Ownership Concentration and Firm Performance: Evidence from the Zagreb Stock Exchange

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Abstract

This study examines the relationship between the ownership structure and firm performance using the panel data from the Zagreb Stock Exchange. The effect of managerial ownership and the presence of blockholders was checked for the return on equity, Tobin's Q and labor efficiency. The results show significant negative relationship between the existance of blockholder owning more than 30% of the equity and the value of firm's Tobin's Q. However, if there is a family-type second blockholder, the effect dissappears. Further, the study gives evidence of the negative impact of the fraction of equity owned by management on the labor efficiency, weakly confirming the quiet life hypothesis stated by Bertnrand and Mullainathan (2003). Finally, it is shown that a foreign ownership is not significantly better than domestic one, while firms founded before 1991 are on average outperforming those founded after this year.

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Table of Contents

Introduction

There has been much debate on corporate governance issues, but not many of them ended up with unambiguous answers. Different authors using diverse samples and methodologies often get dissimilar or even contradictory results. Disentangling the relationship between the ownership concentration and firm performance had almost certainly taken longer time than authors expected when first addressed this issue at the beginning of the twentieth century. Berle and Means (1932) were the first who seriously tried to explain the importance of ownership concentration. When managers hold a small fraction of equity and shareholders are dispersed enough not to be able to enforce the value-maximization behavior of the management, the firms' assets might be used in a way that benefits the manager instead of those who invested in the firm. The manager can, for example, use the dispersion of shareholders to obtain private benefits such as sales growth, building a business empire, increasing employees' welfare to avoid conflicts or he can simply decide to shirk without fear of being fired. However, as a fraction of equity owned by manager grows, the problem should be reduced as the interests of management and outside owners start to converge.

This is only one of the potential theoretical explanations of the ownership-performance puzzle which developed during the last several decades and which emphasizes the importance of this problem. The study of ownership concentration, its determinants and the effect it has on different measures of corporate performance is even more important when the emerging markets are considered. In the post-communist countries of Central and Eastern Europe, such as Croatia, ownership concentration remained the most widely spread governance mechanism. Another argument that makes these economies attractive for studying the ownership-concentration relationship is that they all relatively recently went through the privatization process. Depending on the way the privatization was conducted, the endogeneity issue can be

avoided or at least reduced. Third, the analysis of the effect of ownership concentration and type of the owner on performance provides the information which can be used to approach closer to the definition of optimal ownership structure and optimal owner.

There are many studies which use the data from Central and Eastern European countries, but none of them went deeper in the analysis of the situation in Croatia. The aim of this paper is to identify the potential consequences of the managerial ownership and large blockholders on the performance of Croatian firms listed on the Zagreb Stock Exchange. The case of Croatia is not only interesting because it was not analyzed before, but also because of the specificity of the environment this country was exposed to during the late eighties and early nineties. First, early eighties were characterized by workers self-management, economic liberalization and the appearance of small private firms. This means that the transition to capitalism was expected to be smoother than in the other Eastern European countries as people knew how the market functions and what to expect. However, at the same time as the process of transition, Croatia was hit by war. In such situation, one can easily argue that the process of privatization was often not transparent and much more politically influenced than it would have been in the peacetime. Moreover, the war postponed the greater entry of the foreign investors until the second half of the nineties. This specific situation might yield results which are not in line with the studies done using the sample of other countries.

This study shows evidence of the negative relationship between the presence of the large shareholder and Tobin's Q value of the company attributed to the extraction of extra benefits by the large blockholder at the cost of small shareholders. If there is a family-type second blockholder present as well, this extraction is prevented. Labor efficiency is affected by the fraction of equity held by the manager, and relationship is negative and marginally significant. Also, there is no evidence that foreign ownership is better than the domestic as usually found in other emerging economies.

The rest of the thesis is organized as follows. In Section 1 I briefly discuss the related literature. Section 2 explains the situation in Croatian economy after gaining independence in 1991 and provides brief history of privatization process. Section 3 defines the sample and data used in the empirical analysis of the ownership-performance relationship. Knowing the details about the process of privatization and observed sample might help in better understanding of results presented in Section 4. Section 5 discusses potential endogeneity issues and it is followed by Section 6 which provides brief summary of results and concluding remarks.

1. Literature review

The relationship between the ownership structure and firm performance has been in the focus of the economists for a long time. Berle and Means (1932) argued that the dispersion of ownership leads to the deterioration of firm's performance. Saying it in a more general way, they expected negative correlation between the dispersion of shareholdings and corporate performance. When the manager and the owner is not the same person, their interests do not always overlap, and the conflict appears. When ownership is dispersed, the conflict is resolved in the manager's favor. Small shareholders cannot organize themselves effectively and therefore rarely have any influence on the management. Moreover, the cost of monitoring the management is often too high for them, so usually small owners will not even try to do so. The Board of Directors might seem as a logical solution to this problems, but in reality it is often inefficient. Having less information about the firm than the manager, the Board often cannot prevent management from extracting additional rents at the shareholders cost. Moreover, large income of directors provides little incentive for monitoring, having in mind the manager's influence on election of the Board members.

This approach was for the first time seriously challenged by Demsetz (1983). He argued that ownership concentration depends on shareholders' decisions and should be therefore treated as an endogenous variable. Demsetz also concludes that the profit rate, used as a measure of corporate performance, and ownership concentration should be therefore uncorrelated. In the related paper Demsetz and Lehn (1985) analyzed five hundred US corporations. Their study examined two types of ownership concentrations; the amount of shares owned by the five largest owners and the amount of shares owned by manager. Estimates obtained showed no existence of a significant relationship between ownership concentration and accounting profit rates.

More evidence for the existence of the endogeneity of managerial ownership can be found in the works of Himmelberg, Hubbard and Palia (1999). After controlling for observed firm characteristics and holding individual firm effects fixed, the authors found no evidence of significant relationship between managerial ownership and firm performance. Gugler and Weigand (2003) using the large sample of US firms concluded that managerial ownership is endogenous, but the largest shareholders, however, affect the performance of the firm exogenously. The robustness of results was checked using the sample of German firms which brought the authors to the conclusion similar to one already mentioned.

In the last two decades numerous researchers studied this problem, often yielding conflicting results. Morck, Shleifer and Vishny (1988) used Tobin's Q as a measure of firm's performance and obtained the evidence about the existence of a significant nonmonotonic relationship between the two variables. McConnell and Servaes (1990) using both Tobin's Q and returns on assets as measures of performance found a significant roof-shaped relation with ownership by managers and directors. Cho (1998) argues that ownership structure determines the level of investments, which in turn determine performance, which again determines the ownership structure. Accounting for this type of endogeneity, he found that the Tobin's Q is significantly increasing until concentration reaches certain limit and then starts decreasing. Using the sample of largest European companies, Thomsen and Pedersen (2000) found positive effect of ownership concentration on the corporate performance.

There are also few studies which use alternative approach to address the issue of ownership concentration and firm's performance. Farinos et al. (2006) use the event study to explain the link between ownership concentration and performance on Spanish market, and Wyatt (1990) tries to use the same method to explain the link between the structure of the Board of Directors and corporate performance.

Considering the effect of owner's origin on the performance, situation is somewhat clearer. Willmore (1986) found that the Brazilian firms with foreign owners significantly outperform domestically held firms. Chibber and Mujumdar (1999) confirmed this finding using the sample of Indian companies. However, it seems that this effect is primarily observed in the emerging economies. Globerman et al. (1994) compared the foreign and domestic owned firms in Canada and found no significant differences in the performance. Foreign affiliates had significantly higher value-added per worker and gave higher salaries, but these differences disappeared after controlling for more factors. Kim and Lyn (1990) report that foreign owned firms in the United States are less profitable than randomly selected domestic firms. Driffield and Girma (2003) found no significant difference between performance of foreign and domestically owned firms in the United Kingdom. Barbosa and Louri (2003) observed that the ownership type is not related to the performance of firms in Greece and Portugal as well. Only when firms in the upper quintiles of gross profits are compared, multinational companies do somewhat better than domestic ones.

2. Privatization process

Level of success of privatization is still heavily discussed in the Croatian economic and political circles. However, this section does not aim to deeply analyze the process and point out its good or bad things. As already mentioned, this section largely helps to explain and understand results obtained later in this study.

After gaining independence in 1991, Croatia started transition process which included, among other elements, conversion[1] and privatization of state-owned enterprises. One can distinguish four phases of this process in Croatia (Gregurek 2001). Before entering deeper discussion, it might be informative to have a look at the structure of Croatian firms in 1990, before the start of the first phase of privatization (Table 1).

TABLE 1. CROATIAN ECONOMY IN 1991[2]

FORM OF OWNERSHIP	FIRMS		LABOR EMPLOYED		SOCIAL CAPITAL	
	NUMBER	%	NUMBER	%	MIL. DM	%
1.SOCIAL FIRMS	3637	35,5	1105873	97,6	57609,3	100
1.1PUBLIC SOCIAL FIRMS	98	2,7	123097	11,1	18089,3	31,4
2. PRIVATE FIRMS	6785	62,5	19602	1,7		
3.COOPERATIVE FIRMS	284	2,6	5290	0,5		
4. MIXED FIRMS	153	1,4	2001	0,2		
TOTAL	**10859**	**100**	**1132766**	**100**	**57609,3**	**100**

One can see the domination of social firms[3], not so much in the number, as in the total percentage of employed people. The first phase of privatization started immediately in 1991, under the supervision of the Croatian Agency for Restructuring and Development. All the social enterprises were first converted to the stock or limited liability companies. After that, the companies were divided in two groups. The first group included big companies which the state considered to be of strategic importance, and these were not included in the first phase of

[1] Conversion refers to the change of legal status of social enterprises to incorporations.
[2] Data from the Annual report of Croatian Agency for Restructuring and Development, Zagreb, November 1992
[3] Social firms are the firms owned and managed by workers

the privatization. The rest of around 3000 small and medium companies belonged to the second group and entered the process of privatization. The process itself was autonomous, meaning that the workers council of the company being privatized could independently decide if the whole company should be sold or only part of it, to whom it should be sold to, whether the claims of other companies should be transformed into the ownership, etc. This type of privatization was based on the fact that the Croatian companies had already some experience with market economy during the 1980's with the economic liberalization in the former Yugoslavia not seen in the other Eastern-bloc countries. The second difference between the Croatian and other Eastern European companies is that they were founded and owned by their employees[4], and not directly by the state. Therefore employees and ex-employees of each firm got an advantage in the privatization process. When buying shares, they were allowed an initial 20% discount plus the additional 1% discount for the every year spent working in the company. According to Gregurek (2001), 27% of the total amount of firms' shares that workers decided to buy was renationalized since they were not able to regularly pay the obligations.

The deadline for autonomous privatization was June 1992. Firms that were not able to finish privatization before that date entered the second phase of the process. Their ownership rights were transferred to two government institutions: one third of each firm went to the Pension Fund, and the remaining two thirds were given to the Croatian Privatization Fund. Both funds used various methods of privatization, among which two proved to be the most popular: public auctions on the Zagreb Stock Exchange and direct sales without considering multiple offers. The environment that very much resembled the French legal framework at this period assisted the creation of family-owned business empires. This framework, contrary to the Anglo-Saxon common law, does not provide adequate protection to the small shareholders

[4] For more information on this topic see Saul E., „Self-management: Economic theory and Yugoslav practice", Cambridge University Press, 1987

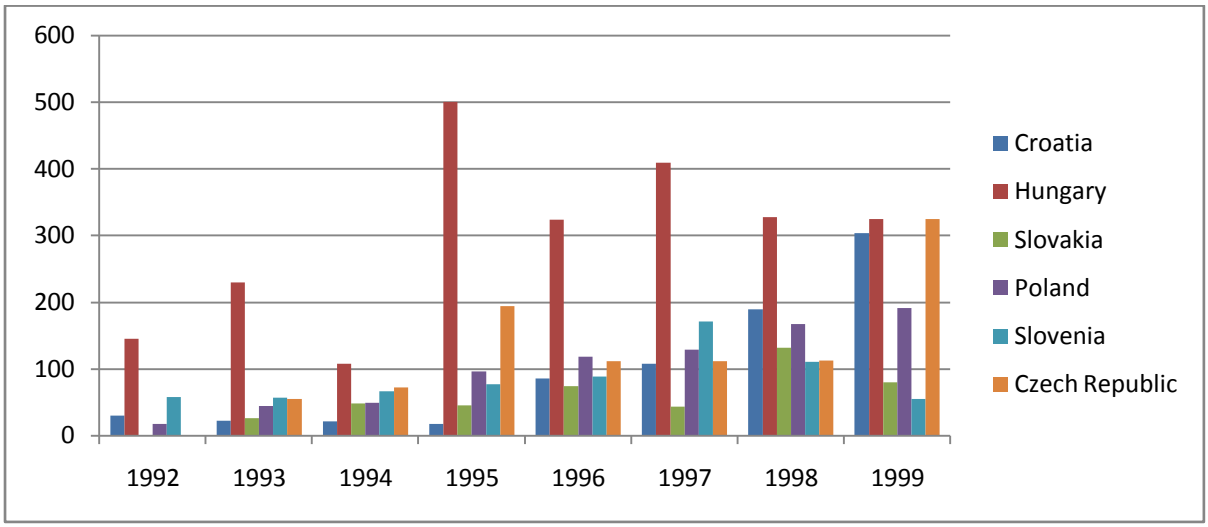
and creditors. An underdeveloped capital market emerged as a consequence. This is maybe best depicted by the fact that in 1993 only three companies accounted for 75% of total trade in the Zagreb Stock Exchange. Even after listing on the stock exchange, information about the performances of family-owned companies is opaque and incomplete. Foreign investors are rare since they prefer not to invest in the companies where there is no distinction between the private and business benefit. The privatization of the strategic companies was postponed once again.

A third phase represents the mass privatization based on the free distribution of shares to the certain categories of population. Those were primarily disabled war veterans, families of the fallen, imprisoned or missing soldiers or civilians, displaced persons and refugees, ex political prisoners and employees from the companies which were based in the occupied part of the Croatian territory if they were unemployed. Around 50% of the shares owned by the Pension Fund and Croatian Privatization Fund were distributed in this way to more than 240 000 citizens. The third phase of privatization in Croatia was completely politically motivated and was not supported by any economic reasoning.

In 1999 the fourth phase of the privatization began. The jurisdiction over the restructuring, recovery and supervision over the Croatian Privatization Fund was given to the Ministry of Economy. Institutional, economic and political risk was moved directly to the first after-war government. It initiated revision of the previous privatizations and cancelation of the privatizations which proved to involve criminal activities. However, family business-empires were generally left untouched and at the end of this phase Croatian market was characterized by the highly concentrated and mostly domestic ownership. Only in 1998 Croatia did start to attract more intensively foreign investors which join the privatization process, as shown in Graph 1.

From the declaration of independence in 1991, until the end of war in 1995, the values of foreign direct investments per capita were far below the other Central European countries. Only after 1996, Croatia experiences more significant inflow of foreign capital and finally in 1998 and 1999 the country reaches the FDI per capita level of other European transition countries.

GRAPH 1. FDI IN SELECTED EUROPEAN POST-COMMUNIST COUNTRIES IN 000 PER CAPITA (1992-1999)[5]



[5] Source: World Bank development indicators database. Data for the Czech Republic and Slovakia for 1992 is missing since the two countries declared independence only in the begining of 1993.

3. Sample and Data

This study analyzes official data on corporations listed on the Zagreb Stock Exchange (ZSE) in the period from 2003 until 2009. At the moment data for this study was collected (May 2011) there were a total 237 shares of Croatian joint stock companies listed. Out of those, 58 companies were listed after December 2003, and were therefore excluded from the sample. Further, the sample does not include financial, utility and other severely regulated institutions, in order to avoid the effect of these regulations on corporate performances. For 24 companies, some of the data, usually about ownership structure, was unavailable for the whole or most of the period observed. In addition to this, firms with extreme values of observed variables will not be included in the regressions. After exclusion of those, the final sample includes 119 corporation listed on ZSE and total 746 observations.

3.1. Ownership Concentration

All the data for this research was collected manually from the annual financial reports which companies need to deliver according to the Stock Exchange regulations. Table 2 shows some statistics on ownership concentration in Croatian market. Descriptive statistics are shown for fraction of equity owned by the largest, three largest and five largest shareholders on ZSE.

TABLE 2. OWNERSHIP CONCENTRATION IN CROATIAN FIRMS (% of total equity)				
	TOP1	TOP3	TOP5	MANAGEMENT
MEAN	50,03	68,49	74,34	4,89
MEDIAN	51,00	77,89	82,97	0
MAX.	98,62	100	100	98,62
MIN.	3,92	9,04	10,86	0
STD. DEV.	27,45	25,08	22,79	14,42

The ownership of the single largest shareholder varies from 3.92% to 98.62% around the quite high mean which is just above the 50%. This fact is not surprising having in mind the concentration in other emerging economies, and continental Europe in general. (Claesens and Djankov, 1998; Kapopoulos and Lazaretou, 2006; Gugler and Weigand, 2003). Having the approximately same value, the median tells that in half of the companies from the sample single owner has an absolute power over the corporation. However, the fractions of equity held by the second and third investor are also not insignificant. For inspecting the relationship between the largest shareholder and performance, dummy variable *B1_30* is created. It equals zero if the first block holder owns less than 30% of equity and otherwise it equals to one. On the other hand, management ownership has a median equal to zero. A rare occurrence of equity compensation and frequent changes of managers might be the two main reasons for such situation. Managerial ownership will be measured by the variable *Lmanager* which is defined as a logistic transformation[6] of the fraction of total equity owned by the management of the company. In order to capture possible non-linearity in the relationship between the managerial ownership and firm performance, I also create the variable Lmanager^2 which is the squared value of *Lmanager*.

Concentration values of largest, three largest and five largest shareholders are expected to be negatively correlated with managerial ownership, with relationship getting stronger as we move from Top5 toward Top1. The stronger the owner; the less space manager has to put his own interests in front of those of the shareholders'. Also, entrenchment and accumulation of shares in order to strengthen his influence in the company becomes practically impossible without permission of the large owner. Votes of the single shareholder might also be enough to dismiss the manager, which compared to the diffused ownership case, greatly simplifies the

[6] Logistic measure of managerial ownership which converts the bounded numbers (0 to 100%) to an unbounded figure is widely used in the literature that deals with the ownership concetration-performance relationship (Demsezt and Lehn, 1985, Himmelberg, 1999, Grosfeld, 2006).

procedure. Data does confirm this hypothesis but correlations between the managerial ownership and three concentration measures are very low (-0,057; -0,062 and -0,076 for top five, three and one shareholder respectively). It might be a signal that the principal-agent problem is not so intensive on the Croatian market.

3.2. Corporate performance

In the empirical studies which are focused on demystification of ownership-performance relationship, two performance indicators tend to be used more than others. Starting from Demsetz and Lehn (1985) profit rate was used to evaluate firms' performance. In later studies, most of the authors found Tobin's Q more appropriate measure. While accounting profit rate is measured as the ratio of net income and shareholders' equity, Tobin's Q is calculated as the market value of the company divided by the replacement value of the firm's assets. Therefore, value of this coefficient below one implies that the value of firm's assets is greater than what is recognized by the market, and the stock is undervalued. Analogously, a high Tobin's Q implies that the stock is overvalued. There are two main differences in these two ways to measure performance. From the time perspective, profit rate can be described as a backward looking measure. It is a purely accounting way of measuring the success of the corporation and depends on the accomplishments of management in the previous period. On the other side, Tobin's Q is a forward looking indicator and it is based on the investors' expectations about the future profitability of the company. Second difference comes from the accounting standards. Profit rate is highly dependent on the accounting methods used and often does not give reliable picture of the firm's performance. The advantage of using Tobin's Q is avoiding the estimation of true profit rates and balancing between different accounting rules under different jurisdictions. However, this performance indicator is also not completely immune to accounting problems. For Tobin's Q to be meaningful, one needs accurate measures of both

market valuation of the company and the replacement costs of firm's assets. While first is usually not the problem, if the firm's stocks are regularly traded, the replacement costs are more complicated to calculate (Venkatraman et al. 1986) and are therefore often proxied by the book value of total assets. Using the book value of assets makes the results once again vulnerable to the accounting standards and firm policies.

In this study I will use two widely-used measures of performance: return on equity (ROE) and Tobin's Q. Moreover, it might be interesting to see the effect of the ownership concentration on the labor performance. Bertrand and Mullainathan (2003) concluded that, when insulated from takeovers, managers hesitate less to raise workers' wages aiming at avoiding confrontations with unions. Using the labor efficiency as a dependent variable allows to check whether higher managerial ownership and entrenchment show some evidence in favor of "quiet-life" hypothesis.

Return on equity (*ROE*) is defined as a ratio of net profit and shareholders' equity. It reveals how much profit was made in comparison to total amount of shareholders' equity found on the balance sheet. *Labor efficiency* is approximated by the ratio of labor cost and total revenues. These two indicators can be used over the whole sample. In the case of *Tobin's Q*, it will be used on the subsample of more liquid firms. Zagreb Stock Exchange differs among three degrees of liquidity, depending on the number of transactions in the previous twenty days. The least liquid shares will not be taken into account as Tobin's Q of such stocks does not contain reliable information about the investors' valuation of company. Table 3 illustrates the behavior of the firm performance indicators over the observation period. Median is used instead of mean to immunize the effect of both positive and negative extreme values, which are present in the sample. Labor efficiency does not suffer from this problem and the values of mean and median are very similar throughout the observed period.

TABLE 3. MEDIAN VALUES OF PERFORMANCE INDICATORS AND LABOR EFFICIENCE							
	2003	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*
ROE	1,24	1,46	1,77	2,52	2,24	0,57	0,03
TOBIN'S Q	0,25	0,36	0,44	0,64	0,82	0,31	0,29
LABOR EFFICIENCY	0,22	0,21	0,23	0,23	0,22	0,21	0,23

Median ROE had a quite strong growth until 2006, and after a slow down in 2007, it records a big fall in 2008 and a year later it practically reaches zero. Tobin's Q behaves more stable, but it also records a significant drop in the year 2008. This drop is most certainly caused by the huge drop in the stock prices caused by the world financial crisis. However, even before that, the stocks on ZSE were on average undervalued. On the other side, labor efficiency is fairly stable over the whole period. The possible explanation is that with the fall of revenues, firm started firing workers and reducing labor cost, keeping the indicator almost unchanged.

3.3. Control variables

Additional variables need to be included in the regression in order to control for the possibility that factor other than ownership structure affect performance. *Leverage* is a natural logarithm of the amount of debt firm uses to finance its assets. Management can decide to use high leverage in order to boost investments and increase shareholders' wealth. However, if it fails to do so, interest expense and credit risk can decrease the performance of the company and wealth of its shareholders. *Size* of the company may affect the performance since it can enjoy the benefits of economy of scale. I use natural logarithm of employment to proxy for the firm size. I also tried alternative proxies for the size, such as revenues and total assets, but the number of employees proved to yield the most significant results. Following the work of Grosfeld (2006), I also include control for the intangible assets. *Intan* is defined as a share of

intangibles in total assets. Since this category includes software, patents, brands, goodwill and other assets without physical substance, this variable is expected to proxy for high-tech firms with high added value in the process of production, and therefore better performance. However, it is also possible that this variable proxies for investments in R&D and patents more than for high-tech. To account for this I will check regressions for both contemporaneous and lagged value of this variable and use the one that gives results on the higher level of significance.

Variable *foreign_20* is a dummy which takes value one if a foreigner or a group of foreigners are owners of at least 20% of the firm equity and zero otherwise. This variable is generally expected to have a positive influence on the firms' performance. However, as a result of late entrance of foreign capital in Croatia, when the best companies were already privatized by domestic investors, the effect can be different as well. As an alternative, I also use a variable *foreign_1* and *foreign_2* which equal 1 if the first (second) largest owner is a foreigner and zero otherwise.

Old is a dummy which equals one if the firm was established before 1991 and has therefore, at least partially, went through the process of privatization. In line with the previous literature, I differentiate four types of owners: *family, company, state and financial*/institutional owner. Types of ownership are dummy variables which equal one if the largest owner is a family/company/state/financial institution, and zero otherwise. As a reference value I take ownership by another company. Anderson (2003) investigated the founding-family ownership and came to the results that when family members are serving as CEOs, the firm performance is significantly better then with the outside CEOs. A number of authors, including Grosfeld (2005), obtained negative coefficients for state ownership. Therefore, family dummy is expected to be positively and state negatively correlated with the performance measures.

Finally, in all of the panel regressions I will use *year dummies*; they are included in order to hold for the macroeconomic environment which affects all the observed firms. Controlling for the macroeconomic shocks is crucial for an economy exposed to large changes. Moreover, the sample extends to the years in which we expect to observe the negative consequences of the world financial crisis on the performance of companies listed on the Croatian stock exchange.

I also include firm fixed effects in panel data. Holding for the effects of industry is not convenient as Zagreb Stock Exchange differentiates among 38 industries where some categories include only one or two firms (Table 4). Breakdown of listed companies into the sectors due to their principal economical activity is done according to the Statistical Classification of Economic Activities 2007 which is in charge of the Croatian Bureau of Statistics.

TABLE 4. SECTOR CLASSIFICATION OF FIRMS LISTED ON THE ZAGREB STOCK EXCHANGE

	Sector	#		Sector	#
1	Agriculture, forestry and fisheries	11	**15**	Water supply, sewerage and waste management	1
2	Manufacture of food, beverages and tobacco products	23	**16**	Construction	9
3	Production of textile, apparel and leather	8	**17**	Wholesale and retail trade	20
4	Timber and paper industry	3	**18**	Transportation and storage	14
5	Manufacture of coke and refined petroleum products	1	**19**	Accommodation and food service activities	47
6	Manufacture of chemicals and chemical products	7	**20**	Publishing, audiovisual and broadcasting activities	3
7	Manufacture of basic pharmaceutical products	2	**21**	Telecommunications	2
8	Manufacture of rubber and plastic	4	**22**	Financial and insurance activities	35
9	Manufacture of basic metals	6	**23**	Real estate activities	1
10	Production of computers, electronic and optical products	2	**24**	Legal, accounting, architecture, engineering and technical activities	14
11	Manufacture of electrical equipment	10	**25**	Scientific research and development	2
12	Manufacture of machinery and equipment	2	**26**	Arts, entertainment and recreation	1
13	Manufacture of transport equipment	2	**27**	Administrative and support activities	1
14	Other manufacturing and repair and installation of equipment	6		***TOTAL***	***237***

4. Empirical Methodology

In the following estimation return on equity, Tobin's Q and labor efficiency are regressed, first solely with the ownership variables, and then together with the control variables. First, the managerial ownership is put in focus, and then the ownership of the largest shareholder. Expecting for the effect of the largest owner is motivated by the great concentration of ownership on the Croatian stock exchange.

4.1. Cross-sectional Analysis

Following the work of McConnel and Servaes (1988) and Becht (2002), I will first use cross sectional model to estimate the relationship between performance and ownership variables. Second part of estimations will be based on panel data which is able to deal with the unobserved, time-constant effects. Cross-sectional estimation cannot capture the dynamics of the relationship between the two variables of interest, but it might be useful to give a first insight into this issue and to see if there are any year-specific changes in the relationship between the ownership concentration and firm performance. I first estimate cross sectional model for every year and every measure of performance separately:

$$Performance_i = \beta_0 + \beta_1 Lmanager_i + \beta_2 Lmanager_i^2 + \beta_3 Leverage_i + \beta_4 Size_i + \beta_5 Size_i^2 + \beta_6 Foreign\_20_i + \beta_7 Old_i + \beta_8 Intan_i + \varepsilon_i \qquad \textbf{(1)}$$

where $Performance_i$ is a measure of performance. After simple two-variable regression, the control variables are also included. ε_i is an error term. Regression dealing with the effect of the largest shareholder on performance is identical to equation (1), with the addition of control variables for the type of owner.

4.1.1.Managerial Ownership

Two effects are usually discussed when speaking about the managerial ownership: incentive and entrenchment effect. As long as management is not powerful enough, incentive effect prevails. In order to preserve the place, manager must persuade the owners, represented by the Board of Directors, that the firm is led in the best possible way. Therefore, firms' performance is expected to improve with the higher managerial ownership until the point where the manager becomes entrenched and puts own private benefits in front of the benefits of outside investors. Beyond this point, the relationship between the managerial ownership and firms' performance is expected to be negative. This theoretical inverse U-shaped curve was empirically confirmed by a number of authors. However, most of the studies were done using the US data, where the ownership is dispersed compared to the rest of the world as shown by La Porta, Lopez-de-Silanes and Shleifer (1988).

Table 5a summarizes main results of the simplest cross-sectional regressions using the data from the Zagreb Stock Exchange, where the concentration is relatively high. All the regressions initially also included the squared value of managerial ownership. However, no significant non-linear relationship was found with any of the observed measures of firm's performance. It is also worth noticing that none of the performance measures are in each observed years significantly affected by the fraction of equity held by management. Values of R^2 are generally low, with maximum being 15% for the regression on Tobin's Q in 2004.

In all the regressions, Newey-West heteroskedasticity-consistent estimators were used. For ROE, simple OLS yields significant positive coefficients for the years 2003, 2007 and 2008. It is somewhat surprising that in the middle of the observed period, although insignificant, the coefficient changes sign and becomes negative. Use of Tobin's Q as a performance measures discovers only marginally significant negative relationship between the two variables for

years 2005, 2007 and 2008. The change of sign is present in this case as well since at the beginning of the period the coefficient is positive. However, this might be caused by the visibly smaller sample size during these two years. Probably the most straightforward result is obtained in the regressions on the labor efficiency measure. The coefficient is always negative and insignificant only in 2004. Starting from 2007, the relationship between labor efficiency and managerial ownership is significant on 1% level and increasing in intensity.

TABLE 5A. OLS REGRESSIONS OF MANAGERIAL OWNERSHIP ON PERFORMANCE MEASURES AND LABOR EFFICIENCY[7]

		2003	2004	2005	2006	2007	2008	2009
ROE	***Lmanager***	***0,323*** (0,09)***	***0,671 (0,521)***	***-0,073 (0,128)***	***-0,007 (0,02)***	***0,021* (0,012)***	***0,027** (0,013)***	***0,329 (0,259)***
	R^2	5%	2%	1%	1%	1%	1%	1%
	N	91	93	112	112	112	112	112
TOBIN'S Q	***Lmanager***	***0,081 (0,092)***	***0,09 (0,07)***	***-0,08* (0,044)***	***-0,07 (0,05)***	***-0,12** (0,07)***	***-0,05* (0,03)***	***-0,04 (0,03)***
	R^2	5%	15%	3%	2%	3%	5%	1%
	N	30	38	59	68	83	84	84
LABOR EFFIC.	***Lmanager***	***-0,102** (0,055)***	***-0,072 (0,048)***	***-0,104* (0,06)***	***-0,09* (0,05)***	***-0,11*** (0,040)***	***-0,132*** (0,041)***	***-0,16*** (0,05)***
	R^2	4%	2%	3%	4%	3%	5%	4%
	N	91	93	112	112	112	112	112

Table 5b shows the results of OLS for every year in the sample after including control variables. The effect on ROE is generally small and positive throughout the sample, except for the year 2006 where it is small and negative. There is no any evidence that size of the company affects the level of return on equity. Leverage, however, seems to be negatively related to this measure of performance and the relationship is insignificant only in the first two years of the sample. The fraction of intangibles in total assets is always positive, insignificant and has the largest variations in the strength of the effect.

[7] In this table and all the following tables which appear in this study ***, **, and * are used to denote 1%, 5% and 10% significance level, respectively. Values under the coefficients are White Period standard errors. Further, at the bottom of every table I report the values of R^2 and N which stands for the number of observations.

Including the control variables in the regressions with Tobin's Q on its right hand-side seems to just intensify vagueness instead of explaining it. The coefficient on managerial ownership still changes sign in different years of the sample, and this time the change is significant. Last three years of the sample show negative relationship between the two variables and using the panel data with fixed period effects will help to decide if this effect can be attributed, among other things, to the lower market capitalization of firms listed on the Zagreb Stock Exchange due to the financial crisis. Financial leverage has a strong negative effect on the value of Tobin's Q and the coefficient is statistically significant in all the observed periods. Another control variable which is always significant is size of the firm, proxied by the logarithm value of the number of employees. The effect is positive in all years with some evidence of non-linearity in the relationship in years 2004 and 2008.

After including control variables, the coefficient of managerial ownership practically does not change in size, but gains in significance. The effect is linear, negative and statistically significant in all the observed years. Although the previous two measures of performance were significantly influenced by the leverage that management decides to use, labor efficiency seems to depend more on the size of the company. The coefficient capturing the effect of size is always negative, meaning that with the growth firms lose on the efficiency of their labor. The probable explanation is the following. As a firm becomes bigger, monitoring labor becomes more demanding and costly, allowing the workers more possibilities to shirk. In 2003 and 2004 the significant non-linear relationship between the size of the firm and its labor efficiency is captured. Since intangibles is a proxy for high-tech firms with high R&D, one can expect that the workers in such firms are on average more educated than what is case in other companies. It can be also argued that more educated workers contribute more to the creation of added value, and therefore companies with larger share of intangibles should be expected to have higher indicators of labor efficiency. The data from Zagreb Stock exchange

proves that the relationship between the two variables is positive, but it is significant in only two out of seven years in the sample.

TABLE 5B. OLS REGRESSIONS OF MANAGERIAL OWNERSHIP ON PERFORMANCE MEASURES AND LABOR EFFICIENCY (CONTROLS INCLUDED)[8]								
		2003	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
ROE	***Lmanager***	***0,04*** (0,01)***	***0,082* (0,044)***	***0,008 (0,02)***	***-0,003 (0,011)***	***0,016 (0,015)***	***0,02*** (0,012)***	***0,223 (0,254)***
	Foreign_20	0,05	0,197	0,076	0,038	0,06	0,027	-0,15
	Leverage	-0,016	-1,11	-0,21**	-0,27**	-0,54**	-0,502**	-0,862*
	Size	-0,028	0,019	-0,001	-0,006	0,031	-0,009	-0,008
	Size^2	-0,004	0,004	0,002	0,004	0,001	0,006	0,073
	Old	-0,017	-0,09	-0,002	-0,014	0,065	0,029	0,963
	Intan(-1)		1,66	0,65	0,19	1,37	0,74	0,011
	R^2	8%	11%	9%	15%	16%	24%	16%
	N	91	93	112	112	112	112	112
TOBIN 'S Q	***Lmanager***	***0,08 (0,08)***	***0,13* (0,073)***	***-0,04 (0,046)***	***-0,04 (0,04)***	***-0,12* (0,062)***	***-0,05** (0,024)***	***-0,05** (0,024)***
	Foreign_20	-0,047	0,194	0,051	0,193	-0,324	-0,022	0,039
	Leverage	-0,473*	-0,588**	-0,79***	-0,89***	-1,15*	-0,88***	-0,77***
	Size	0,14*	0,147***	0,15***	0,22***	0,218**	0,21***	0,15***
	Size^2	-0,009	-0,01***	-0,003	-0,006	0,009	-0,01**	-0,005
	Old	-0,08	0,078	0,063	-0,043	0,102	-0,09	-0,059
	Intan(-1)		1,438**	0,89	0,41	2,34	2,135	2,48*
	R^2	22%	14%	9%	13%	18%	24%	28%
	N	30	38	59	68	83	84	84
LABOR EFFICIENCY	***Lmanager***	***-0,12** (0,056)***	***-0,099* (0,052)***	***-0,15** (0,087)***	***-0,10** (0,049)***	***-0,12*** (0,045)***	***-0,13*** (0,048)***	***-0,13*** (0,046)***
	Foreign_20	-0,22	-0,367**	-0,39**	-0,348	0,245	-0,141	-0,134
	Leverage	-0,75***	-0,70**	-0,48***	-0,395	-0,446	-0,256	-0,276
	Size	-0,32***	-0,15**	-0,25***	-0,23***	-0,28***	-0.27***	-0,21***
	Size^2	0,02**	0,016**	0,009	0,005	0,012	0,009	0,002
	Old	-0,05	-0,087	0,008	-0,061	-0,087	-0,057	0,032
	Intan(-1)		4,518***	3,71**	1,39	0,55	1,354	1,07
	R^2	15%	8%	7%	14%	9%	22%	29%
	N	91	93	112	112	112	112	112

[8] For the purpose of clarity, I ommit reporting standard errors of control variables in tables 5B and 6B. Significance is emphasized by symobl|*|only. For the variables of main interest however, I keep reporting standard errors.

4.1.2.Largest shareholder

One of the most widely accepted view among the authors, including Shleifer and Vishny (1986), McConnel and Servaes (1990), Zingales (1996) and Claessens and Djankov (1998), is that higher concentration of ownership improves the performance of the firms due to the stronger incentive to monitor the actions of management. For small shareholders this incentive is very low or even non-existing since the cost of monitoring is often higher than the potential benefits from it. On the other side, large block holders can offset the cost of the monitoring by the rise of their equity value. Moreover, in the case of non-monitoring, managers could put their private benefits in front of shareholders' and in that way create losses larger than the cost of monitoring.

On the other hand some authors argue that this relationship is more spurious as the expected gains from active monitoring vary across countries and firms (Demsetz and Lehn, 1985). Also, in the countries with not efficient protection of small shareholders, existence of large block owners can decrease the liquidity, make the firm less attractive to other investors and decrease its market capitalization causing the negative relationship of ownership concentration and Tobin's Q as a measure of performance.

Table 6a summarizes the results of regression which includes dummy variable *b1_30*, but no additional control variables. In the regression with ROE as a dependent variable, coefficient is negative for all the years, but always insignificant on any acceptable level of significance, except in 2004 when it is marginally significant. Presence of large block holders has always positive effect on Tobin's Q. Moreover, the coefficient is significant in four out of seven observed subsamples. This would be an evidence for the first mentioned lines of explanations that emphasize the positive effect of management monitoring on firm performance. Concerning labor efficiency, the *b1_30* variable is always positive but very insignificant.

TABLE 6A. OLS REGRESSIONS OF THE LARGEST OWNER ON PERFORMANCE MEASURES AND LABOR EFFICIENCY								
		2003	2004	2005	2006	2007	2008	2009
ROE	***B1_30***	***-0,033 (0,029)***	***-0,20* (0,125)***	***-0,04 (0,032)***	***-0,047 (0,028)***	***-0,035 (0,052)***	***-0,031 (0,051)***	***-0,219 (0,177)***
	R^2	1%	2%	1%	2%	2%	1%	2%
	N	92	94	112	112	112	112	112
TOBIN'S Q	***B1_30***	***0,07 (0,116)***	***0,139 (0,106)***	***0,194* (0,114)***	***0,31** (0,119)***	***0,183 (0,210)***	***0,254** (0,081)***	***0,48*** (0,058)***
	R^2	2%	5%	5%	9%	1%	11%	6%
	N	30	38	59	68	83	84	84
LABOR EFFIC.	***B1_30***	***0,22 (0,145)***	***0,193 (0,133)***	***0,192 (0,154)***	***0,137 (0,131)***	***0,184 (0,210)***	***0,120 (0,143)***	***0,310 (0,322)***
	R^2	3%	2%	2%	1%	1%	2%	4%
	N	91	93	112	112	112	112	112

Including the control variables somewhat changes results (Table 6b). Coefficient that captures the effect of existence of the large block holder on the return on equity is not always negative any more, but it becomes always insignificant. When controlling for the type of the largest blockholder however, there is an evidence of negative effect for the state ownership. The coefficient is significant in five out of seven years which belong to the observation period. The base type of ownership to which these coefficients are comparable to is the block holding by another company.

Regression on Tobin's Q shows that existence of a large blockholder on average increases the value of this performance measure. The coefficient is significant in the first and last two years of the sample and has very small variations in the size of the effect. In the first two observed years there are no enough observations to support inclusion of type of ownership dummies. After that, only ownership by financial/institutional owners is always positive and significant in 2005, 2006 and 2009. Both family and state ownership dummies experience changes in

sign.. Leverage seems to be very important control variable once again, as it is always significant and negatively correlated with the value of Tobin's Q.

TABLE 6B. OLS REGRESSIONS OF THE LARGEST OWNER ON PERFORMANCE MEASURES (INCLUDING CONTROLS)								
		2003	2004	2005	2006	2007	2008	2009
ROE	***B1_30***	***0,033***	***-0,041***	***0,001***	***-0,014***	***0,019***	***0,068***	***1,577***
		(0,023)	***(0,073)***	***(0,003)***	***(0,025)***	***(0,50)***	***(0,051)***	***(1,321)***
	Size	0,012	0,084	0,011	0,013	0,058	-0,016	-0,658
	Size^2	0,002	-0,001	0,001	0,002	-0,003	0,007	0,146
	Leverage	0,006	-1,09	-0,17*	-0,22**	-0,59**	-0,52**	-8,47
	Old	-0,018	-0,11	-0,016	-0,05	0,057	0,047	1,445
	Intan(-1)		1,89	0,73*	0,34	0,822	0,757	0,378
	B1_30*family	-0,035	0,273*	-0,074	-0,10	-0,074	0,08	0,591
	B1_30*state	-0,172**	-0,496	-0,18***	-0,11**	-0,274*	-0,123*	0,019
	B1_30*finance	-0,004	-0,01	-0,009	-0,208*	0,011	-0.021	2,124
	B1_30*foreign	-0,023	0,04	0,039	0,051	0,064	-0,007	-1,605
	R^2	15%	18%	21%	26%	24%	28%	15%
	N	91	94	112	112	112	112	112
TOBIN'S Q	***B1_30***	***0,27****	***0,247****	***0,235***	***0,247***	***0,255***	***0,23*****	***0,20*****
		(0,124)	***(0,147)***	***(0,171)***	***(0,161)***	***(0,201)***	***(0,09)***	***(0,074)***
	Size	0,132*	0,132**	0,092	0,133*	0,104	0,12***	0,06*
	Size^2	-0,008	-0,008	0,003	0,001	0,018	-0,002	0,003
	Leverage	-0,785**	-0,764*	-0,76***	-0,80***	-1,07**	-0,83***	-0,70***
	Old	0,11	0,197	0,119	0,038	0,136	-0,024	0,01
	Intan(-1)		5,81	0,428	1,048	0,65	2,59*	2,61*
	B1_30*family	**Not enough observations**		0,507***	0,133	-0,49	-0,146	-0,138
	B1_30*state			-0,203	-0,125	0,306	0,235	-0,24
	B1_30*finance			0,283*	0,65***	0,299	0,395	0,397*
	B1_30*foreign	-0,34**	-0,073	0,102	0,378	-0,128	0,010	0,043
	R^2	27%	15%	19%	26%	18%	38%	41%
	N	30	37	59	68	83	84	84
LABOR EFFICIENCY	***B1_30***	***-0,038***	***-0,130***	***-0,099***	***-0,113***	***-0,042***	***-0,078***	***0,235***
		(0,192)	***(0,221)***	***(0,132)***	***(0,127)***	***(0,126)***	***(0,128)***	***(0,332)***
	Size	-0,41***	-0,33***	-0,28***	-0,26***	-0,31***	-0,31***	-0,310*
	Size^2	0,029***	0,021**	0,011	0,007	0,014	0,013	0,010
	Leverage	-0,84***	-0,88***	-0,64**	-0,487*	-0,359	-0,127	-0,116
	Old	-0,04	-0,05	0,009	-0,03	-0,120	-0,109	-0,007
	Intan(-1)		4,36***	3,23***	2,453	0,342	1,77	-1,434
	B1_30*family	0,55***	0,53***	0,499	0,52***	0,306	0,43***	0,390
	B1_30*state	0,27	0,367	0,008*	0,152	-0,243	-0,131	.0,238
	B1_30*finance	0,025	0,179	0,226**	0,296**	-0,042	-0,193	-0,853*
	B1_30*foreign	0,033	-0,101	-0,182	-0,13	-0,210	-0,073	0,168
	R^2	21%	16%	8%	16%	8%	23%	34%
	N	90	93	112	112	112	112	112

Labor efficiency is unrelated to the presence of large block holder, except in the case when the large owner is a family or individual. Only in this case there is some evidence of a positive relationship between the two variables. Variable controlling for the size of the firm is significant on 1% level and negative once again in all observed years except in 2009 when it is negative and significant, but only on the 10% level.

After a short cross-sectional analysis one has an idea about the relationship between the ownership structure and firms' performance in the sample of firms from the Zagreb Stock Exchange. The next part of the study deals with the more powerful tool, the panel data. Panel data estimation will provide more efficient estimations of parameters by considering broader sources of variation and allow the study of the dynamic behavior of the parameters.

4.2. Panel Analysis

In the second step of this study I use the panel data analysis. By construction, panel data allows us to control whether the results obtained in the cross-sectional analysis are affected by the unobserved heterogeneity. Formally, the estimated model is:

$$Performance_{it} = \beta_0 + \beta_1 Lmanager_{it} + \beta_2 Lmanager_{it}^2 + \beta_3 Leverage_{it} + \beta_4 Size_{it} + \beta_5 Size_{it}^2 + \beta_6 Foreign\_20_{it} + \beta_7 Old_i + \beta_8 Intan_{i,t-1} + \mu_i + \delta_t + \varepsilon_{it} \quad \textbf{(2)}$$

Where $Performance_{it}$ represents three used measures of performance and coefficients μ_i and δ_t represent period and cross-section fixed effects. After single-variable regression, the control variables are also included. ε_{it} is an error term. The fixed effect is considered relevant when one expects that the means of the dependent variable, in this case ROE, Tobin's Q and labor efficiency, will be different for each firm and period, but with constant variance of the errors[9]. Fixing the periods is important in order to capture the macroeconomic shocks which are

[9] Asteriou D., Applied Econometrics, Palgrave Macmillan, 2006., New York

present especially in the last three years of the sample. Fixed cross-sections allow for capturing the firm-specific effects. Holding for firm-specific effects gains even more on importance when one has in mind that Zagreb Stock Exchange is relatively small, and controlling for industry dummies would not be very useful. Once again, the model for the largest blockholder is identical to the equation (2) with the exception of controlling for the ownership type.

4.2.1. Managerial Ownership

Using the panel data for the period 2003-2009 with ROE as a dependent variable I obtain results summarized in Table 7a. Equation (1) includes manager as the only variable explaining the variations in firms' return on equity. Equation (2) checks for the possible non-linearity in the relationship between the two variables, but finds none. Equation (3) includes some variables which control for other things that might influence the performance, and the fourth equation tries to capture the effect that the type of the firm ownership might have on ROE. In the last column the equation is the same as in a previous one, except for the fact that the squared value of managerial ownership is excluded once again. Effect of the managerial ownership is negative only in the simplest equations, with the standard error being twice larger than the size of the estimated coefficient. In all the following equations, the coefficient is positive, but remains insignificant. Panel data shows that there is a significant non-linear relationship between the size of the firm and its return on equity. First, as the firm grows, its return on equity increases and after a certain point starts decreasing. Leverage has a strong negative effect which is similar in size with the strong positive effect of the fraction of intangibles. It is interesting that the panel estimation resulted in the negative coefficient for the *foreign_20*. This unexpected sign can be partially explained by the privatization process and will be addressed later in the study.

TABLE 7A. FIXED EFFECTS ESTIMATION OF THE EFFECT OF MANAGERIAL OWNERSHIP ON ROE					
	(1)	(2)	(3)	(4)	(5)
Lmanager	***-0,015***	***0,042***	***0,102***	***0,105***	***0,049***
	(0,029)	***(0,059)***	***(0,124)***	***(0,121)***	***(0,048)***
Lmanager^2		***-0,019***	***-0,013***	***-0,019***	
		(0,020)	***(0,035)***	***(0,036)***	
Size			0,860*	0,790*	0,794***
			(0,267)	(0,294)	(0,294)
Size^2			-0,105*	-0,099*	-0,099***
			(0,026)	(0,027)	(0,027)
Leverage			-2,924***	-3,040**	-3,044**
			(1,702)	(1,759)	(1,758)
Intan(-1)			2,564*	2,561*	2,587*
			(1,683)	(1,678)	(1,581)
Old			0,792	0,804	0,807
			(0,648)	(0,654)	(0,654)
Foreign_20			-0,356*	-0,341*	-0,344*
			(0,221)	(0,244)	(0,222)
State				0,135	0,144
				(0,151)	(0,152)
Financial				0,542	0,555
				(0,469)	(0,477)
Family				0,301	0,276
				(0,291)	(0,279)
R^2	***23%***	***23%***	***30%***	***30%***	***30%***
N	***746***	***746***	***634***	***634***	***634***

The regression with Tobin's Q as a measure of performance yields somewhat similar results. Although the coefficient on *Lmanager* is always negative, compared with the situation with ROE where it was mostly positive, it is still insignificant on any acceptable level of significance. In the firms listed on the Zagreb Stock Exchange managerial ownership seems not the affect the value of Tobin's Q. Similarly to the estimated obtained for ROE leverage has a negative effect on the firm performance. However, two other control variables might be of more interest. Old firms seem to be valued more highly by the market. Before arguing against this result, one should have in mind that old firms listed on the stock exchange are the best and the strongest ones, which started business on the much larger market than the current Croatian market. It is highly probable that they kept some of the business connections and already have a developed brand in the neighboring countries allowing them to spread more easily. Furthermore, they were strong enough to survive during the periods of war and

privatization. This type of a selection bias is most certainly the main reasons why the coefficient for old firms tends to be positive and significant. Firms with significant foreign ownership, on the other hand, have once again negative coefficient, although significant only in the regression (3). This result can be explained by the process of privatization. Most of the privatization process in Croatia was done during the conflict and post-conflict period when international companies were not attracted by Croatia. Other Eastern European economies were in the processes of mass privatization and the choice for investing was wider than ever. After 1999, when foreign investments became abundant in Croatia, the best firms already found their owners among the domestic investors. Firms that have a financial institution as a largest owner have significantly larger value of Tobin's Q than others. Effect of the fraction of intangibles in the total assets is ambiguous in this case, meaning that although superior in the ROE point of view, firms with higher share of intangibles do not have significantly higher value of Tobin's Q.

TABLE 7B FIXED EFFECTS ESTIMATION OF THE EFFECT OF MANAGERIAL OWNERSHIP ON TOBIN'S Q					
	(1)	(2)	(3)	(4)	(5)
Lmanager	***-0,016***	***-0,014***	***-0,043***	***-0,077***	***-0,021***
	(0,032)	***(0,071)***	***(0,088)***	***(0,088)***	***(0,033)***
Lmanager^2		***0,006***	***0,014***	***0,021***	
		(0,019)	***(0,027)***	***(0,027)***	
Size			0,107	0,046	0,044
			(0,086)	(0,101)	(0,099)
Size^2			-0,017	-0,009	-0,009
			(0,016)	(0,017)	(0,017)
Leverage			-0,653**	-0,773***	-0,769***
			(0,264)	(0,265)	(0,265)
Intan(-1)			-1,036	0,851	0,792
			(0,992)	(0,921)	(0,998)
Old			0,474***	0,487***	0,485***
			(0,087)	(0,086)	(0,086)
Foreign_20			-0,166*	-0,132	-0,132
			(0,101)	(0,113)	(0,113)
State				0,227	0,226
				(0,048)	(0,047)
Financial				0,522***	0,501***
				(0,149)	(0,148)
Family				0,185*	0,192**
				(0,099)	(0,097)
R^2	***69%***	***69%***	***71%***	***71%***	***71%***
N	***446***	***446***	***403***	***403***	***403***

While cross-sectional analysis discovered negative relationship between the managerial ownership and labor efficiency, panel data shows that these results were probably affected by the unobserved heterogeneity. Fixed effects estimator for managerial ownership is significant and negative on 10% significance level only after inclusion of control variables. This result is a soft confirmation of the "quiet life" hypothesis stated by Bertrand (2003). As they are becoming more entrenched, managers prefer to increase salaries than to fight the unions. The efficiency suffers, but since there is no danger from takeovers, managers fearlessly enjoy the quiet life.

The size coefficient which was always significant in the cross-sectional analysis becomes insignificant and there is no evidence of non-linearity as well. Intangibles are positively related with the efficiency measure, but the coefficient is marginally significant only in the equation (5). Old firms are more efficient than the firms founded after 1991. Again, one should recall the previously used argument that the group of old firms include only the best firms from the pre-independence period which were strong enough to continue operating after war and usually already have contacts and business in other countries, primarily those of ex-Yugoslavia. Firms where state is the largest shareholder are expectedly less efficient than firms owned by another company. This is because state firms often belong to the traditional and labor intensive industries. Moreover, government is often very reluctant to cut the number of employees, even though it is often much higher than it is optimally needed, as its political aims are often in front of the economic ones. On the other hand, family firms are more efficient than firms owned by another company. Clearly, family as an owner cares in the first place about the profitability of its business as it is almost certainly the main source of their income. For this reason, they try to achieve the maximum possible labor efficiency and not employ more, nor pay salaries higher than it is considered by them to be optimal.

TABLE 7B. FIXED EFFECTS ESTIMATION OF THE EFFECT OF MANAGERIAL OWNERSHIP ON LABOR EFFICIENCY					
	(1)	(2)	(3)	(4)	(5)
Lmanager	***-0,065***	***-0,174***	***-0,254****	***-0,256****	***-0,149****
	(0,068)	***(0,113)***	***(0,152)***	***(0,145)***	***(0,089)***
Lmanager^2		***0,036***	***0,047***	***0,035***	
		(0,022)	***(0,031)***	***(0,025)***	
Size			0,597	0,579	0,579
			(0,584)	(0,469)	(0,544)
Size^2			-0,056	-0,054	-0,053
			(0,051)	(0,042)	(0,047)
Leverage			-0,167	-0,132	-0,119
			(0,141)	(0,159)	(0,138)
Intan(-1)			0,501	0,486	0,545*
			(0,363)	(0,404)	(0,334)
Old			0,576***	0,544***	0,544***
			(0,087)	(0,107)	(0,118)
Foreign_20			0,008	0,051	0,049
			(0,029)	(0,053)	(0,053)
State				-0,275*	-0,244*
				(0,167)	(0,151)
Financial				-0,129	-0,154
				(0,123)	(0,125)
Family				0,297*	0,312*
				(0,196)	(0,186)
R^2	***76%***	***76%***	***78%***	***79%***	***79%***
N	***744***	***744***	***633***	***633***	***633***

4.2.2.Largest shareholder

Regression using fixed period and cross-section effects shows no significant relationship between the existence of large block holder and return on equity (Table 8a). In the case when the financial institution is the blockholder, the coefficient is positive and significant on 5% level of significance. Presence of other types of owners neither increases nor decreases firms' return on equity. In both equations (2) and (3) the leverage has a big negative effect, while the effect of intangibles is significantly positive only in the equation (3), when the control variable for the type of the owner is included. Foreign ownership is once again negatively, but insignificantly related to the return on equity. In general, the panel data confirms the effect that the variables of interest have on the return on equity, and which was obtained in the cross-sectional analysis.

TABLE 8A. FIXED EFFECTS ESTIMATION OF THE EFFECT OF BLOCKHOLDER ON RETURN ON EQUITY			
	(1)	(2)	(3)
B1_30	***0,110***	***0,091***	***-0,050***
	(0,123)	***(0,167)***	***(0,131)***
Size		0,856*	0,830*
		(0,506)	(0,494)
Size^2		-0,107**	-0,104*
		(0,058)	(0,032)
Leverage		-2,844***	-2,983**
		(1,678)	(1,479)
Intan(-1)		2,649	2,674**
		(2,045)	(1,221)
Old		0,858	0,851
		(0,644)	(0,646)
Foreign_20		-0,492	-0,448
		(0,378)	(0,419)
State			0,167
			(0,192)
Financial			0,598**
			(0,265)
Family			0,283
			(0,330)
R^2	***23%***	***29%***	***30%***
N	***746***	***634***	***634***

In four out of seven observed periods, cross-sectional analysis showed positive relation between the dummy variable B1 and the value of Tobin's Q. However, panel regression, which is more powerful and more trustable, identifies the significant negative relationship between the two variables. This result is most likely influenced by the behavior of the other firms being the owners of the companies listed on the Zagreb Stock Exchange. Financial institution as an owner, on the other side, affects the performance positively. There are two potential explanations for a negative influence of block holder on the value of Tobin's Q. First, as already mentioned, it reduces the liquidity of the firm's shares on the stock market. Second, the large shareholder might use its influence to extract benefits from the firm through not optimal dividend payments, lack of reinvesting, transferring profitable parts of business on the other firms in his ownership and similar. Once again more leveraged firms perform significantly worse than those which finance their assets through equity and firms founded

before the 1991 are valued more by the outside investors. If the blockholder is a foreigner, the effect is negative and significant in equation (2), but after introducing the controls for the type of owner, the effect disappears.

TABLE 8B. FIXED EFFECTS ESTIMATION OF THE EFFECT OF EXISTANCE OF BLOCKHOLDER ON TOBINS'Q			
	(1)	(2)	(3)
B1_30	***-0,194*****	***-0,203****	***-0,402****
	(0,094)	***(0,117)***	***(0,237)***
Size		0,204	0,159
		(0,177)	(0,162)
Size^2		-0,027	-0,021
		(0,022)	(0,021)
Leverage		-0,609**	-0,795***
		(0,279)	(0,303)
Intan(-1)		0,694	0,416
		(0,926)	(0,90)
Old		0,476*	0,454***
		(0,087)	(0,103)
Foreign_20		-0,273**	-0,139
		(0,113)	(0,212)
State			0,193
			(0,482)
Financial			0,742**
			(0,369)
Family			0,349
			(0,312)
R^2	69%	71%	72%
N	446	403	403

The presence of large owner does not in general affect the efficiency of labor (Table 8c). However, having a family as a largest blockholder increases the efficiency for the reasons previously discussed, and the ownership by state affects the efficiency negatively. Similar to the estimates obtained when regressing managerial ownership on labor efficiency using the panel data, size of the company is not so effective in explaining the variations in efficiency. Leverage has a negative effect, but visibly smaller than it is in the case of Tobin's Q and return on equity. Conclusion that the firms established prior to 1991 are more labor efficient is confirmed once again on 10% level of significance. Foreign owners do not perform significantly better or worse than the domestic ones.

TABLE 8C. FIXED EFFECTS ESTIMATION OF THE EFFECT OF EXISTANCE OF BLOCKHOLDER ON LABOR EFFICIENCY			
	(1)	(2)	(3)
B1_30	***0,115***	***0,188***	***0,001***
	(0,141)	***(0,284)***	***(0,044)***
Size		0,579	0,447
		(0,473)	(0,34)
Size^2		-0,055	-0,044
		(0,042)	(0,030)
Leverage		-0,194***	-0,308**
		(0,108)	(0,171)
Intan(-1)		0,429	0,319
		(0,341)	(0,288)
Old		0,662*	0,551*
		(0,106)	(0,118)
Foreign_20		-0,133	0,054
		(0,093)	(0,116)
Family			0,673**
			(0,398)
State			-0,241**
			(0,132)
Finance			0,387
			(0,281)
R^2	75%	78%	79%
N	744	633	633

4.2.3.Second block holder

Existence of second large shareholder in the firm can also be important for the firm's performance. In the sample of firms from Zagreb Stock Exchange considered here, the mean value of the fraction of equity held by the second owner is more than 12%, making it a potentially important for explanation of firms' performance. If negative effect of the largest shareholder on the value of Tobin's Q is mainly due to the illiquidity issue, the effect of the second large shareholder should also be expected to be negative. The conclusion comes from the fact that in this case free-float is even smaller and liquidity is likely to be even less. However, if the negative coefficient is the result of the largest owner extracting private benefits from the firm, results might be different. If there is a chance for cooperation between the two agents, the private benefits will have to be shared between them and the effect is likely to be small and negative or even insignificant. However, if there is no cooperation, the

second large block holder has a large incentive to monitor the first one and prevent some of the private benefits to be extracted. In order to check for the effect of the existence of the second large block holder in the company I define the variable b2_10, the second block holder, as a dummy variable that takes value 1 if the second owner owns more than 10% of equity and zero otherwise. The results of the regression are shown in Table 9.

Equation (1) includes only two dummy variables which control for the presence of the first and second blockholder, having more than 30% and 10% of equity, respectively. The effect of the first blockholder remains significantly negative; while the coefficient for the second blockholder has no effect on the value of Tobin's Q. Equation (2) includes interaction term which also does not capture any significant effect. In the third equation, after controlling for other variables, the coefficient for the second blockholder becomes positive but still insignificant. The equation in the fourth column also includes the interactions between the dummy variables for the presence of blockholders and the identity of the second blockholder. The reason for including the types of the second blockholder in the interaction terms is that different types of owners have different strength of incentive to monitor. Family is expected to have the strongest incentive to monitor, while state is expected to be the most passive owner. Equation (4) partially confirms the expectations. If the second blockholder is a family, the effect is significantly positive and by its size more than offsets the negative effect of the first blockholder. State and financial institutions as the second blockholders do not affect the value of Tobin's Q.

TABLE 9. FIXED EFFECTS ESTIMATION OF THE EFFECT OF EXISTANCE OF SEDOND BLOCK HOLDER ON TOBINS'Q				
	(1)	(2)	(3)	(4)
B1_30	***-0,202** (0,075)***	***-0,178 (0,122)***	***-0,17** (0,10)***	***-0,241***** ***(0,131)***
B2_10	***-0,06 (0,044)***	***-0,043 (0,076)***	***0,06 (0,08)***	***0,001 (0,006)***
Size			0,21 (0,19)	-0,014 (0,023)
Size^2			-0,03 (0,03)	-0,006 (0,027)
Old			0,47* (0,09)	0,422*** (0,09)
Leverage			-0,67** (0,29)	-0,641** (0,305)
Intan(-1)			0,84 (1,93)	0,889 (1,017)
B1*B2		-0,042 (0,048)	-0,13 (0,19)	
Foreign_20			-0,18 (0,08)	
B1*B2*family_2				0,431*** (0,153)
B1*B2*financ_2				0,074 (0,105)
B1*B2*state_2				-0,028 (0,025)
B1*B2*foreign_2				-0,184* (0,099)
R^2	69	70	71	72
N	446	446	403	403

According to Gugler and Weigand (2003), the large owners affect the performance exogenously. However, management influence can suffer from the endogeneity which is discussed in the following chapter.

5. Endogeneity issue

Large fraction of the empirical evidence on the relationship between the ownership structure and performance assumes ownership is exogenous. However, even since Demsetz(1983) and Demsetz and Lehn(1985) there is an idea that ownership is endogenously determined in the process of balancing advantages and disadvantages of different ownership structures. As shown by Demsetz and Villalonga (2001), endogeneity causes serious problems in estimating the relationship between the two variables and after controlling for the simultaneity between the two, the effect disappeared.

In dealing with this issue, I will consider the study of Gugler and Weigand (2003). They used panel data from Germany and the United States and concluded that managerial ownership is econometrically endogenous. However, large shareholders affect the performance of the firms exogenously. Beyond from being one of the most cited articles on this topic, it is also interesting as it does not use only US data as most authors do. Starting from the legal framework, Croatia is much more similar to Germany than to the US. Moreover, German economy is also characterized by the wide spread existence of the large shareholders. Furthermore, politically influenced privatization process in the early nineties and the following mass privatization are also arguments for the exogeneity of the largest shareholder. For all the stated reasons, the following part of this chapter will try to inspect if the previously found effect of managerial ownership on firm performance in Croatia is affected by the endogeneity.

In order to deal with the endogeneity concerns, Two Stage Least Estimator (2SLS) is used. This instrumental variable estimation will be only reliable if one finds an instrument that is correlated with the potentially endogenous variable and genuinely exogenous to the model. In the case of ownership concentration, it is unusually difficult to come out with such variable.

Himmelberg (1999) argued that stock price volatility is not perfect, but acceptable instrument for the ownership structure. The argument is the following: when the environment is more volatile the cost of monitoring the management is higher, but the potential benefits from doing it are higher as well. On the other hand, when the firm environment is relatively stable shareholders have less difficulty, but also less incentive to monitor the managers. As a result, it is expected that the riskier firms (firm with higher stock price volatility) will have on average higher concentration on ownership. I calculate standard deviation and variance using the daily data on stock prices reported by the Zagreb Stock Exchange. However, this instrument is not correlated with the potentially endogeneous managerial ownership and is therefore excluded as a possible instrumental variable.

Other possibility is to use lagged explanatory variables as instruments for managerial ownership, as suggested and done by Hermalin and Weisbach (1991). Results of the 2SLS regressions of managerial ownership on labor earnings and return on equity, instrumented by the lagged right handside variables, are shown in Table 10. Before discussing result in more details, I would like to emphasize one serious weakness of this estimation. If the main source of the endogeneity are ommited firm characteristics, and further, if they are not constant over time, than the lagged variables will still suffer from the endogeneity issue. However, having in mind given data set and a lack of better instrument, this is almost certainly the best one can do.

The result of the 2SLS confirm the panel estimations that there is no significant relationship between the managerial ownership with ROE or Tobin's Q. However, the effect on labor efficiency survives the endogeneity check and remains negatve and significant on 10% level. Moreover, the effect is even larger than in previous estimations. The squared managerial

ownership is significant only on the 15% level of significance meaning that there is non non-linearity between the two variables.

TABLE 10. IV ESTIMATION OF THE EFFECT OF MANAGERIAL OWNERSHIP ON RETURN ON EQUITY AND LABOR EFFICIENCY			
	RHS: Labor Efficiency	RHS: Return on equity	RHS: Tobin's Q
Manager	**-0,518***	**0,239**	**0,044**
	(0,291)	**(0,253)**	**(0,038)**
Manager^2	**0,111**	**-0,049**	**-0,031**
	(0,071)	**(0,069)**	**(0,052)**
Size	0,538	0,883*	0,111
	(0,522)	(0,548)	(0,115)
Size^2	-0,048	-0,110*	-0,022
	(0,045)	(0,063)	(0,016)
Leverage	-0,364***	-2,968**	-0,688***
	(0,127)	(1,451)	(0,236)
Intan(-1)	0,198	2,574*	0,860
	(0,261)	(1,708)	(0,731)
Foreign_20	0,027	-0,374	-0,159*
	(0,263)	(0,348)	(0,091)
Old	0,601***	0,793	0,449*
	(0,127)	(0,562)	(0,259)
$\mathbf{R^2}$	79%	30%	71%
N	633	634	403

Conclusion

The aim of this study was to identify the potential consequences of the managerial ownership and large blockholders on the performance of Croatian firms listed on Zagreb Stock Exchange. The obtained results can be partially explained by the recent history of Croatia and peculiarities of privatization process.

Presence of the large blockholder decreases the value of Tobin's Q, while having no significant effects on ROE and labor efficiency. This result can be explained in the following way: the powerful owner, in the environment where the small shareholders are not carefully protected by the authorities, will try to extract additional benefits from the firm, at the cost of the small shareholders. This scares away small investors, decreasing the market capitalization of the firm and therefore its Tobin's Q.

Since situation might be different if there is a second relatively large blockholder who can monitor the first blockholder and prevent some of the benefits to be extracted, I separately examine this case. The results of the regression show that if there is a second blockholder in the company, it does not significantly influence the value of Tobin's Q, unless it is a family or individual. Families and individuals have large incentives to monitor and try to prevent the largest shareholder to put his interests in front of the interest of other shareholders since for them it is usually the main source of income (opposed to the state ownership). Therefore, the regressions show large, positive and statistically significant effect of the family-type second blockholder on the value of Tobin's Q.

By accepting the finding of Gugler and Weigand (2003) that large owners affect performance exogenously, while the managerial ownership is endogeneous, in estimating the effect of managerial ownership on performance, I first used cross-sectional and panel analysis, and

then checked for the endogeneity problems by using lagged control variables as an instrumental variables. The regressions show marginally significant negative effect of the managerial ownership on labor efficiency. This result represents the weak confirmation of the „quiet-life“ hypothesis stated by Bertrand and Mullainathan (2003). Once managers are entrenched enough, they prefer to avoid conflicts with labor unions by raising the salaries and not cutting the number of employees. As a result, labor efficiency decreases. Other two observed measures of performance proved to be unaffected by the fraction of equity held by manager.

Although different authors often confirmed the positive effect of the foreign ownership on the firm's performance, the sample from Croatia does not support this view. In all the estimations conducted in this study, the foreign ownership has or negative or insignificant effect on performance. This might be due to the relatively late entry of foreign capital in Croatia due to the war that country was exposed to until 1995. Foreign investment became significantly higher only after 1998, and until that time most of the best firms were already privatized by the domestic investors.

Concerning the control variables, one interesting result was captured. Old firms tend to have on average higher Tobin's Q than those founded after 1991. With the liberalization of the economy during the eighties, these firms had already largely adopted market behavior and entered the transition period more prepared than most of its Eastern European counterparts. Moreover, these firms started their business in the market which was five times larger than the current Croatian market. This fact gives them a big advantage compared to the newly founded firms as they most probably already have a developed brand and networks in the neighboring countries allowing them to spread more easily. Finally, the reason for such result might be the following selection bias: old firms which were not strong enough to survive the transition and

war period went bankrupt. As a consequence, firms listed on the Zagreb Stock Exchange in the observed period might be the group of the best and strongest old firms.

It might be interesting to re-check the results using the richer data set that would allow for inspecting the relationships between the first and second blockholder while controling for the type of both of them. However, this data was the only available at the time this study has been written and the sample is too small and has too little changes in ownership to allow for such an extensive controls leaving it as an obvious future upgrade.

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