Ownership Concentration and Firm Performance on the Romanian RASDAQ Market

By István Szép

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Supervisor: Professor Álmos Telegdy

Abstract

There is a large body of literature that documents the relationship between the degree of ownership concentration and the firm's performance. The results are spread among many opinions. The purpose of this thesis was to determine whether there is any relationship between ownership concentration and firm performance in Romanian firms. I use a complex database, describing 356 firms listed on the Bucharest Stock Exchange – RASDAQ market and I determine that there is a positive relationship between the largest blockholder and firm performance and even more this relationship is concave. Further more, the second largest blockholder has a negative impact on the firm's performance and it is U-shaped.

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Introduction

According to Berle and Means (1932), an inverse relationship between the extent to which a firm is widely-held and its performance should be observed. Since the interests of the management in general do not coincide perfectly with those of owners, they argue that corporate resources are not used entirely in the pursuit of shareholders' profit. After more than four decades, the relationship between ownership and performance is a very much studied topic in corporate governance. Starting from Berle and Means' (1932) argument, recent studies have proven that their findings is not very common, not even in some developed countries and especially not in developing countries (La Porta *et al.*, 1997; Claessens and Djankov, 1999; Earle *et al.*, 2005). A large body of literature shows that in fact large shareholders do control a significant share in enterprises and that the relationship is positive, thus saying that the more concentrated the ownership is, the better the firm performs.

Research on this topic develops the idea that in their activity enterprises need financing from creditors and creditors need to ensure that they will get a return on their investment. This is the classical agency problem described by Shleifer and Vishny (1997), the essence of which being the separation of ownership and control, where ownership goes to the stakeholder but control is in the hands of the manager. The first to document the agency problem were Coase (1937), and Jensen and Meckling (1976).

The pricipal-agent problem appears wherever asymmetric information between the manager and the stakeholder impede the emergence of Pareto efficient outcome, in which the manager maximizes the firms value in the interest of the stakeholders. The efficient outcome does not emerge because asymmetric information will give managers the discretion to act in their own

interests as opposed to the stakeholders' interest. Solutions to this problem is to be found either in managerial incentive schemes which can align incentives, but do so imperfectly (Stiglitz, 2000), or in the fear of managers toward takeovers which could lead to their replacement, also known as "market for managers", or by laws that protect minority shareholders from the majority (La Porta *et al.*, 1998).

As argued by Shleifer and Vishny (1997), where legal protection fails to ensure small investors their control rights, large investors come in. The intuition is that where there are large stakes held in the hands of many small stakeholers with no power of control over the decision taken in a corporation, concerted action or concentration in stakeholding (e.g. large shareholders, takeovers or large creditors) could increase firm performance by better monitoring, partially eliminating asymmetric information. However, they also admit that this bares a high cost and does not come without shortcommings. Thus, large shareholders could turn the advantage to their benefit, small investors or lenders facing the danger of being expropriated. This is the case of a concave relationship when after a certain point when shareholders gain nearly full control prefer to use the firm for private benefits that are not shared with the minority shareholders.

Following this line of reasoning, a huge body of literature exploits this relation between ownership concentration and firm performance, bringing evidence for different countries or group of countries, some of the studies and their results being presented in the chapter reserved for the literature review. However, there is no study that brings evidence on the causality of this relationship concerning Romanian firms, although Telegdy *et al.* (2002) describe the nature of ownership for the firms listed on the Bucharest Stock Exchange (BVB). This is the gap that this thesis will fill. With the help of a database that describes 356 Romanian firms listed on the Bucharest Stock Exchange, Romanian Association of Stock Dealers Automated Quotation (RASDAQ) market, I will show that there is a positive relationship between different measures of ownership concentration and firm.

The remainder of the study is structured as follows. Chapter 1 will summarize the line of research that focused on the relationship between ownership concentration and firm performance as well as the ones that lead to this issue. Chapter 2 will describe the data and the methodology used in defining the relationship between ownership concentration and firm performance in Romania. Chapter 3 shows the results. Chapter 4 concludes.

1. Literature Review

The issue of dispersed ownership and firm performance is one that goes back to Adam Smith. In his famous book "An Inquiry into the Nature and Causes of the Wealth of Nations" (1776) he raises the problem of misalignment of interests when those who control enterprises are "rather of other people's money than of their own". Later, Berle and Means (1932) return to Smith's topic and argue that dispersed ownership will favor those managers whose interests are not aligned with the interest of the shareholders, thus leading to inefficiency, as the firm's resources are not used for the maximization purposes of shareholders' value.

Following them, the literature will break into two directions. The first set of literature expresses its doubt about Berle and Means' findings, as no or negative relationship is to be found between ownership concentration and firm performance. In addition, Demsetz and Lehn (1985) and later Coase (1988) show that the relation is spurious. While they admit the fact that a greater concentration of ownership will increase monitoring, they argue that the structure of ownership is guided by the goal of value maximization varying from firm to firm. Coase (1988) argues that as long as transaction costs are minimal, firms will reach their optimal ownership structure in a market economy¹. However, the problem with this set of literature is that they usually rely on databases from market economies with low transaction costs like the U.S. markets, where usually companies are widely held (Claessens and Djankov, 1999). Claessens and Djankov (1999) argue that because of the characteristics of these markets with low transaction costs the causality of the relationship is not very clear, and because of the importance of the markets these firms are always

¹ This is an adaptation of the already famous Coase Theorem of allocation of property rights, a theorem that states that in the absence of transaction costs, all government allocations of property rights are equally efficient because interested parties will bargain privately to correct any externality. Obstacles to bargaining are often sufficient to prevent this efficient outcome, as is the case with the Easter European privatization schemes.

in the public eye due to attention of analysts, this leading to effective monitoring, whatever the ownership structure might be (Claessens and Djankov, 1999). Further, McConell and Servaes (1990) find no significant effect of the measures of blockholders on Tobin's Q, calculated as the ratio of the market value to the replacement cost of assets, although they will find a positive relationship of different measures and combinations of the insider ownership on Tobin's Q, this relationship being a concave one, the importance decreasing after a certain ownership concentration is reached². Even more, Demsetz and Villalonga (2001) find a negative but insignificant relationship, in this being the first paper to treat ownership concentration as an endogenous variable.

Another set of literature finds a positive relation between the concentration of ownership and firm performance. Shleifer and Vishny (1986) and Zingales (1994) find a positive relationship for the U.S. Fortune 500 listed firms and attribute this to a better monitoring of managerial performance. Further more, Claessens (1997), Weiss and Nikitin (1998) and later Claessens and Djankov (1999) find the same result on a database drawn from the Czech privatization scheme, between concentration and both voucher prices and stock market prices, and between concentration and firm performance and labor productivity. In comparison to the studies dealing with the U.S. market, the Czech privatization scheme's particularity is that that it can deal with the endogeneity problem as Claessens and Djankov (1999) claim. In particular, the choice in the change of ownership was made by the state and the optimal ownership structure was prevented by the rules of the scheme (Claessens and Djankov, 1999).

 $^{^{2}}$ The relation between Q and insider ownership slopes upward until the measure of insider ownership reaches 40-50%, and then the relation shifts, sloping slightly downwards.

In the same direction of reasoning, Xu and Wang (1997) find a positive relationship for Chinese listed companies, Earle and Estrin (1996) find a positive relationship for Russia and among the latest studies. Earle *et al.* (2005) argue that the more concentrated firms listed on the Budapest Stock Exchange are, the better they perform, and Grosfeld (2006) finds a similar result for the Warsaw Stock Exchange.

Finally, there is another type of studies that will find a nonlinear relationship defining ownership concentration and firm performance. Among these I have already mentioned McCornell and Servaes (1990), who find a concave relationship. Further, Morck *et al.* (1988) find a sinusoidal relationship, this increasing at ownership under 5%, decreasing between 5% and 25% and then increasing again. However, the relationship under 5% being statistically insignificant will leave them with a U-shaped curve that describes the relationship. Wruck (1989) looks at the private sales of blocks of equity and finds that the announcement of such a public offering by leading to a change in the ownership concentration will change the valuation of the firm by the market in a way that is dependent on the resulting concentration, thus leading to a nonlinear relationship.

2. Mass privatization and the emergence of RASDAQ

The privatization process in Romania began in 1991 with the so-called "spontaneous" and "pilot" privatization, the later beginning in 1992 (Negrescu, 2000). "Spontaneous privatization" as Negrescu (2000) describes, used two types of venues, *joint ventures* between state-owned enterprises (SOE's) and foreign or domestic firms, and the outright share *capital increases* of the SOE, fully subscribed by private investors (usually, insiders). On the basis of the "pilot privatization", a list of 32 companies was drawn up to be privatized on a case-by-case basis. "On the face of it, this "pilot" failed in terms of achievements (only 22 companies could be privatized, most of which through sales to their employees)" (Negrescu 2000:28).

In the years before the MPP, two kinds of entities were born according to Law 15 of 1990³. These were the *commercial enterprises* and the *regii autonome*. The first category included the joint-stock and limited liability companies eligible for the privatization process and the second consisted of the enterprises considered by the government as operating in the strategic branches of the economy (e.g. mining and natural gas, armament, posts and railway transportation, energy and many others)⁴. Further more, the *commercial enterprises* were split 70-30 between the State Ownership Fund (SOF or *FPS*) and one of the five Private Ownership Funds (POFs or *FPP-uri*), later on SIF (*Societate de Investiții Financiare* – Financial Investment Companies). SOF was managing the state's assets in the name of the state and the POFs were supposed to manage the vouchers distributed to Romanian citizens.

³ Law no. 15 of 31 July 1990, published in *Monitorul Oficial* no. 98/1990, governs the reorganization of state-owned enterprises as autonomously administered concerns and specifies the procedures for privatization and creation of privately held business associations.

⁴ More about the description of these and the way they contributed to the privatization scheme in Negrescu (2000) and Telegdy (2002).

The privatization process in Romania began in its real sense in 1994 when nominal ownership coupons were distributed to citizens older than 18 years such that these coupons could be exchanged against shares in state-owned firms, a program called the Mass Privatization Program (MPP). This came as a need for new dynamics in the privatization (Negrescu, 2000).

The MPP was legally set up by the Law on Acceleration of Privatization no. 55 of 1995. The way the program was designed was that it separated the number of firms offered to privatization (about 4,800) into two categories according to the percentage that was about to be offered, 49 and 60 percent respectively. The new coupons were freely distributed through postal services, at a face value of ROL 975,000.

Usually, MPP's result in a very dispersed ownership concentration, although the whole idea of mass privatization is that after it has happened, institutional settings should lead toward a concentration of property rights in the firm. However, because of the specificity of the Romanian privatization this was not the case. Because of the law forbidding the trade of coupons and the establishment of financial intermediaries, the emergence of blockholders was prevented, the state being the majority holder. Further more, two more reasons contributed to preventing blockholders to emerge, as pointed out by Telegdy (2002). First, only a fraction of the initial commercial firms included in the privatization program were included in the MPP, leaving the rest in the hand of the state and the POF's, which were doubtfully managing the property rights in the name of the citizens⁵. Second, in the case of an over-subscription the number of shares distributed was proportionally allocated, or *pro rata*. However, in the case of under-subscription, the same method was not applied, but the number of shares demanded was allocated. This has

⁵ For further debate on this issue read Earle and Telegdy (1998).

lead to an even more dispersed ownership than initially planed with one controlling owner, the state.

For the purpose of this study, MPP offers an excellent opportunity to treat our variable of interest as endogenous from this respect. As mentioned before, studies that deal with concentration and performance in developed countries find it difficult to treat endogeneity, as the direction of causality is spurious. In our case, as the split between the SOF and POF's was decided by the state and then the percentage offered for privatization as well, and also as coupons were non-tradable, I can partially reject the hypothesis that the concentration of ownership has adjusted to the characteristics of the firm. Because the RASDAQ market has picked up during the past few years, transaction costs have decreased a lot as liquidity increased, thus questioning the direction of causality between concentrated ownership and firm performance.

Although not desired in the beginning, the emergence of an institutional setting that would permit trading of the dispersed property rights did emerge eventually. After the reopening of the Bucharest Stock Exchange (BSE) in April 21, 1995, which had been closed down for more than 50 years during the communist regime, on September 27, 1996 a second exchange was founded with the help of more than \$20 million from the U.S. Government, in order to "modernize" the local stock market. Designed after the American market, The Romanian Association of Securities Dealers Automated Quotation (RASDAQ) started trading in 1996 and was set up primarily for the trading of stocks distributed through the Mass Privatization Program. RASDAQ is a quote driven over-the-counter (OTC), electronic–based stock market, which

quotes firms that are not quoted on BVB and are approved by NSC (National Securities Commission) and by the Romanian Brokers' Association (RBA)⁶.

Because companies listed on RASDAQ are products of the mass privatization, at the beginning of the market in 1996 there were more than 5,000 listed companies, this making it one of the biggest markets in the region. However, because of the particularities of the Romanian market and the transition process in general, until recently only a small number of the companies listed were frequently traded. This and the low quality of the companies quoted, most of which existed only on paper (Negrescu, 2000), has led to a lower development rate of this market than compared to that of the BSE. For the years to come a cleaning of the listed companies has been done such that today about 3,000 companies are listed. Further more, an increasing interest in the market has increased the exchange's capitalization from \$1.8 billion in 2002 to \$2.4 billion in 2003 and has helped RASDAQ to surpass the Bucharest Stock Exchange in annual turnover by the end of the year 2000. In 2003, brokers and dealers in Romania adopted, for the first time, a common development strategy of the two exchanges, leading to the merger of the two stock exchanges in December 2005 under the patronage of the Bucharest Stock Exchange, having two markets, BVB market and RASDAQ market. During the last few years, the companies traded on the RASDAQ market were among the most popular ones among investors, this being reflected in the main market indices shown in Graph 1. As already mentioned, this could affect our exogeneity assumption.

Thus, the RASDAQ market offers me the possibility to study ownership concentration and its relation to firm performance on the firms that were offered in the MPP.

⁶ Formerly known as ANSVM.

3. Data and methodology

I use a complex database consisting of 356 firms listed on the Bucharest Stock Exchange which I merged from three different sources. The first one, data on ownership, consists of the ownership structure at given points in time, denoted by t, by the percentage holdings of major owners from 1997 until 2007. This database was obtained from the Bucharest Stock Exchange (BVB). Because it springs from many sources, these being many independent registries, and because in Romania there is no law that compels firms or registries to disclose their final ownership structure⁷, there is no clear-cut date in a year to report this kind of data, being up to each registry to decide when it wants to mark down the ownership structure⁸. Therefore, wherever this is the case, I consider the latest structure in a given year as the representative structure for that year, taking into consideration the fact that the balance sheet data refer to the last day of the year.

This is the database that has more or less determined the size of the database⁹. To filter BVB's database, firms with more than 4 observations¹⁰ were chosen, eliminating the ones that were less active on the equity market. Further more, owners with less than 5% are not considered important owners and thus are recorded as owning 0 percent. As I am interested in concentration, the free-floating portion of ownership does not have enough monitoring power to influence firm

⁷ Although as in any developed financial market, there is the disclosure rule, which obliges owners that own more that 5% to disclose all transactions in that particular firm.

⁸ Because of this there are firms that have no ownership structures in some years and there are firms that have more observations in the same year. However, from discussions with the stock exchange I have been informed that each registry has its own reason to report and it does not depend on anything that could bias the estimators.

⁹ Because of different reasons for which the officials from BVB did not want to disclose their entire database of ownership consisting of more than 5000 firms, I had the option to filter the whole sample.

¹⁰ By observations I understand the ownership structure for a given firm at a given point in time.

performance. As is common in the financial world, the current regulation in Romania which has been in place since 1996, states that:

"Any person who, acting directly or indirectly, severally or in concert and in connection with third parties, acquires or holds and under the provisions hereof becomes the holder or the owner of some shares bearing voting rights, or of some securities conferring rights to such shares which, cumulatively, represent 5% or more of the total voting rights of the respective issuer ... shall notify the National Securities Commission and, if the securities are listed on a Stock Exchange, shall also inform the respective Stock Ex change, within 2 days of the date of the conclusion of the transaction." (Law 52 of 1994, Art. 88.).

Following this, persons acting in concert and owning more than 5% were also categorized in the category of large shareholders.

The second database contains balance sheets for the given firms from 1996 until 2005, this being extracted from the financial statements associated with tax reporting to the Ministry of Finance. The information that I need from this is for the determination of the profitability indicators for each firm. Which account exactly is needed and the way they are used for our calculations will be discussed later on.

Finally, the third database is the privatization scheme data for 1996, and it contains all the 4,803 firms that were included in the MPP. This database shows for each firm how much was offered in the mass privatization process, mostly containing the two 49-60 percent categories described in the mass privatization section. As a consequence of the characteristics of the mass-

privatization the percent offered is considered as widely-held. Because this is the database that will show the initial ownership structure, or ownership structure at time t=0, all the 356 the firms are the result of the mass privatization¹¹. This truncating effect¹² of the database actually helps us partially get rid of the endogeneity that could characterize the database in the way described previously. Because some of the firms were delisted beginning with 2001-2002 and some have had missing data in their balance sheet, I dropped them out to form a balanced panel data of 356 firms.

The measures of concentration that are going to be used follow the literature in ownership concentration, with minor adaptations to the Romanian market. Thus, the first measure will be denoted by P_1 , and it will show the percentage that the biggest blockholder owns. This measure can take values of 0, if there is no blockholder that owns more than 5% of the firm¹³, or any value between 5% and 100%. Similarly, further concentration measures will include P_2 and P_3 , which denote the second and the third largest owners' holdings, respectively. The reason why I stop at the third owner is that there are very few firms that have more than 3 owners, and using them would not result in any significant outcome¹⁴. Further more, another set of indicators for ownership concentration will be the sum of the P's. More precisely, I am going to use the sum of the first two owners, denoted by S_2 , and the sum of the first three owners, denoted by S_3 . Other works include further measures of the same kind, using more owners. But for the same rationale as before I am not able to use more that the first three. However, I do use a measure of all

¹¹ When the two databases (ownership structure and privatization process) were merged, only 580 of the initial 680 were found in the MPP database.

¹² Initially there were 668 firms but only 580 of them participated in the mass privatization process

¹³ As described above, we are only looking at the shareholders that own more than 5% of the firm.

¹⁴ The mean and median for the forth and the fifth are very close to the third variable and out of the initial 2946 observations, only 686 and 253 have a forth and a fifth owner respectively.

blockholders (S_{all}), which, taking into consideration the circumstances will not be different from those.

A first notice about the summary statistics in Table 1 show that the minimum value for the first owner's holding is 0, thus concluding that there are firms that are completely widely held, which is not a typical pattern for the East European countries (Faccio and Lang, 2002). The mean largest blockholder owns 52.29 percent of the firm, with a median of 49.97 percent, concluding that the median firm is controlled by a single large shareholder. The second and third largest shareholders own approximately 7.3 and 0.7 percent of the firm at the mean, contradicting the view that the largest blockholder would like to block other shareholders from gaining power in a firm (Jeffrey Zwiebel, 1995). These measures are lower than those reported by Claessens and Djankov (1999) for the Czech Republic and Earle *et al.* (2005) for Hungary. Claessens and Djankov (1999) report a mean of 68.4 percent for the top five investors for the year 1997, Earle *et al.* (2005) report a mean of 60.9 percent of the sum of blockholders for the years 1999-2000, while my measures for the year 2000 are 57.4 percent at the mean for the sum of all blockholders.

What is also immediately noticeable is the fact that the standard deviation for Romanian firms in our database is also higher than for the Czech Republic or for Hungary. Further, Telegdy *et al.* (2002) report a mean of 69.5 percent ownership for the sum of blockholders for the Romanian firms listed on the Romanian Stock Exchange (BVB market) for the year 2000, which is significantly higher than ours (RASDAQ market). Telegdy *et al.* (2002) also report for the year 2000 the mean largest blockholder as owning 53.4 percent and a median of 53, among the sample of 115 firms listed, while in my sample of 356 firms listed on the RASDAQ market, the mean is 49.3 percent, which is slightly lower, and a median of 40.0.

Further more, our measures for firm performance include return on assets (*ROA*) and labor productivity (*LP*). *ROA* is calculated as a ratio between the net income and total assets and as a percentage it shows how profitable the company's assets are in generating revenue. *LP* is the ratio of turnover to average number of employees in a given year, also known as average product of labor because of the way that it is calculated, and it shows the quantitative gain that one worker can produce. Because this measure will not be comparable through time, as not both factors that compose it are comparable in time, I deflate turnover with year-on-year Consumer Price Index (CPI)¹⁵ where year 2005 is taken as a reference year. Producer Prices Index (PPI) would have been a more appropriate measure, but due to data unavailability CPI is being used. Because it is normal that different sectors of activity have different productivities, I would like to differentiate among sectors. Table 2 shows that on average, in agriculture, industry and trade labor productivity is higher, while *ROA* is higher in construction and low in agriculture. Thus it makes sense to differentiate among sectors of activity in our future regressions, as both *ROA*'s and *LP*'s distribution varies between the sectors.

Table 3 describes the ownership concentration differentiated for years. We can immediately spot that there has been an increase in the concentration of ownership since the MPP took place until 2005. Thus, the mean largest shareholder increased from 44.5 percent in 1996 to 62.6 and the mean sum of all blockholders increased from 44.5 to 80.8 percents.

It is very common in the literature of concentration ownership – firm performance relation to use another measure of performance, namely Tobin's Q, calculated as the ratio of market value to replacement cost of assets. This however, as already pointed out by Earle *et al.* (2005) would

¹⁵ Deflating ratios are obtained from the Romanian Statistical Office.

be inappropriate in our case, as the market value of the firms (i.e. share prices) listed on the Romanian Stock Exchange, be it BVB or RASDAQ, does not reflect the real value of the firm, especially in the first couple of years of exchange in Romania both because of low volume of trading and because of other speculative factors¹⁶.

For our purposes in studying the effect of ownership concentration on the performance of firms I will use the change in performance calculated as the first difference for *ROA* (*ROA*_{*t*}-*ROA*_{*t*}. *t*), and as log-difference for labor productivity ($\log(LP_t/LP_{t-1})$). These measures will tell what the growth in performance was, from the beginning until the end of the year. They are commonly used as performance measures and in the context of my study, they will show at a given ownership structure the growth in performance. Table 4 shows the statistics of performance for the Romanian firms and reveals a high level of differentiation between firms concerning performance. Thus, we can spot a clear upward trend in labor productivity, although the *ROA* remains at roughly the same level, meaning that either performance did not increase along the years, which is not so plausible, or the *ROA* indicator has shortcomings in its power to capture performance. In the same table we can also notice that the initial average employment level of 905 employees in 1996 is decreasing significantly to 488 in 2001 and to 283 in 2005. This is an interesting result showing the effects of firm restructuring.

In order to determine the relationship between ownership concentration and firm performance on the RASDAQ market of the Bucharest Stock Exchange, I am going to employ the following estimation using basic static panel model:

CEU eTD Collection

¹⁶ This is not the topic of this study, but for further reference read Negrescu (2002).

 $\Delta performance_{it} = \alpha_1 + \alpha_2 \ performance_{it-1} + \alpha_3 \ concentration_{it} + \alpha_4 \ employment_{it-1} + \Sigma \alpha_i$ $year \ dummies + \Sigma \ \alpha_i \ cross-section \ dummies + \alpha_5 \ state \ dummy + \alpha_6 \ PAS \ dummy + \varepsilon_{it}$ (1)

Performance is one of the two measures of firm performance as mentioned above and *concentration* is the measure for ownership concentration. For the measure of concentration, I use the described concentration measures (P_1 , P_2 , P_3 , S_2 , S_3 , S_{all}) and I also include the squared value of P_1 . The intuition behind it is that the first owner after reaching a certain threshold will have too much control and will start using the firm for its own benefit, other than that of value maximization, hurting the performance of the firm. Further more, I am using the lagged value of performance, as this clearly influences our indicator of the change in performance and not using it, might bias our estimates, a usual measure in the literature that studies this relationship (Gutierrez and Tribo, 2003; Earle *et al.*, 2005). When regressions are run without, R^2 decreases significantly and the some of the coefficients become less significant. In order to control for the size of the firm, as a proxy I use the average employment over a year's period.

Also, I include firm (cross-section) fixed effects that will eliminate any particularity that might be permanent and not changing across years within a firm, and which could bias our estimates. These kinds of effects might be a better geographical location, or a better economic environment. And because there might be some external factors that might be affecting firms in the same industry equally, I also include period (year) fixed effects. The intuition behind is that for example all export firms might be influenced by a favorable euro market or import firms might be favored by the lower exchange rate during one year, this biasing our estimates. The period effects will clear out all this kind of differences. The presence of fixed effects is confirmed by the redundancy tests, by rejecting the null that the year dummies and the cross-section dummies respectively are jointly redundant. Thus, it makes no sense to use regular OLS coefficient estimates as these will be biased.

And last I also include the *state dummy* and the *PAS dummy* which is 1 if the state or PAS (Program for Shareholder – Employees) respectively is the largest owner in the firm and 0 otherwise. PAS was a program that set up the employees' association, which obtained the ownership rights of the firm for the repayment period of the loan received for buying the firm's shares. This ensured the concentration of the ownership of insiders, which may greatly influence the behavior of the firm (Telegdy, 2002). Intuitively, where it happens that the state is the largest owner, the firm's performance should decrease as the state is a bad owner and same intuition works for PAS also. Not including a measure of control for them might bias our estimators due to heterogeneity. Because of the way that the data is structured, it is difficult to identify foreign owners. One can argue that this is a drawback as foreign ownership is proven to have a positive effect on performance (Claessens and Djankov, 1999 and Brown *et al.*, 2006).

4. **Results**

First of all I test for fixed effect through the redundancy tests and I get that there are cross-section and year fixed effects at a 1% significance level¹⁷. By running an OLS regression of the year dummies on the dependent variables I obtain that beginning with year 2000 the dummies are significant, which means that there is a period effect and our prediction was right. Even more, the coefficients are positive (Table 12) which means that a favorable economic environment and economic growth had helped in firms' performance, or it might be that the effects of the success in policy making of the Romanian government¹⁸ started to be reflected in the balance sheets of the firms. In order to see the difference between regular OLS estimation and fixed effect estimation we can look at Table 5 which makes a comparison estimated for the whole sample. Coefficients estimated with OLS are not significant and R^2 is low.

Table 6 shows results from the fixed-effect OLS estimation including the entire sample for the two performance measures and for the different measures for concentration. The largest blockholder is estimated to have a positive, statistically significant impact on both the firm's returns and its labor productivity. Even more, the squared terms are negative in sign and significant. Thus, I can approve the fact that the relationship is positive and that after a certain threshold is reached this relation becomes negative describing a concave function. The second owner will have a negative significant impact, which means that as the second largest blockholder increases in power, she tends not to cooperate with the largest blockholder, a result that confirms those of Earle *et al.* (2005) for the Hungarian market. However, this tends not to be

¹⁷ Hausman test for random effects is also been carried out and it rejects the possibility of having random effects at a 1% significance level.

¹⁸ The successes in reforming the Romanian economy started in 1998-1999.

the case once she acquired enough power. As the coefficient of the squared term of the second largest blockholder is positive I conclude that the relationship is U-shaped and that after accumulating enough power in the firm she will monitor the first blockholder and the firm will perform better. The third owner has a positive effect on labor productivity showing that if the third owner has reached enough power, than it must be that she will use this power to improve firm performance. However, in the case of *ROA* it is not significant. In Table 7 we can see the results for all the coefficients in the regression for the whole sample. The proof that the state and PAS are bad owners is shown by the significant negative coefficients.

Table 11 shows the group holdings equations, thus we can see the estimated effects for S_2 , S_3 and S_{all} . These coefficients are not significant except of the sum of the first two and first three blockholders for the *ROA* equation. As the standard errors are small, this could only mean that because of the opposite signs that the first two shareholders individually have, they will offset each other, making the outcome uncertain.

Table 8 shows the results for industrial activity. The results confirm that the more the first blockholder will own leads to higher labor productivity for the industrial firm. We can observe that the largest owner coefficients are significant in the productivity case until we introduce the third owner. As afterwards the standard errors increase it means that it induces noise in our equation. The findings are the same as those described for the whole sample for labor productivity, although the *S*'s (Table 9) are not significant as mentioned before. Furthermore, Table 9 will show results for the constructing sector. These results also strengthen the argument brought before although coefficients are a little less significant. A noticeable difference is the fact

that the coefficients are significantly higher as in industry, thus owners in construction affect firm performance more than other sectors.

For the trading sector (Table 10) I get insignificant results except for the second owner that confirms the same pattern as industry. As for the sum of blockholdings, due to insignificant coefficients the relationship is undetermined. Insignificant estimates dominate the services sector and agriculture (not depicted in tables), thus I cannot determine the characteristics of the relationship in this sector. These insignificant coefficients might be the result of small number of firms from the database that activate in this sectors.

Before drawing conclusions, there are a few interesting outcomes that result from my regressions, these being the fact the state also always enters with negative sign, confirming the fact that the state is a bad owner and under the same intuition firms that have PAS as the largest blockholder also perform on average worse.

Concluding remarks

The purpose of this study was to determine whether there is any relationship between ownership concentration and firm performance. Research in the field has brought evidence that sometimes contradict each other or that don't find any correlation. I used a complex database, describing 356 firms listed on the Bucharest Stock Exchange – RASDAQ market and I determined that there is a positive relationship between the largest blockholder and firm performance and even more this relationship is concave. Further more, the second largest blockholder has a negative impact on the firm's performance and it is U-shaped.

Thus, this finding enriches the literature that studies the relationship between ownership structures and firm performance by saying that the second largest blockholder not only that diminishes the performance of the firm by entering into conflict with the largest blockholder, but after obtaining a certain level of power in the firm she actually improves the performance of the firm by monitoring the largest blockholder. Also, the third largest blockholder has a positive impact on the performance of the firm, due to the same monitoring effect. Studies on this topic so far, either found that the second and third blockholders have a negative impact or that the first few blockholders cooperate to increase profitability (Claessens and Djankov, 1999; Earle *et al.*, 2005).

For the alternative measure of profitability, *ROA*, usually the evidence is weaker. This might reflect the fact that *ROA* is not a desirable firm performance indicator. As concerning the alternative measure for ownership concentration, the group of blockholders, my evidence among Romanian firms does not support the views that it increases firm performance.

Next to the main question that this study answers, I also found some interesting result that worth being mentioned. First, we can observe that average employment decreases through the years, showing the results of restructuring in Romanian firms. Second, the state and PAS also have always negative sign and is almost all the time significant, confirming the disability of the state to run businesses. And finally, year dummies reveal a positive effect starting with the year 2000 that can be attributed to a better economic environment like the effects of the better policy making by the Romanian government that started to reflect in the balance sheets.

Further I will recognize some problems that could affect my study. First, although I am controlling for the case when the state and PAS is the largest owner, the way that the database is set up makes the recognition of foreign owners difficult. One can argue that this is a drawback as foreign ownership is proven to have a positive effect on performance (Claessens and Djankov, 1999 and Brown et al., 2006). Second, as already mentioned before, the standard deviations are higher that simmilar samples from eighbouring countries, this affecting our estimators. Third, the fact that I used CPI for deflation instead of PPI which is different for each sector can also affect the measure on productivity. Forth, as I got weaker evidence on the returns of the firm, one can question the validity of the indicator. The truth is that because of the way ROA is calculated, including accounting profit, it can be influenced by the will to diminish the tax duty. And finally, although at the beginning the variables of the concentration of ownership can be trated as exogenous because the state chose ownership structures in the privatization process and because the low number of transaction the transaction cost were high, during the last years, RASDAO market became a liquid market, raising worries about the validity of the statement that the ownership concentration variables are still exogenous.

In this study I showed that some of the relations that concern ownership concentration and firm performance are concave or convex. Further research can look deeper into this correlation by identifying and modeling the thresholds where the relationship changes its sign as well as the relations between the first and second or third owners.

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Appendix



Graph 1. Market indices (source: Vanguard SA)

Table 1. Descriptive statistics of ownership concentration (in %)

	P_1	P_2	P_3	S_1	S_2	S_{all}
Mean	52.29%	7.33%	0.69%	44.18%	44.80%	61.65%
Median	49.97%	0.00%	0.00%	40.00%	40.00%	51.00%
Maximum	99.69%	47.86%	28.20%	100.00%	100.00%	100.00%
Minimum	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Std. Dev.	17.75%	11.73%	3.38%	34.17%	34.73%	22.38%

Note: number of firms is 356, number of years is 10

Table 2. Descriptive statistics of firm performance per activity sector (in %)

	Agricu	lture	Indus	try	Constru	ection	Comme	erce	Servi	ces	All	
	<i>LP ROA</i> 526713 0.00		LP	LP ROA LP		ROA	LP	ROA	LP	ROA	LP	ROA
Mean	526713	0.00	620223	0.04	483259	0.07	792421	0.03	452342	0.03	640986	0.04
Median	344973	0.03	382110	0.04	367269	0.05	487943	0.02	303058	0.02	400071	0.03
Std. Dev.	802835	0.26	943747	0.19	572325	0.14	1046634	0.13	539787	0.15	927563	0.17
Firms	16		190)	35		97		18		356	б

Note: number of firms is 356, number of years is 10

		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
	Mean	44.5%	44.5%	44.5%	44.9%	49.3%	54.6%	57.8%	59.4%	60.6%	62.6%
<i>P1</i>	Median	40.0%	40.0%	40.0%	40.0%	40.0%	51.0%	57.7%	60.7%	61.2%	65.3%
	St. dev	7.7%	7.8%	7.8%	8.6%	14.3%	18.6%	21.2%	21.6%	21.3%	21.8%
	Mean	0.0%	0.0%	0.0%	0.4%	6.5%	10.0%	15.1%	13.9%	13.9%	13.4%
P2	Median	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.5%	12.3%	12.0%	12.3%
	St. dev	0.0%	0.5%	0.5%	3.1%	11.8%	13.0%	13.2%	12.7%	12.9%	12.6%
	Mean	0.0%	0.0%	0.0%	0.0%	0.7%	1.1%	1.1%	1.3%	1.1%	1.6%
<i>P3</i>	Median	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	St. dev	0.0%	0.0%	0.0%	0.9%	3.3%	4.3%	4.2%	4.6%	4.2%	5.0%
	Mean	24.3%	24.6%	24.3%	25.7%	42.9%	51.4%	69.1%	51.7%	51.8%	76.0%
<i>S2</i>	Median	40.0%	40.0%	40.0%	40.0%	40.0%	53.5%	76.3%	63.9%	64.4%	82.2%
	St. dev	23.2%	23.4%	23.2%	24.5%	32.5%	33.8%	26.3%	37.8%	38.3%	19.3%
	Mean	24.3%	24.6%	24.3%	25.8%	43.6%	52.3%	70.2%	52.7%	52.4%	77.7%
<i>S3</i>	Median	40.0%	40.0%	40.0%	40.0%	40.0%	53.5%	78.4%	65.7%	65.5%	84.3%
	St. dev	23.2%	23.4%	23.2%	24.6%	33.3%	34.6%	26.5%	38.4%	38.7%	19.0%
	Moon	ction	11 60/	11 60/	15 10/	57 40/	67 60/	76 70/	77 10/	78 00/	<u>00 00/</u>
Sall	Modion	$\frac{944.3\%}{10}$	44.0%	44.0%	45.4%	51.00/	07.0%	/0./% 02 70/	//.1%0 0/ 10/	70.0% 85.20/	00.0 <i>%</i> 0
Suit	St. dev	97.7%	40.0% 7.9%	40.0% 7.9%	40.0% 9.9%	21.0%	22.3%	83.7% 20.3%	04.1% 20.4%	83.2% 19.4%	80.0% 17.1%

Table 3. Descriptive statistics of ownership concentration in different years (in %)

Note: number of firms per year is 356

		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
				-,,, •							
ROA	Mean Median	0.06 0.04	0.09 0.07	0.06 0.04	0.03 0.02	0.03 0.03	0.03 0.03	0.01 0.02	0.01 0.03	0.01 0.04	0.01 0.03
	Std. Dev.	0.08	0.12	0.11	0.14	0.14	0.13	0.17	0.19	0.23	0.30
growth in ROA	Mean Median Std. Dev.		0.03 0.01 0.08	-0.04 -0.02 0.10	-0.02 -0.02 0.11	0.00 0.00 0.14	0.00 0.00 0.12	-0.03 -0.01 0.14	0.00 0.00 0.19	0.00 0.00 0.23	0.00 -0.01 0.37
LP	Mean Median Std. Dev.	680746 408089 924217	581156 342199 1126860	453469 319396 474705	476832 343098 435256	560559 380828 714531	595159 404908 618075	637690 444907 660658	687398 437893 734604	869255 513319 1221817	867594 496058 1594760
growth in LP	Mean Median Std. Dev.		-0.19 -0.18 0.29	-0.13 -0.12 0.28	0.08 0.03 0.38	0.10 0.07 0.37	0.07 0.07 0.32	0.05 0.04 0.38	0.04 0.04 0.42	0.12 0.11 0.49	0.00 -0.02 0.51
average employment	Mean Median Std. ^{uij} Dev. ^{olo}	984 461 1567	903 421 1482	774 391 1296	639 306 1067	545 234 936	508 217 903	448 202 778	393 178 616	362 172 585	312 159 487
Note: number of t	firms persyea	ar is 356									

Table 4. Descriptive statistics of firm performance (in %)

Table 5. Estimation	of ownership	concentration or	n firm	performance,	different methods
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for entire sample

		log(L	P_t/LP_{t-1}			ROA_t - ROA_{t-1}						
	D ²	coefficient	D ²	- D	R^2	_	D	D ²	coefficient	D ²		R^2
P_{l}	P_1^-	P_2	P_2^{-}	P_3			P_1	P_1^-	P_2	P_2^-	P_3	
0.204 (0.206)	-0.137 (0.177)	-0.170 (0.203)	0.581 (0.556)	0.683 (0.206)	0.0815	OLS	0.085 (0.088)	-0.141* (0.076)	-0.130 (0.087)	-0.022 (0.238)	0.064 (0.089)	0.2094
0.381** (0.201)	-0.344* (0.197)	-0.457** (0.190)	0.958** (0.434)	0.642* (0.358)	0.2937	FE	0.152** (0.073)	-0.125** (0.056)	-0.083** (0.037)	-0.052 (0.152)	0.183 (0.140)	0.3650
		coefficient	÷						coefficie	ent		
$\overline{S_2}$	2	S ₃		Sall				S_I	S_2		Sa	11
0.0 (0.0	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			0.070 (0.037)		OLS	-0.0 ((037*** 0.009)	-0.036* (0.009	***))	-0.070 (0.0	5*** 16)
-0.01 (0.0.	-0.011** -0.004 (0.025) (0.024)			0.006 (0.038)		FE	0.0 (()25***).009)	-0.023 (0.010	**))	0.0 (0.0	04 25)

Regressions are estimated with fixed effects, variables included are lagged performance, lagged employment, state dummy and PAS dummy. Robust standard errors in parenthesis. *** significant at the 1% Evel, ** significant at the 5% level, * significant at the 10% level

		log(LP_t/LP_{t-1})				1	ROA_t - ROA_{t-1}			
		coefficient		R^2				coefficient			R^2
P_1	P_1^2	P_2	P_{2}^{2}	P_{3}		P_1	P_1^2	P_2	P_2^2	P_3	
-0.025 (0.041)					0.2912	0.017 (0.018)					0.3631
0.263 (0.187)	-0.253 (0.186)				0.2916	0.069 (0.091)	-0.045 (0.069)				0.3632
-0.033 (0.038)		-0.042 (0.049)			0.2913	0.006 (0.023)		-0.070 (0.044)			0.3640
0.341* (0.198)	-0.334* (0.197)	-0.091* (0. 052)			0.2918	0.144** (0.073)	-0.123** (0.056)	-0.089** (0.043)			0.3643
0.347* (0.201)	-0.337* (0.199)	-0.316* (0.165)	0.662* (0.382)		0.2921	0.143** (0.074)	-0.123** (0. 056)	-0.043 (0.038)	-0.136 (0.178)		0.3643
0.381** (0.201)	-0.344* (0.197)	-0.457** (0.190)	0.958** (0.434)	0.642* (0.358)	0.2937	0.152** (0.073)	-0.125** (0.056)	-0.083** (0.037)	-0.052 (0.152)	0.183 (0.140)	0.3650

Table 6. Estimation of ownership concentration on firm performance, individual blockholders *For the whole sample*

Number of observation is 3560. Regressions are estimated with fixed effects, variables included are lagged performance, employment state dummy and PAS dummy. Robust standard errors in parenthesis.

*** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level

FE	estimation		$log(LP_t/LP_{t-1})$											
	log(LP _{t-1})	P_1	P_{I}^{2}	P_2	P_{2}^{2}	P_3	empl	state	PAS	\mathbb{R}^2				
	-0.413*** (0.054)	0.381** (0.201)	-0.344* (0.197)	-0.457** (0.190)	0.959** (0.434)	0.642* (0.358)	0.642*** (0.358)	-0.125*** (0.026)	-0.089*** (0.016)	0.294				
FE	estimation				ROA _t -ROA	-t-1								
	log(LP _{t-1})	P_{I}	P_1^2	P_2	P_{2}^{2}	P_3	empl	state	PAS	\mathbb{R}^2				
	-0.884*** (0.085)	0.152** (0.072)	-0.125** (0.056)	-0.082** (0.037)	-0.051* (0.152)	0.183 (0.140)	0.000 (0.000)	-0.052*** (0.017)	-0.037** (0.016)	0.365				
FE	estimation		log(LP _t /I	LP_{t-1})				ROA _t -ROA	A _{t-1}					
	S_2	S_3	S _{all}	R^2		S_2	S_3	S_{all}	R^2					
	-0.412 (0.055)	-0.004** (0.024)	0.006* (0.038)	0.291		-0.026*** (0.009)	-0.023** (0.010)	0.005 (0.025)	0.363					

Table 7. Estimation of ownership concentration on firm performance, entire equation

Number of observation is \$560 (all sample). Robust standard errors in parenthesis. *** significant at the 1% Evel, ** significant at the 5% level, * significant at the 10% level

Table 8. Estimation of ownership concentration on firm performance, individual blockholders For industry

		log	(LP_t/LP_{t-1})				ŀ	ROA_t - ROA_t -	!		
		coefficient		-	R^2			coefficient			R^2
P_1	P_1^2	P_2	P_{2}^{2}	P_3	-	P_1	P_1^2	P_2	P_{2}^{2}	P_{3}	-
-0.004* (0.057)					0.3719	-0.034 (0.062)					0.2859
0.086 (0.101)	-0.079 (0.084)				0.3721	0.118 (0.278)	-0.133 (0.279)				0.2865
-0.024 (0.030)		-0.135** (0.061)			0.3743	-0.039 (0.063)		-0.030 (0.069)			0.2864
0.214*** (0.069)	-0.213*** (0.053)	-0.169*** (0.055)			0.3753	0.161 (0.294)	-0.179 (0.300)	-0.058 (0.077)			0.2866
0.218*** (0.068)	-0.215*** (0.050)	-0.204* (0.124) 5	0.103 (0.295)		0.3754	0.213 (0.308)	-0.214 (0.206)	-0.531* (0.298)	1.393* (0.810)		0.2876
0.427 (0.344)	-0.251 (0.325)	-0.902*** OD -0.902*** (0.223)	2.287*** (0.606)	0.958*** (0.370)	0.2973	0.260*** (0.050)	-0.247*** (0.045)	-0.282 (0.183)	0.377 (0.322)	0.084 (0.249)	0.3650

Number of observation is 1710 and 190 firms. Regressions are estimated with fixed effects, variables included are lagged performance, employment, state dummy and PAS dummy. Robust standard errors in parenthesis. *** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level

		log(.	LP_t/LP_{t-1})					ROA_t - ROA_{t-1}			
		coefficient			R^2		<i>c</i>		coefficient		R^2
P_1	P_1^2	P_2	P_2^2	<i>P</i> ₃		P_{I}	P_1^2	P_2	P_{2}^{2}	<i>P</i> ₃	
-0.004 (0.155)					0.3036	0.026 (0.071)					0.4878
1.350* (0.732)	-1.259* (0.781)				0.3105	0.447** (0.214)	-0.390** (0.187)				0.4916
0.056 (0.159)		0.389** (0.197)			0.3091	0.054 (0.075)		0.167*** (0.062)			0.4933
1.156* (0.691)	-1.037 (0.746)	0.294* (0.161)			0.3134	0.348* (0.212)	-0.276 (0.186)	0.138** (0.061)			0.4951
1.064 (0.752)	-0.979 (0.789)	-0.162 (0.565)	1.269 (1.487)		0.3147	0.361* (0.211)	-0.286* (0.176)	0.198 (0.366)	-0.164 (0.997)		0.4952
1.069** (0.819)	-0.984 (0.851)	-0.155 Collection (0.680)	1.253 (1.730)	-0.030 (0.915)	0.3147	0.337 (0.211)	-0.262** (0.178)	0.160 (0.371)	-0.079 (1.018)	0.159 (0.117)	0.4959

Table 9. Estimation of ownership concentration on firm performance, individual blockholders For construction

Number of observation is 315, and 35 firms. Regressions are estimated with fixed effects, variables included are lagged performance, employment, state dummy and PAS dummy. Robust standard errors in parenthesis. *** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level

		log(.	LP_t/LP_{t-1})					ROA_t - ROA_{t-1}	1		
		coefficient			R^2			coefficient			R^2
P_1	P_1^2	P_2	P_2^2	P_{3}		P_1	P_1^2	P_2	P_2^2	P_3	
0.509 (0.571)	-0.424 (0.433)	-0.004 (0.561)	-0.468 (1.785)		0.3224	0.087 (0.112)	-0.017 (0.105)	0.375*** (0.142)	-0.881** (0.420)		0.3546
0.630 (0.627)	-0.504 (0.475)	-0.178 (0.508)	-0.087 (1.670)	0.553 (0.546)	0.3236	0.061 (0.088)	0.001 (0.089)	0.413*** (0.153)	-0.964** (0.436)	-0.120 (0.167)	0.3552
		coefficient			R^2			coefficient			R^2
S_2		S_2		S_{all}		S_1		S_2		S_{all}	
0.015 (0.057)					0.3213	0.001 (0.008)					0.3464
		0.022 (0.052)			0.3214			0.000 (0.007)			0.3464
		D Collection		0.056 (0.119)	0.3215					0.072*** (0.026)	0.3506

Table 10. Estimation of ownership concentration on firm performance, individual blockholders For trade

Number of observation is §73, and 97 firms. Regressions are estimated with fixed effects, variables included are lagged performance, employment, state dummy and PAS dummy. Robust standard errors in parenthesis. *** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level

	$log(LP_t/L)$	LP_{t-1})	ROA_t - ROA_{t-1}					
coefficient			coefficient					
S_2	$S_{\mathcal{J}}$	S_{all}		S_2	S_3	S_{all}		
			all					
-0.012	-0.004	0.006		-0.025***	-0.023**	0.147		
(0.025)	(0.024)	(0.038)		(0.009)	(0.010)	(0.106)		
	coefficient				coefficient			
S_2	S_3	S _{all}	industry	S_2	S_3	S _{all}		
-0.020	-0.011	0.016		-0.022	-0.020	0.126		
(0.037)	(0.036)	(0.060)		(0.014)	(0.015)	(0.095)		
	coefficient				coefficient			
S_2	S_3	S_{all}	construction	S_2	S_3	Sall		
-0.085*	-0.084*	0.030		0.056	0.058	0.103*		
(0.048)	(0.051)	(0.358)		(0.052)	(0.048)	(0.064)		

Table 11. Estimation of ownership concentration on firm performance

Number of observation is the same as for the individual owners' equations. Regressions are estimated with fixed effects, variables included are lagged performance, employment state dummy, PAS dummy, and the group ownership equations contain the squared term. Robust standard errors in parenthesis. *** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level

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Table 12. Y	'ear effects
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	1997	1998	1999	2000	2001	2002	2003	2004	2005
Year dummy coeff.	-0.10	-0.13	0.01	0.04	0.03	0.02	0.02	0.10	0.01

Note: Individually significant, as well as F-test shows jointly significance Sample of 3560