, using this sample, we are unable to improve the model diagnostics; in particular, the collapse approach only worsens the diagnostics.

**Table 6: Model diagnostics**

	Specification 1	Specification 2	Specification 3
Number of observations	755	755	755
Number of companies	204	204	204
Wald test	Wald chi2(26) = 402.24 Prob > chi2 = 0.00	Wald chi2(27) = 736.17 Prob > chi2 = 0.00	Wald chi2(26) = 527.51 Prob > chi2 = 0.00
Number of instruments	42	43	45
Hansen test (H0 ; over-identifying restrictions are valid)	Prob > chi2 = 0.51	Prob > chi2 = 0.82	Prob > chi2 = 0.82
Arellano-Bond test for AR(1) in first differences	z = -1.14 Pr > z = 0.26	z = -1.12 Pr > z = 0.26	z = -1.12 Pr > z = 0.26
Arellano-Bond test for AR(2) in first differences	z = 1.47 Pr > z = 0.14	z = 1.44 Pr > z = 0.15	z = 1.48 Pr > z = 0.14
Difference-in-Hansen tests of exogeneity of instrument subsets			
GMM instruments for levels			
Hansen test excluding group	Prob > chi2 = 0.700	Prob > chi2 = 0.752	Prob > chi2 = 0.710
Difference (null H = exogenous):	Prob > chi2 = 0.256	Prob > chi2 = 0.650	Prob > chi2 = 0.737
gmm(L.roe, lag(1 2))			
Hansen test excluding group:	Prob > chi2 = 0.373	Prob > chi2 = 0.395	Prob > chi2 = 0.739
Difference (null H = exogenous)	Prob > chi2 = 0.581	Prob > chi2 = 0.950	Prob > chi2 = 0.694
gmm(lnoc5, lag(2 2))			
Hansen test excluding group	Prob > chi2 = 0.937	Prob > chi2 = 0.927	Prob > chi2 = 0.890
Difference (null H = exogenous)	Prob > chi2 = 0.194	Prob > chi2 = 0.519	Prob > chi2 = 0.536
Fe coefficient Roe(-1)	-0.004	-0.004	-0.004
OLS coefficient Roe(-1)	0.002	0.0015	0.0025
OLS coefficient Roe(-1) upper confidence range	0.005	0.005	0.005
GMM coefficient Roe(-1)	0.002	0.002	0.002

(iv) Furthermore, we are interested in the difference-in-Hansen tests of the exogeneity of instrument subsets. In the results reported in Table 6, the critical values of the difference-in-Hansen tests applied to the differences used to instrument the levels equation find insufficient evidence to reject the null hypothesis of valid over-identifying restrictions, suggesting that the system GMM is preferred to the

difference GMM estimator and that the model satisfies the steady state assumption (Roodman, 2007).

(v) A checking procedure on the validity of dynamic panel estimates suggested by Bond (2002) and Roodman (2009) argues that if we compare the values of the estimated coefficient on the lagged dependent variable (ROE(-1)) with the same coefficient from both OLS and FE estimation, the true estimator of this coefficient should be lower than the coefficient obtained from OLS but higher than the coefficient obtained from FE estimation. Although – as required – in all three specifications the coefficient from FE estimation (See Appendix 4.5) is significantly lower compared to the coefficient on the lagged dependent variable from system GMM ( $FE_{\text{specification1}} = -0.006$  and  $FE_{\text{specification2}}, FE_{\text{specification3}} = -0.0034$  and  $< GMM = 0.002$ ), in all three Specifications the coefficient from OLS estimation (provided in Appendix 4.5) is a little lower compared to the coefficient on the lagged dependent variable from system GMM ( $GMM = 0.002 > OLS_{\text{specification 1,2,3}} = 0.0018$ ). However, according to Roodman (2007, p. 18) “Good estimates of the true parameter should therefore lie in the range between these values—or at least near it, given that these numbers are themselves point estimates with associated confidence intervals.” Our estimates satisfy this guideline: in all three specifications, the upper confidence range of the coefficient on the lagged dependent variable in OLS estimation is substantially above the system GMM estimate ( $OLS_{\text{upper\_confidence\_range\_Spec.1,2,3}} = 0.005 > GMM = 0.002$ ).

Summing the results of the various diagnostic tests, we conclude that the estimated model is sufficiently well specified as a statistical generating mechanism to support economic interpretation. A possible exception is that the  $m_1$  test fails to provide evidence that there is serial autocorrelation in the differenced error term. However, the relevance and interpretation of this test is contested (to the point where it is often not reported). Moreover – and most important – further investigation reveals that taking a less conservative approach to removing outliers entails the loss of only a few observations but results in the  $m_1$  test rejecting the null hypothesis of no first-order autocorrelation in the differenced error terms while, otherwise, yielding similar diagnostics and estimates to those reported in the main text of this research.

## 5. Discussion of the main empirical findings

The results of our preferred model specification estimated by GMM are presented in Table 4.15, following a standard testing down procedure. The differences between the three variant specifications arise from the inclusion of different sets of dummy variables that control for the different identity of the largest owner: in Specification 1 (Column 1) we introduce a set of dummies controlling for different types of owners according the institutional criteria (individual, other company, state, privatization fund, etc.); in Specification 2 (Column 2) we introduce a set of dummy variables controlling for the origin of the largest (top 10) owners (domestic, foreign and state); and, finally, in Specification 3 (Column 3) we introduce a set of dummy variables to control for the variation in the identity of the largest shareholder (state, domestic or foreign) if its shareholding exceeds the controlling limit of 50% of shares.

All three dynamic specifications reveal the presence of a small (0.002, in each case) but highly significant persistence effect ( $p=0.00$  in Specification 1 and 2 and  $p=0.01$  in Specification 3). Positive coefficient on the first lag of the firm performance variable captures the partial adjustment of firms' performance in each period, suggesting that past values of firm performance affect current values of the firm performance positively, which is in line with findings of Prasnikar et al., (2004) in the context of the Slovenian economy. Thus, the obtained result would suggest that, *ceteris paribus*, a change in the ROE in the previous year ( $ROE_{t-1}$ ) of a little less than one standard deviation (0.20 percentage points, see Table 4.10) leads to a 0.0004 percentage points increase in the return on equity ratio in the current year. Even allowing for a non-marginal one percentage point increase in the return on equity ( $ROE_{t-1}$ ) ratio in the previous year contributes only a 0.002 percentage points increase to the return on equity ratio in the current year. These small persistence effects suggest that company performance can change quickly from year to year so that the long-run effects on firm performance of changes in the independent variables are not much different from the estimated short-run effects reported in Table 4.15 (for example, the estimated long-term effects of changes in ownership concentration on economic performance is 0.1102 compared to a short run effect of 0.11).<sup>27</sup>

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<sup>27</sup> The long term effect of changes in any of the independent variables on company performance is calculated by dividing the estimated short-run effect by (1-the estimated coefficient on the lagged dependent variable), which in the case of Specification 1 is (1-0.002). In this case, the adjustment makes little difference.



**Table 7: Dynamic Panel System GMM estimations ownership concentration and firm performance in Montenegro – Short Term effects***Dependent variable: Return on Equity (ROE)<sup>28</sup>*

	Specification 1 (short run effects)	Specification 2 (short run effects)	Specification 3 (short run effects)
Lagged dependent variable (ROE <sub>t-1</sub> )	0.002*** (0.00)	0.002* (0.00)	0.002*** (0.01)
LnTOPOC5-Top 5 largest owners <sup>28</sup>	0.11** (0.04)	0.10** (0.04)	0.10* (0.09)
Leverage-Debt of the firm	-0.05 (0.339)	-0.02 (0.64)	-0.002 (0.96)
LnSize – the size of the company	0.03 (0.46)	0.05 (0.31)	0.05 (0.26)
Solvency-Solvency ratio	0.003*** (0.00)	0.003*** (0.00)	0.003*** (0.00)
R&D_Sale- Uncertainty measure	-	0.0001** (0.04)	0.0002** (0.02)
Liquidity-Liquidity ratio	-	0.00 (0.67)	0.0008 (0.48)
Fixsale_asset- Uncertainty measure	-	1.35*10 <sup>-6</sup> ** (0.06)	-
Media_industry-Amenity potential	-	-	-
Utility_industry-Regulation impact	-6.85 (0.2)	-8.12 (0.16)	-7.96 (0.11)
Finance_industry-Regulation impact	-0.12 (0.6)	-0.21 (0.38)	-0.36 (0.19)
Dummy_2008	-0.10** (0.04)	-0.14*** (0.01)	-0.16*** (0.01)
Dummy_2007	-0.22 (0.46)	-0.05 (0.15)	-0.07* (0.074)
Dummy_2006	0.014 (0.76)	-0.02 (0.77)	-0.02 (0.68)
MVP-Mass Voucher Privatisation	0.05 (0.7)	0.02 (0.40)	0.01 (0.89)
Individual-Individual as the largest owner	0.008 (0.95)	-	-
State-dummy-State as the largest owner	0.46*** (0.01)	-	-
Privatization_fund- Privatization_fund as the largest owner	0.11 (0.21)	-	-
Other_company- Other_company as the largest owner	0.085 (0.32)	-	-

<sup>28</sup> Ownership concentration is potentially endogenous. In each of the three specifications the differenced variable in the system estimator is instrumented as follows: in Specifications 1 and 3, with the minimum number of levels instruments (the second lag only); and in Specification 2, with all available lagged levels. Full details on the pattern of instrumentation for both ownership concentration and the lagged dependent variable are reported in Appendix 4.4.

Foreign_ownership-Foreign investor as the largest owner	-	-0.58 ** (0.01)	-
Domestic_ownership-Domestic investor as the largest owner	-	-0.42** (0.04)	-
State_50- State as the controlling owner>50%	-	-	0.24 (0.14)
Domestic_50-Domestic investor as the controlling owner>50%	-	-	-0.31*** (0.00)
Foreign_50-Foreign investor as the controlling owner>50%	-	-	-0.37*** (0.01)
Constant	-0.65 (0.32)	-0.38 (0.54)	-0.61 (0.35)
Industry1-Agriculture and Forestry	0.13 (0.58)	0.21 (0.32)	0.12 (0.62)
Industry2-Fishing industry	-0.04 (0.68)	-9.60 (0.15)	-12.37* (0.07)
Industry3-Mining industry	-0.06 (0.77)	-0.02 (0.91)	-0.05 (0.82)
Industry4-Processing industry	-0.24** (0.02)	-0.28*** (0.01)	-0.29** (0.02)
Industry6-Construction	0.25 (0.41)	0.21 (0.38)	-0.03 (0.90)
Industry7-Trade	-0.03 (0.76)	-0.06 (0.57)	-0.04 (0.71)
Industry8-Real sales	-0.22* (0.06)	-0.26** (0.04)	-0.21 (0.11)
Industry9-Tourism	-0.06 (0.51)	-0.11 (0.33)	-0.12 (0.36)
Industry11-Real estate services	0.1 (0.8)	-0.22 (0.71)	-0.07 (0.91)
Industry13-Education services	9.31* (0.09)	21.9* (0.08)	26.03** (0.04)
Industry14-Utility, Social services	-1.1 (0.60)	-0.23** (0.04)	-0.24* (0.08)

**Note:** p-values in brackets where \*\*\*, \*\* and \* denote statistical significance of variables at 1%, 5% and 10% level of significance respectively. The p-values are obtained from two-step dynamic panel estimation with Windmeijer's corrected robust standard errors.

The estimate of special interest is the coefficient on the ownership concentration variable ( $\ln\text{OCTop5}$ ). In all three model specifications, we find a significant ( $p=0.04$  in Specification 1,  $p=0.04$  in Specification 2= $0.04$  and  $p=0.09$  in Specification 3) and positive impact of ownership concentration on firm performance. Moreover, this relationship seems to be robust across different model specifications based on the inclusion of different variables regarding the identity of the main shareholder. In the preferred model specification, the coefficient on the ownership concentration variable indicates that, on average, increase of ownership concentration by 1% is estimated to be associated with the increase of the Return on Equity (ROE) by 0.11 (Specification 1), by 0.1 (Specification 2) or by 0.1

(Specification 3) percentage points. Firstly, we would argue that the magnitude of the impact is relatively strong, which may imply that ownership concentration might, after all, successfully play the role of control of managerial behaviour. In the context of TEs our findings are similar to Grosfeld (2006) and Claessens and Djankov (1999), even after controlling for the endogeneity of large ownership; namely, we find a positive impact of ownership concentration on firm performance.

Conversely, this result does not coincide with the evidence provided by Pervan, Pervan and Todoric (2012), Džanic (2012) and Suljkanovic (2007), who and Herzegovina found a negative impact of the ownership concentration on firm performance in the case of Croatia and Bosnia. Therefore, we may claim that strong extraction of benefits (private benefits of control) conducted by large shareholders at the expense of (poorly protected) small shareholders evidenced in the literature of SEE countries does not apply to Montenegro.

The estimated coefficient on ownership concentration suggests a positive and significant impact of the largest shareholders on firm performance. Accordingly, we argue that, in the context of the Montenegrin economy, the largest owners act as a “buffer” to offset the lack of institutional framework, supplementing the effectively nonexistent corporate governance mechanisms for management control as well as the underdeveloped capital market. In line with our expectations, ownership concentration is an efficient substitute for the corporate governance mechanisms. This conclusion is consistent with Banchuenvijit (2011, p. 101), who argues that “a positive effect of ownership concentration on firm performance is larger in countries where investor protection is weak”.

Our results suggest that the Demsetz and Lehn (1985) and Demsetz and Villalonga (2001) conclusion - that ownership concentration is not related to the firm performance, but rather that both are driven by market forces - should not be considered as a stylised fact across different countries (and corporate governance frameworks). Namely, in the case of countries that have not experienced a long tradition of corporate governance protection and liquid, deep and developed secondary markets, ownership concentration cannot be an endogenous “amalgam of shareholdings owned by persons with different interests” unrelated to firm performance as Demsetz and Villalonga (2001, p. 211) claim. As suggested by our Meta Regression Analysis (Chapter 3), country specific factors do play a

prominent role in determining how ownership concentration affects firm performance.<sup>29</sup> This applies to the case of Montenegro. As explained in subsection 4.4, similarly to the case of Russia (Kuznetsov et al., 2011), firms are highly concentrated (block-holder ownership) with dominant owners who seek direct control over the firm usually taking positions as managers and board members. Simultaneously, we assume that among dominant shareholders insiders are present, given that almost half of the sample refers to individuals as the largest owners.

Solvency (*Solvency*) appears to be an important indicator of firm performance in the context of the Montenegrin economy. The coefficient appears positive and significant in all presented model specifications ( $p=0.00$ ). The obtained results lead to the conclusion that, on average, increase of the solvency ratio by 1 percentage point leads toward increase of the firm performance (*ROE*) by 0.003 percentage points (across all three Specifications). However, because – as we note above – an argument can be made that this variable is potentially endogenous, precise quantitative interpretation may not be valid.

The estimates of the ownership identity effect reveal very surprising and contrasting results in comparison to the mainstream findings of the comparable empirical literature assessing the impact of various shareholder types on company performance, after the process of privatisation in transition economies. In the preferred Specification 1 presented in Table 4.15, we use banks and other financial institutions as the base for comparison with other types of owners. State owned companies (*State\_dummy*) is associated with a statistically significant positive effect on firm performance ( $p=0.01$ ). This suggests that, on average, those companies that have the state as its largest owner perform better than those companies that are led by banks or other financial institution. In the case of Montenegro, unlike the case of the Czech Republic or Poland in particular, financial institutions were not actively involved in the process of privatisation. Their primary interest was to take the role of debt holder rather than equity holder in Montenegrin corporations; even though the latter may give banks additional power in the disciplining of firms (Baert and Vennet, 2009). Similarly, although both insignificant, the positive signs on the coefficients on *Other\_company* and *Privatization\_fund* are consistent with this reasoning.

The significant negative coefficient on the year dummy, *Dummy\_2008*, reflects the presence of strong exogenous factors adversely affecting firms' performance

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<sup>29</sup> In various subsample MRA specifications, in the context of developed corporate governance systems, provided in Chapter 3, Anglo-Saxon countries report underrepresentation of the authentic empirical effect.

in Montenegro during 2008 ( $p=0.00$ ). We would argue that the significant coefficient confirms the negative impact that the global financial crisis had on the performance of the corporate and financial sector in Montenegro.<sup>30</sup>

The coefficient on the level of *R&D* to sales (*R&D\_Sale*) is as expected positive and significant in Specification 2 and 3, implying that companies that invest more in R&D achieve better firm performance, on average. Thus, the obtained result would suggest that, *ceteris paribus*, a change in *R&D* to sales of a one standard deviation (0.08 percentage point, see Table 4.12) leads to a 0.000008 in Specification 1 and 0.000016 in Specification 2 percentage points increase in the return on equity ratio in the current year. Although statistically significant, this is not an economically substantial effect.

The findings with respect to industry differences are robust across specifications. Processing industry (*Industry 4*) in all three specifications, and utility service (*Industry 14*) in Specifications 2 and 3 perform worse, on average, compared to energy and water production (the reference category). On the other hand, education services (*Industry 13*) appear, on average, to perform substantially better than the energy and water production benchmark. However, no conclusion can be drawn from this result, given that *Industry 13* refers only to one firm.

In model Specification 2, we used a set of ownership variables referring to the identity of the owner in respect of their origin (state, private or foreign), using *State\_ownership* as the base category. We find results that are unexpected, taking into consideration the findings of similar empirical research conducted in other transition economies (Djankov and Murrell, 2002; Frydman et al., 1999; Damijan et al. 2004; etc.). Namely, the results suggest that state ownership performs better in comparison to private domestic or foreign ownership. The most surprising is that, *ceteris paribus*, companies under foreign ownership (*Foreign\_ownership*) on average yield a ROE 0.58 percentage points lower than state owned firms. We argue below that this apparent anomaly well reflects the specific conditions in Montenegro during the sample period.

In Specification 3, we introduce three dummy variables to control for the variation in the identity of the largest shareholder (state, domestic or foreign) if its shareholding exceeds the controlling limit of 50% of shares. In this case the reference category for, say, foreign ownership (*Foreign\_50*) is comprised of all firms

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<sup>30</sup> According to aggregate data in 2007, the aggregate profit of the corporate sector in Montenegro was estimated at 125 million euros, diminishing to 12 million euros in 2008. Source: Central Bank of Montenegro, 2011.

under different types of ownership (state and private domestic) as well as firms in which foreign owners have less than 50%+1 of the shares. By introducing these variables we want to check the robustness of the results in Specification 2, by accentuating the decision making power of these three type of owners, i.e. considering a 50%+1 share as the threshold to define the existence of an owner with full potential to make decisions. The results support the findings in Specification 2. Firstly, in Specification 3, the coefficient on the dummy *Foreign\_50* suggests that controlling companies with controlling foreign shareholders perform worse compared to companies with other types of owners ( $p=0.01$ ) irrespective of whether they are controlling shareholders or not. Results in Specification 3 indicate that, *ceteris paribus*, companies with foreign owners (holding above 50% of shares), on average, record lower firm performance (ROE) by 0.37 percentage points compared to other companies. Similarly, controlling domestic shareholders (*Domestic\_50*) perform worse compared to other types of large shareholders, irrespective of whether they have a controlling block of shares or not. Specification 3 indicates that, *ceteris paribus*, companies with a domestic owner holding above 50% of shares, on average, have lower firm performance (ROE) by 0.31 percentage points compared to the companies in the base category. Finally, the coefficient for state as the controlling shareholder (*State\_50*) is positive, yet insignificant. Nonetheless, it is consistent with the finding in Specification 2; *ceteris paribus*, the state as the biggest shareholder outperforms other types of owners.

As previously explained, state ownership is generally considered less effective for various reasons. As Barberis et al. (1996) argue, managers appointed by the state may work as a bureaucracy fulfilling primarily social responsibilities rather than fulfilling the aim of profit maximization. In addition, as Vin Le and O' Brian (2006) argue, managers appointed by the state may follow instructions which are politically driven or financially imprudent. Chang and Wong (2004) and Dharwadkar et al. (2000), explain that the expropriation of the minority shareholders by the state as the largest owner arises from the power discrepancy between the state and minority shareholders as well as because transition economies largely have weakly developed instruments for the protection of minority shareholders.

In the context of transition economies, the prevailing empirical evidence provided by Friedman et al. (2003), likewise yields conclusions supporting the superiority of private ownership. Moreover, Murrell and Djankov (2002) denote that privatisation programs conducted so as to involve privatisation funds or foreigners are, on average, more productive by five and three times, respectively. Furthermore, the World Bank produces some of the most comprehensive assessments regarding the efficiency of private ownership versus state owned companies, with respect to the speed of restructuring. In a comparative assessment of

31 empirical studies covering transition economies (CIS countries versus other transition economies), the main question of interest was which type of ownership contributes more to firm restructuring. A general impression is that, on average, at the aggregate level, it is extremely likely that private ownership contributes more to the restructuring of companies in comparison to state ownership. The results do not change when greater “weight” is attributed to studies that are more thorough or conceptually stronger in comparison to those that did not provide such firm empirical evidence.

Conversely, evidence provided by Anderson et al. (2000) suggests that outsider and insider private owners perform poorly in comparison to state ownership. Similarly, Beugre (2005) argues that transfer from state to private ownership in emerging economies, *per se*, does not lead toward better firm performance if the process of ownership transfer is not followed by the transfer of good managerial and leadership skills. Nellis (1999, p. 17) argues that the transfer of ownership leads toward “stagnation and decapitalization” rather than “to improved financial results and enhanced efficiency”.

According to our results, state owned firms appear to perform better in comparison to other types of shareholders (individuals, other companies, bank and finance and privatisation fund). Taking into consideration this evidence that, in the context of the Montenegrin economy, state ownership is superior to other type of owners, we analyse this issue further. To explain this apparently puzzling result, we need to examine the data at the micro level. In doing so, we find a potential explanation. Namely, restructuring of companies is a time consuming and complex process. Usually, privatization investment programmes include 4-5 year planned programmes. Consequently, ownership transition from state to private, especially in the case of large companies with substantial inherent problems concerning their efficiency and solvency sold to foreign investors, might not produce an effect reflected in firm performance within the sample period. An additional potential reason for the non-appearance of the anticipated (positive) effects of foreign ownership is that some companies were the subject to choice of private investors that did not meet expectations.

Finally, with respect to Specification 1, 2 and 3, a number of our control variables are estimated with the anticipated sign but are not statistically significant: the coefficient on the Leverage ratio (*Leverage*) displays the anticipated negative sign in all model specifications, supporting the pecking order theory; the coefficient on the Liquidity ratio (*Liquidity*) suggests a positive impact of the level of liquidity on firm performance; those companies that underwent the process of MVP perform, on average, better than those who were not the part of the process (which

is inconsistent with Simoneti et al., 2005), which may indicate that the process of MVP did help in faster ownership concentration after all, which, in turn, led to better firm performance.

The positive, yet insignificant effect of Size ( $LnSize$ ) is not consistent with the assumption that risk averse investors are reluctant to invest more in the same company and preserve their stake. In the context of small markets, this hypothesis by Demsetz and Lehn (1985) is offset by the fact that large companies have better access to domestic and international capital markets, positively affecting firm performance.

## 6. Concluding remarks

The literature on the effectiveness of privatization argues that privatization replaces state control with private control by outside investors. Consequently, in this research, the aim was to assess the quality and the effectiveness of privatization in Montenegro, given that the implemented privatization design created highly concentrated private ownership. Namely, Mass Voucher Privatisation, accompanied by other types of privatisation (Auction and Direct Sale) led to ownership concentration levels substantially higher than in other transition economies.

The efficiency of the MVP is measured primarily through firms' results, where firms' performance represents a measurement for whether private controlling shareholders are good substitutes for the state. We argue that the capital market failed to be a catalyst of efficient ownership, taking into consideration that from mid-2005 to mid-2007 the capital market in Montenegro experienced overheating and "bubble" dynamics, which led to speculative activity ruining the informative power of share prices. In addition, Montenegro is characterized by a poorly developed institutional framework for investor protection, from the effective enforcement of the legal framework to obvious lack of capacity.

Consequently, we investigated the impact of ownership concentration on firm performance, after controlling for endogeneity, under conditions of a poorly developed capital market and corporate governance instruments. We anticipated that this impact could be either positive or negative:

- positive in the case that high ownership concentration enables effective monitoring by outsider investors to protect their interests efficiently;
- negative should the largest shareholders (as *outsiders*) either pursue their own interest at the expense of minority shareholders, i.e. extract "private



benefits of control”, or display entrenchment behaviour in the case when the largest shareholder (as an *insider*) is at the same time the manager.

In order to assess how pronounced ownership concentration affected firm performance in Montenegro in the early post-privatisation period, we estimate a dynamic panel model.

We find, firstly, that our dynamic model reveals a small persistence effect in firm performance, whereby the current values of ROE are driven by past values of ROE. This is in line with the recent literature, which highlights the need to take into account potential dynamics in the relationship between ownership concentration and firm performance. However, the small size of the persistence effect suggests that firm performance in Montenegro could change very quickly during the period under investigation; i.e. one in which companies are very sensitive to external markets. This conclusion is reinforced by the result that suggests a strong negative impact of the financial crisis in 2008.

Secondly, the empirical results *suggest a significant positive impact of ownership concentration on firm performance*. The coefficient on the variable of interest is significant and positive across different model specifications, yet small. This would imply that in the context of the Montenegrin economy, ownership concentration is an adequate (efficient) supplement to still underdeveloped corporate governance mechanisms. Unfortunately, due to the lack of data on insider ownership structure, we are unable to explain at this stage in which ways concentrated ownership contributes to better firm performance.

We estimated the effects of a wide range of control variables with results in line with expectations although not always with acceptable levels of precision. An unexpected result that contradicts the mainstream literature on the effects of state vs. private ownership is that, on average, state ownership performs better than foreign ownership or domestic ownership. However, this result is consistent with developments in the early post-privatisation period in Montenegro. On one hand, the state may have been conservative in retaining interest in better-performing companies; while on the other hand, the majority of “large losers” in this period had been privatized in the recent past. In most cases, agreements between the state and investors to restructure privatized companies often covered periods of four to five years, thereby planning to realise performance benefits on a time scale stretching beyond our sample period.

We conclude that the robustness of the reported results, especially concerning the impact of different owner identities on firm performance, should be reas-

essed once privatisation has been fully completed and the restructuring plans of privatized firms have been fully executed.

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