International Journal of Economics and Financial Issues
Vol. 4, No. 1, 2014, pp.183-195
ISSN: 2146-4138
www.econjournals.com

Insider Ownership and the Value of the Bucharest Stock Exchange Listed Companies: Convergence-of-Interest or Entrenchment Effect?

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ABSTRACT: The aim of this paper is to provide empirical evidence regarding the effect of insider ownership on firm value which stems from the lack of such study for the case of Romania. By using a sample of companies listed on the Bucharest Stock Exchange, over the period 2007-2011, our results showed a negative effect of insider shareholdings on firm value. Likewise, the negative effect on firm value was confirmed for insider ownership one-year lagged. Thereby, unconcerned to the level of shareholdings, we ascertained the entrenchment effect, opposite to the goal of shareholders wealth maximization.

Keywords: corporate governance; agency theory; insider ownership; firm value; panel data regression models
JEL Classifications: G32; G34

1. Introduction

The separation of ownership and control arisen in the modern corporations induced several conflicts of interests between corporate management and shareholders (Berle and Means, 1932). However, when the ownership is dispersed among many individuals, the firm's resources could be used by the managers in their benefit than in order to consider the goal of shareholders wealth maximization. From the agency theory perspective, with roots in the seminal work of Berle and Means (1932), in order to improve the relationship between agents and principals, the incentive schemes including remuneration and insider shareholdings could be convenient (Mirrlees, 1976; Jensen and Meckling, 1976). Core and Larcker (2002) examined the effects of the minimum amount of stock that must be held by the executive officers, termed 'target ownership plans', on firm performance. Their results showed that prior to plan adoption, the stock price performance and the managerial equity exhibited low levels. However, there resulted an improvement of the excess return on assets in the two years following the adoption of the plan, and that excess stock price returns were statistically higher in the first six months. Thus, the moral hazard problem arisen in the principal-agent problem could be fixed through the convergence-of-interest between insiders and external shareholders. Subsequently, Jensen and Meckling (1976) ascertained the failure in reaching the goal of shareholders wealth maximization by the managers with low holdings. This fact is caused by wage incentives.

From our review and taking into consideration the characteristics of the corporate governance systems, we identified that the effect of insider ownership on firm value was researched for the following single countries: US (Morck et al., 1988; McConnell and Servaes, 1990; Hermalin and Weisbach, 1991; Himmelberg et al., 1999; Holderness et al., 1999), UK (Short and Keasey, 1999; Florackis et al., 2009), China (Li et al., 2007; Hu and Zhou, 2008), Korea (Ryu and Yoo, 2011), Japan (Chen et al., 2003), Taiwan (Sheu and Yang, 2005), New Zealand (Bhabra, 2007), Greece (Drakos and Bekiris, 2010). Thus, the main motivation for our research stems from the lack of a such study for the case of Romania. In order to provide empirical evidence, we will use a sample of companies listed on

the Bucharest Stock Exchange (BSE), over the period 2007-2011. Thereby panel data regression models will be employed. Additionally, the importance and the need of this study are emphasized by the evidence which will be given for the case of an emerging country. Kim et al. (2004) mentioned the fact that in the emerging countries, due to the relatively underdeveloped market structure, the degree of information asymmetry among participants is high. Thus, the insiders could benefit from this auspicious framework in order to act upon their own interests. Also, Fama and Jensen (1983) noticed that in a high information asymmetry environment, managers could embrace a behavior dissimilar with the goal of shareholders wealth maximization.

The rest of this paper proceeds as follows. In Section 2 we review the literature on insider ownership and its relation with firm value and draw the hypothesis of our research. Section 3 describes the data and the research methodology. Section 4 presents our empirical results, including descriptive statistics and estimation of econometric models. The final section concludes and reveals the limitation of our study and future research directions.

2. Literature Review and Hypothesis Development

The corporate governance literature regarding the research on the relationship between insider ownership and firm value is wide. However, most of the studies are based on the agency theory (Jensen and Meckling, 1976; Morck et al., 1988; Stulz, 1988). According to Jensen and Meckling (1976), as well Fama and Jensen (1983), the insiders of the companies could adopt two different types of behavior, pursuant to their shareholdings: convergence-of-interest or entrenchment effect. Given these two types of behavior specific to insiders, with opposite effects on firm value, the aim of our research is to identify if the insiders of the companies listed on the BSE own icentives for the goal of shareholders wealth maximization. Jensen and Meckling (1976) pointed out that as the insider ownership is increasing, the freedom in the use of firm's resources is reducing. The insiders' incentives due to their high stakes positively influence firm value. Thus, the disputes between managers and external shareholders are lessened being highlighted the convergence-of-interest. Han and Suk (1998) identified a positive relationship between the level of insider ownership and stock returns, so suggesting the fact that as insider holdings are increasing, their interests concur with those of outside shareholders. On the other hand, when the insider ownership is very high, the interests corresponding to insiders are not similar with those of outside shareholders, thus the influence on firm value being negative. Significant voting rights due to high equity ownership lead to a freedom of managers regarding the fulfillment of their goals. Han and Suk (1998) established a negative relationship between the square of the level of insider ownership and stock returns, showing the occurrence of managers' entrenchment. Therefore, the relationship between insider ownership and firm value is not monotonic, but there is an optimum level of the shareholdings.

Morck et al. (1988) exhibited that average Tobin's Q ratio increases as ownership related to the board of directors rises until 5%, further a decline of Tobin's Q ratio as ownership rises from 5% to 25%, followed by a moderate growth of Tobin's Q ratio for shareholdings over 25%. There was suggested that for low levels of insider ownership, an increase of the shareholdings determine a convergence-of-interest between managers and shareholders, thus leading to a growth of firm value. For high levels of insider ownership, an increase of the shareholdings cause the managers' entrenchment and a decline of corporate conduct and discipline, also resulting a fall of firm value. McConnell and Servaes (1990) concluded that for 1976, at low levels of insider ownership, a 10% increase in insider ownership increases Tobin's Q ratio by approximately 10%. Likewise, for 1986, at low levels of insider ownership, a 10% increase in insider ownership increases Tobin's Q ratio by approximately 30%. However, at high levels of insider ownership, McConnell and Servaes (1990) identified a negative relationship between Tobin's Q ratio and insider ownership. Trying to replicate the regression equations reported by Morck et al. (1988), McConnell and Servaes (1990) acknowledged only the positive relationship between insider ownership until 5% and firm value. Hermalin and Weisbach (1991) documented a positive relationship between managerial ownership and firm value for levels of holdings between 0%-1% and 5%-20%. On the other hand, they found a negative relationship for levels of holdings between 1%-5% and beyond 20%. Like Morck et al. (1988), Holderness et al. (1999) ascertained a similar relationship but only for the first two intervals describing the insider ownership. Short and Keasey (1999) concluded a convergence-of-interest specific to the insiders with the goals of the company for levels of shareholdings under the threshold

of 12% and over 40%. Bhabra (2007) confirmed the curvilinear relationship between insider ownership and firm value, reported for larger markets, the ownership levels exhibiting the positive association being below 14% and above 40%. Likewise, Florackis et al. (2009) validated the alignment effect of insider shareholdings at levels lower than 15%.

Opposite to the studies cited above, there are empirical researches which highlighted a lack of relationship between insider ownership and firm performance. Demsetz (1983) mentioned the fact that the ownership structure should be influenced by the interests of shareholders in order to maximize firm value, thus resulting no systematic relationship between ownership structure and firm performance. Besides, insider ownership is endogenously determined and hence cannot be a determinant of firm value. According to Demsetz and Lehn (1985), firm size, volatility, return on assets, and industry are explanatory variables for the ownership structure of the US companies. Moreover, Himmelberg et al. (1999) argued that the companies are governed by a network of relations representing financing contracts, capital structure, managerial shareholdings, and insiders remuneration. Thus, for these contractual arrangements it is hard to identify certain correspondences between the contractual choice and firm performance. This fact is due to the effects caused by the contractual choice and performance, endogenously determined by exogenous and only partly observed features specific to the contracting environment of the company. Demsetz and Villalonga (2001) underlined that the ownership structure is established in order to maximize corporate performance. Taking into consideration the endogeneity, insider shareholdings could not predict the performance of the companies.

However, there are studies which analysed the effect induced by the changes in managerial ownership on firm value. Pursuant to Helwege et al. (2007), the companies with stocks that are highly valued, are liquid and record high performance and decreases in insider ownership. Alike, Fahlenbrach and Stulz (2009) showed that managers tend to decrease their shareholdings when their corporations are performing well, respectively they tend to increase their shareholdings when their corporations become financially constrained. By controlling for the past stock returns, they found that the increase in managerial ownership determined an increase of firm value. Also, Fahlenbrach and Stulz (2009) found no relationship between the decreases in ownership and firm value. When the corporations start their activity, the insider ownership is high, thereby representing an inexpensive way to finance the companies. Subsequently, while the companies are performing well, the managerial shareholdings are decreasing in order to diversify their portfolios, as much their position in the firm is not threatened and the value of the remained shares is not diminished. There occur an increase in ownership when the companies become financially constrained, following an improvement of the troublesome situations.

In line with these empirical results, the hypothesis of our study is formulated as follows:

A nonlinear relationship is expected between insider ownership and the value of the companies listed on the Bucharest Stock Exchange.

3. Data and Methodology

3.1. Sample and variables

Table 1 reveals the definitions of the variables used in the empirical research.

Table 1. Variable definitions

Variables	Description
Firm value variables	
QAdj	Industry-adjusted Tobin's Q ratio. Tobin's Q ratio was computed as the market value of assets divided by the book value of assets, where the market value of assets equals the book value of assets plus the market value of common equity less the sum of the book value of common equity.
Ownership variables	
CEOShare	The shareholdings of the Chief Executive Officer (%).
$CEOShare^2$	The percentage of shares held by the Chief Executive Officer squared (%).
InsiderShare	Insider ownership (the shareholdings held by the Chief Executive Officer and directors) (%).
$InsiderShare^2$	The percentage of shares held by insiders squared (%).
Insider.0to5	If insider ownership < 5%, Insider.0to5 = insider ownership (%); If insider ownership ≥ 5%, Insider.0to5= 5%.

Insider.5to25	If insider ownership < 5%, Insider.5to25 = 0%; If 5% ≤ insider ownership < 25%, Insider.5to25 = insider ownership - 5% (%); If insider ownership ≥ 25%, Insider.5to25 = 20% .
Insider.over25	If insider ownership < 25%, Insider.over25 = 0%; If insider ownership ≥ 25%, Insider.over25 = insider ownership - 25% (%).
Firm-level control variables	
Size	Firm size, as annual total assets (logarithmic values).
Leverage	Leverage, computed as debt/book value of total assets.
Growth	Sales growth, as the relative increase of sales from the previous year (%).
Listing	Number of years since listing on the BSE (logarithmic values).

Source: Author's processing.

Our sample consists of all the companies listed on the Bucharest Stock Exchange, at all three tiers, over the period 2007-2011. However our sample is unbalanced, respectively 63 companies for 2007, 67 companies for 2008, and 68 companies for 2009-2011, counting 334 statistical observations. Table 2 shows general statistics related to Bucharest Stock Exchange activity.

Table 2. Bucharest Stock Exchange General Statistics (local currency)

Year	No of trading sessions	No of trades (mil)	No of shares traded (mil)	Turnover (mil)	Avg daily turnover (mil)	Market cap (mil)	No of firms with listed shares	No of new firms	No of delisted firms	No of intermed
1995	5	0.000	0.042	0.250	0.050	25.900	9	9	0	28
1996	84	0.017	1.141	1.520	0.018	23.100	17	8	0	62
1997	207	0.609	593.893	194.590	0.940	505.600	76	59	0	133
1998	255	0.512	986.804	184.650	0.724	392.200	126	50	0	173
1999	253	0.415	1057.558	138.915	0.549	572.500	127	15	14	150
2000	251	0.496	1806.587	184.292	0.734	1072.800	114	1	14	120
2001	247	0.357	2277.454	381.277	1.543	3857.300	65	3	52	110
2002	247	0.689	4085.123	709.800	2.873	9158	65	1	1	75
2003	241	0.440	4106.381	1006.271	4.175	12186.600	62	0	3	73
2004	253	0.644	13007.587	2415.043	9.545	34147.400	60	3	5	67
2005	247	1.159	16934.865	7809.734	31.618	56065.586	64	5	1	70
2006	248	1.444	13677.505	9894.294	39.896	73341.789	58	2	8	73
2007	**250**	1.544	14234.962	13802.680	55.210	85962.389	**59**	**3**	**2**	**73**
2008	**250**	1.341	12847.992	6950.399	27.801	45701.492	**68**	**10**	**1**	**76**
2009	**250**	1.314	14431.359	5092.691	20.370	80074.496	**69**	**3**	**2**	**71**
2010	**255**	0.889	13339.282	5600.619	21.963	102442.620	**74**	**5**	**0**	**65**
2011	**255**	0.900	16623.747	9936.957	38.968	70782.200	**79**	**6**	**1**	**61**

Source: Author's processing based on Bucharest Stock Exchange reports.

The data out of Table 1 emphasizes the fact that the number of companies with quoted shares has increased over 2007-2011. In fact, we selected the previously mentioned period in order to employ our research for an extended sample. However, within BSE the financial crisis of 2007-2008 was marked by a significant decrease of turnover and market capitalization. Instead, the ownership structure remained unchanged. Moreover, we did not consider the companies from financial intermediation sector, credit institutions, Romanian Financial Investment Societies, and financial services companies, because these are subject to different disclosure requirements. As well, we did not include in our sample the companies from 'Unlisted' tier and from 'International' tier. Table 3 points out the distribution of the selected companies according to industry membership. Withal, the industry membership of the selected sample is sundry: wholesale/retail, construction, pharmaceuticals, manufacturing, plastics, machinery and equipment, metallurgy, food, chemicals, basic resources, transportation and storage, tourism, utilities. Moreover, for our selected sample we acknowledge the fact that the industries which recorded changes as regards the number of new listed companies, although not considerable, over 2007-2011 were: pharmaceuticals, plastics, machinery and equipment, tourism, and utilities.

Table 3. Distribution of the companies according to industry membership

Industry	Year		
	2007	2008	2009-2011
Wholesale/retail	4	4	4
Construction	8	8	8
Pharmaceuticals	3	3	4
Manufacturing	19	19	19
Plastics	2	3	3
Machinery and equipment	7	8	8
Metalurgy	4	4	4
Food	3	3	3
Chemicals	4	4	4
Basic resources	4	4	4
Transportation and storage	2	2	2
Tourism	2	3	3
Utilities	1	2	2
Total	63	67	68

Source: Author's processing.

In order to test the hypothesis which was developed, we have considered several variables related to firm value, insider ownership, as well firm-level control variables. As regards data sources, information about insider ownership comes from the BSE webpage and from the Annual Reports of the Administrators. The remaining data comes from the Annual Reports of the companies. All the data were hand-collected. However, for both CEO and insiders, we have considered the direct shareholdings in the companies. We did not consider the stakes through other companies due to the low level of transparency. In fact, we have considered the level of shareholdings as reported by the companies to the Central Depository and displayed afterwards within the BSE' webpage. We point out that Central Depository keeps record of the issuers' registries. Besides, we included the shareholdings below 1%. As well, during the collecting process, we could not get data regarding the shareholdings of the Chief Executive Officer (CEO) from 22 companies and insider shareholdings from 18 companies due to the lack of this information in the Annual Reports of the Administrators. We followed Morck et al. (1988), McConnell and Servaes (1990), and Holderness et al. (1999) for the construction of the insider ownership variables. According to Weston (1979), beyond the range of ownership between 20-30%, the hostile bids for the companies cannot succeed. Besides, Herman (1982) mentioned that beyond the 5% level of shareholdings, the ownership is no longer negligible, being a mandatory public disclosure of ownership.

Pursuant to prior studies which researched the relationship between corporate governance and firm value, we will use Tobin's Q ratio as a proxy for firm value. We will follow the methodology employed by Kaplan and Zingales (1997) in order to calculate Tobin's Q ratio (the definition used in order to compute Tobin's Q ratio is provided in Table 1 similar Gompers et al. (2003) and Bebchuck et al. (2009). However, we have not considered the market value of debt at the numerator, respectively the replacement cost of assets at denominator, consistent with previous studies (La Porta et al., 2002; Doidge et al., 2004; Gozzi et al., 2008). After we have computed the Tobin's Q ratio for each company, we have adjusted it according to the industry membership, following the methodology described by Eisenberg et al. (1998), because in our sample were included companies from thirteen economic sectors. Thus, the difference between firm Tobin's Q ratio and the industry's median Tobin's Q ratio is ΔQ, while the industry-adjusted measure of Tobin's Q ratio (QAdj) is defined as follows: $QAdj = sign(\Delta Q)*sqrt(|\Delta Q|)$, where $sign(\Delta Q)$ is the sign of the difference between firm Tobin's Q ratio and the industry's median Tobin's Q ratio, whereas $sqrt(|\Delta Q|)$ is the square root of the absolute value related to ΔQ. We decided to use median instead of mean because our data did not follow a normal distribution.

Because there are many other factors which could influence firm value, we have included in our empirical research several control variables. Thus, we used the logarithm of the total assets to control for the size of the companies. Fama and Jensen (1983) argued that large companies are more diversified than small companies, and therefore the failure risk is limited. According to Short and

Keasey (1999), size positively influences firm performance because large companies could obtain funds, both internal and external, more easily. However, it was mentioned that large corporations could create barriers to entry through economies of scale. By considering the information asymmetry, large companies could face low levels due to their tendency to be more mature, certain periods of time-application disclosure practices and policies, as well due to receiving more attention from the market and regulators (Diamond and Verrecchia, 1991).

To control for the level of debt we included the leverage, consistent with McConnell and Servaes (1990), Morck et al. (1988), and Short and Keasey (1999). Large companies could support a higher debt-contracting sustained by the disclosure in the information flow to the creditors. Grossman and Hart (1982) pointed out that a significant debt of the companies implies an amount of interests to be paid periodically and the management would be under pressure to ensure enough cash flow to cover the debt payment. Thus the threat of managers caused by a potential bankruptcy with direct consequences through the loss of control of their firms will induce them to avoid taking decisions in their interest. Additionally, the issuance of external debt will cause monitoring by the creditors. Besides, debt could determine several problems as overinvestment (Jensen, 1986) or underinvestment (Myers, 1977). Jensen (1986) emphasized the importance of debt in order to limit the managerial discretion regarding the use of cash flow. According to Myers (1977), the inclusion of debt in the capital structure determines a reduction of the investments in profitable projects. Stulz (1988) mentioned the fact that high insider ownership should be associated with higher leverage. Also, insider ownership concentration decreases the chance that hostile takeovers are successful.

In order to control for the growth opportunities, we will use as control variable sales growth. Morck et al. (1988) argued that if managers own high shareholdings in younger, faster growing companies that tend to have high Tobin's Q ratio, the positive relationship between board ownership and Tobin's Q ratio might be spurious. McConnell and Servaes (1995) provided support for a negative correlation between corporate value and leverage for high-growth firms and a positive correlation for low-growth firms, as a consequence of monitoring function induced by debt. The last control variable we used is the logarithm of the number of years since listing on the BSE in order to reflect the age of the company. According to Black et al. (2006) and Balasubramanian et al. (2010), younger firms are likely to be faster growing and perhaps more intangible asset intensive, which can lead to higher Tobin's Q ratio.

3.2. Research methodology

Through the empirical research which will be further developed, our aim is to analyse the relationship between the Chief Executive Officer ownership, insiders shareholdings, distinctly considered and firm value. During our research, we will estimate multivariate regression models for panel data, unbalanced, without cross-sectional effects, following the general model:

$$y_{it} = \alpha + \beta X_{it} + u_{it} \quad i = 1, ..., N; t = 1, ..., T \tag{1}$$

in which y is the response variable, X is the vector of explanatory variables, the subscript i means the cross-sectional dimmension, respectively the companies listed on the BSE, and the subscript t shows the temporal dimmension, respectively the period of time 2007-2011. According to Baltagi (2005), there are frequently used models with a single component of the error term, as follows:

$$u_{it} = \mu_i + \upsilon_{it} \tag{2}$$

where μ_i is the individual specific effect, unobservable, whereas υ_{it} represent the remaining error.

Therefore, in order to assess the relationship between the level of ownership and firm value we will employ a multivariate regression model for panel data, having the following specification:

$$Firm\_Value_{it} = \alpha + \beta X_{it} + \gamma Z_{it} + u_{it} \quad i = 1, ..., N; t = 1, ..., T \tag{3}$$

where for the i^{th} company in the year t, we will employ as dependent variable the industry-adjusted Tobin's Q ratio as a proxy for firm value, respectively several explanatory variables as below: X_{it} is a vector of variables related to the shareholdings of the Chief Executive Officer and all insiders, considered in separate regression equations, while Z_{it} is a vector of control variables.

Given the fact that the relationship between the level of ownership and firm value should be nonlinear, we will estimate the following multivariate regression model for panel data:

$$Firm\_Value_{it} = \alpha + \beta X_{it} + \gamma X_{it}^2 + \varphi Z_{it} + u_{it} \quad i = 1, ..., N; t = 1, ..., T \tag{4}$$

where X_{it} is a vector of variables related to ownership level, X_{it}^2 is a vector of squared variables related to ownership level, and Z_{it} is a vector of control variables. If the parameters β and γ have different signs after estimation, we reach support for a nonlinear relationship, conditioned by the statistical

validation. We will find the inflection points by setting the partial derivatives ∂Firm_Value/∂X equal with zero, and after that solving for X.

Furthermore, in order to research the impact of the shareholdings from previous year on the contemporaneous firm value, we will estimate a multivariate regression model for panel data, as follows:

$$Firm\_Value_{it} = \alpha + \beta X_{it-1} + \gamma Z_{it-1} + u_{it} \quad i = 1, ..., N; t = 1, ..., T \qquad (5)$$

X_{it-1} being a vector of variables representing the shareholdings from previous year, and Z_{it-1} a vector of control variables.

Additionally, we will examine the causality relationship between the level of ownership and firm value by employing Granger causality test. Thus, Y is said to be Granger-caused by X if the prediction of Y improves when the lagged values of X are taken into account. The test is bidirectional, by considering the null hypothesis that Y does not cause Granger X. Thus, in order to test the causality, the following two equations are estimated:

$$X_t = \alpha + \sum_{i=1}^{k} \alpha_i X_{t-i} + \sum_{i=1}^{k} \beta_i Y_{t-j} + u_{it} \qquad (6)$$

$$Y_t = \alpha + \sum_{i=1}^{k} \gamma_i Y_{t-i} + \sum_{i=1}^{k} \varphi_i X_{t-j} + u_{it} \qquad (7)$$

where X_t is industry-adjusted Tobin's Q ratio, X_{t-i} are the lagged values of industry-adjusted Tobin's Q ratio, Y_t reveals the shareholdings, and Y_{t-j} signifies the lagged values of the shareholdings. Besides, the causality could be bidirectional (if the coefficients of the variables X and Y are zero) or unidirectional (if the coefficient of only one variable is zero)

4. Empirical Results

4.1. Descriptive statistics

Table 4 shows descriptive statistics of the variables employed within the empirical research.

Table 4. Descriptive statistics of the variables used in the empirical research

Variable	N	Mean	Median	Min	Max	Std. Dev.
Firm value variables						
QAdj	334	0.089281	0.000000	-0.811778	1.870603	0.570688
Ownership variables						
CEOShare	228	0.070627	0.000278	0.000000	0.656589	0.148568
InsiderShare	245	0.143965	0.005680	0.000000	0.783595	0.221293
Insider.0to5	245	0.022492	0.005680	0.000000	0.050000	0.023248
Insider.5to25	245	0.062222	0.000000	0.000000	0.200000	0.089334
Insider.over25	245	0.059251	0.000000	0.000000	0.533595	0.131701
Firm-level control variables						
Size	334	8.241298	8.193217	6.977173	10.52934	0.610849
Leverage	334	0.387540	0.353737	0.006916	1.940834	0.285651
Growth	334	0.070588	0.045353	-0.913607	2.503076	0.356558
Listing	334	0.968339	1.041393	0.000000	1.204120	0.253036

Source: Author's computations. The description of the variables is provided in Table 1.

We could observe that the shareholdings of the CEOs are in average 7.06%, while the insider ownership is in average 14.39%. If we consider the insider ownership on shareholdings intervals, similar Morck et al. (1988), McConnell and Servaes (1990), and Holderness et al. (1999), the highest level of ownership is, in average, between 5% and 25% (6.22%), while the lowest level of ownership is, in average, between 0% and 5% (2.24%). However, the results out of Table 4 are strongly affected by the observations from our sample in which shareholdings are below 1%. Thus, if we remove the observations with shareholdings below 1%, the mean ownership is higher, as follows: CEOShare (20.76%), InsiderShare (30.76%), Insider.0to5 (4.65%), Insider.5to25 (13.37%), and Insider.over25 (12.73%).

Table 5 exhibits the mean ownership for the period 2007-2011. Thus, there result the fact that the changes in the mean shareholdings of the CEOs and directors are not substantial, during the period 2007-2011.

Table 5. Mean ownership for the period 2007-2011

Variable	2007		2008		2009		2010		2011	
	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Ownership variables										
CEOShare	44	0.075881	46	0.081124	46	0.074579	46	0.070118	46	0.051664
InsiderShare	46	0.132703	49	0.144917	50	0.149363	50	0.149363	50	0.142599
Insider.0to5	46	0.023846	49	0.022755	50	0.022328	50	0.021975	50	0.021670
Insider.5to25	46	0.063932	49	0.063319	50	0.063162	50	0.061211	50	0.059643
Insider.over25	46	0.044926	49	0.058844	50	0.063872	50	0.066176	50	0.061285

Source: Author's computations. The description of the variables is provided in Table 1.

Table 6 shows the frequency of the CEO shareholdings and insider shareholdings. Accordingly, the results from Table 6 suggest the fact that in most companies the shareholdings are in the first interval, respectively between 0% and 10%.

Table 6. The frequency of the CEO shareholdings and insider shareholdings

Variable	2007		2008		2009		2010		2011	
	N	%	N	%	N	%	N	%	N	%
CEOShare										
0% <=CEOShare<10%	34	77.27273	36	78.26087	37	80.43478	37	80.43478	40	86.95652
10%<=CEOShare<20%	3	6.81818	2	4.34783	2	4.34783	2	4.34783	1	2.17391
20%<=CEOShare<30%	4	9.09091	4	8.69565	3	6.52174	3	6.52174	2	4.34783
30%<=CEOShare<40%	1	2.27273	1	2.17391	1	2.17391	1	2.17391	1	2.17391
40%<=CEOShare<50%	1	2.27273	1	2.17391	1	2.17391	1	2.17391	1	2.17391
50%<=CEOShare<60%	0	0.00000	0	0.00000	0	0.00000	1	2.17391	0	0.00000
60%<=CEOShare<70%	1	2.27273	2	4.34783	2	4.34783	1	2.17391	1	2.17391
70%<=CEOShare<80%	0	0.00000	0	0.00000	0	0.00000	0	0.00000	0	0.00000
80%<=CEOShare<90%	0	0.00000	0	0.00000	0	0.00000	0	0.00000	0	0.00000
90%<=CEOShare<100%	0	0.00000	0	0.00000	0	0.00000	0	0.00000	0	0.00000
InsiderShare										
0%<=InsiderShare<10%	29	63.04348	32	65.30612	37	80.43478	35	70.00000	35	70.00000
10%<=InsiderShare<20%	4	8.69565	2	4.08163	2	4.34783	0	0.00000	0	0.00000
20%<=InsiderShare<30%	5	10.86957	5	10.20408	3	6.52174	2	4.00000	3	6.00000
30%<=InsiderShare<40%	3	6.52174	3	6.12245	1	2.17391	4	8.00000	4	8.00000
40%<=InsiderShare<50%	1	2.17391	1	2.04082	1	2.17391	3	6.00000	3	6.00000
50%<=InsiderShare<60%	1	2.17391	2	4.08163	0	0.00000	2	4.00000	1	2.00000
60%<=InsiderShare<70%	2	4.34783	2	4.08163	2	4.34783	2	4.00000	2	4.00000
70%<=InsiderShare<80%	1	2.17391	2	4.08163	0	0.00000	2	4.00000	2	4.00000
80%<=InsiderShare<90%	0	0.00000	0	0.00000	0	0.00000	0	0.00000	0	0.00000
90%<=InsiderShare<100%	0	0.00000	0	0.00000	0	0.00000	0	0.00000	0	0.00000

Source: Author's computations. The description of the variables is provided in Table 1

Table 7 discloses the Pearson correlation coefficients. Thus, as there was expected, high correlations are noticed between the variables related to the level of the CEO and insider shareholdings.

Table 7. Correlation matrix

Variable	1	2	3	4	5	6	7	8	9	10
1 QAdj	1	-.033	**-.218****	**-.194****	**-.227****	**-.178****	.054	**.321****	.072	-.021
2 CEOShare	-.033	1	**.725****	**.500****	**.634****	**.690****	-.100	**.168***	-.067	**-.159***
3 InsiderShare	**-.218****	**.725****	1	**.757****	**.905****	**.933****	**-.190****	-.019	-.076	**-.184****
4 Insider.0to5	**-.194****	**.500****	**.757****	1	**.828****	**.535****	**-.261****	-.064	-.040	-.029
5 Insider.5to25	**-.227****	**.634****	**.905****	**.828****	1	**.697****	**-.181****	-.042	-.082	**-.135***
6 Insider.over25	**-.178****	**.690****	**.933****	**.535****	**.697****	1	**-.151***	.008	-.065	**-.213****
7 Size	.054	-.100	**-.190****	**-.261****	**-.181****	**-.151***	1	.076	.055	**-.110***
8 Leverage	**.321****	**.168***	-.019	-.064	-.042	.008	.076	1	.082	.047
9 Growth	.072	-.067	-.076	-.040	-.082	-.065	.055	.082	1	.009
10 Listing	-.021	**-.159***	**-.184****	-.029	**-.135***	**-.213****	**-.110***	.047	.009	1

Source: Author's computations. The description of the variables is provided in Table 1
Notes: **Significant at 1% level, *significant at 5% level.

Thereby, as we mentioned in the section related to research methodology, in order to avoid the multicollinearity statistical phenomenon which leads to an increase of standard errors of the coefficients, we will use the highly correlated variables in separate regression equations.

4.2. Regression results

Table 8 shows the estimates of insider ownership - firm value relationship.

Table 8. The estimates of insider ownership - firm value relationship

Variable	1	2	3	4	5	6	7
Intercept	-0.131894 (-0.217614)	-0.130615 (-0.213103)	-0.021921 (-0.037931)	-0.037895 (-0.065426)	-0.117259 (-0.198397)	-0.087755 (-0.152795)	-0.174247 (-0.302703)
CEOshare	**-0.439717**† (-1.749944)	-0.450822 (-0.599341)					
CEOshare^2		0.021802 (0.015668)					
Insidershare			**-0.589908***** (-3.684080)	**-0.900564**† (-1.738499)			
Insidershare^2				0.516501 (0.630675)			
Insider.0to5					**-4.195552**** (-2.734939)		
Insider.5to25						**-1.419897***** (-3.616603)	
Insider.over25							**-0.862875**** (-3.189592)
Size	0.039936 (0.575901)	0.039785 (0.566979)	0.013827 (0.208387)	0.015273 (0.229749)	0.017462 (0.256967)	0.019559 (0.295677)	0.027656 (0.416729)
Leverage	**0.741405***** (5.728834)	**0.741327***** (5.711138)	**0.702634***** (5.850317)	**0.695282***** (5.754829)	**0.683933***** (5.627404)	**0.690344***** (5.745014)	**0.709234***** (5.860194)
Growth	0.084237 (0.939692)	0.084129 (0.933598)	0.071041 (0.813077)	0.072601 (0.829557)	0.087988 (0.997273)	0.070613 (0.807217)	0.076561 (0.870870)
Listing	**-0.379077*** (-2.442958)	**-0.378869*** (-2.427320)	**-0.234924**† (-1.745838)	-0.218681 (-1.594212)	-0.151515 (-1.135255)	-0.206974 (-1.551661)	**-0.233207**† (-1.711490)
N	228	228	245	245	245	245	245
F-statistic	**8.369220*****	**6.942982*****	**10.87390*****	**9.105044*****	**9.458571*****	**10.75946*****	**10.08431*****
Adj R-sq	0.139650	0.135758	0.168284	0.166183	0.147726	0.166659	0.156939

Source: Author's computations. The description of the variables is provided in Table 1.
Notes: $^{\dagger}p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.
The t-statistic for each coefficient is reported in parentheses.

Thus, the results show the fact that the shareholdings of the Chief Executive Officer (the first model), and the insider shareholdings, considered both globally (the third model) as well distinctly used according to the three levels of ownership (the models 5-7), negatively influence firm value. When we tried to capture a potential nonlinear relationship between the level of ownership and firm value, through the estimation of polynomial regression equations (the second and the fourth model), we did not detect any relationship, by considering the level of statistical significance related to the corresponding regression coefficients, based on the Student's t test. However, in the second model, the coefficients of the two variables representing the percentage of shares held by the CEO are not statistically significant. As well, in the fourth model, the probability for Student's t test related to the variable concerning the percentage of shares held by insiders squared is high (Prob. = 0.5289), thus resulting that is statistically non-significant. Furthermore, we notice the fact that the insider shareholdings record a higher negative influence (β= -0.589908) on firm value (the third model) than the shareholdings of the CEO (β= -0.439717, the first model). By analysing the influence of insider holdings on intervals, our results prove the fact that the shareholdings between 0% and 5% exhibit the highest negative influence (β= -4.195552, model 5). Table 9 reveals the estimates of insider ownership one-year lagged - firm value relationship.

Table 9. The estimates of insider ownership one-year lagged - firm value relationship

Variable	1	2	3	4	5
Intercept	-0.887323 (-1.552019)	-0.635796 (-1.187401)	-0.646415 (-1.173378)	-0.650878 (-1.224414)	-0.815016 (-1.523445)
CEOshare(-1)	-0.313738 (-1.371299)				
Insidershare(-1)		**-0.552452***** (-3.714805)			
Insider.0to5(-1)			**-4.282569**** (-3.000457)		
Insider.5to25(-1)				**-1.402586***** (-3.859453)	
Insider.over25(-1)					**-0.758925**** (-3.015080)
Size(-1)	0.085060 (1.290239)	0.056880 (0.920260)	0.052254 (0.821704)	0.057282 (0.930887)	0.073604 (1.186512)
Leverage(-1)	**0.737567***** (5.651096)	**0.709451***** (5.972107)	**0.702421***** (5.840887)	**0.709536***** (5.988943)	**0.711256***** (5.917427)
Growth(-1)	0.021819 (0.271333)	0.013654 (0.178202)	0.022924 (0.295940)	0.008372 (0.109447)	0.020054 (0.258860)
Listing(-1)	-0.114423 (-0.813828)	-0.088242 (-0.734742)	-0.016690 (-0.139894)	-0.066524 (-0.560529)	-0.082535 (-0.675370)
N	182	195	195	195	195
F-statistic	**7.790773*****	**11.70412*****	**10.53315*****	**11.97156*****	**10.55462*****
Adj R-sq	0.157959	0.216227	0.197238	0.220438	0.197595

Source: Author's computations. The description of the variables is provided in Table 1.
Notes: $^{\dagger}p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.
The t-statistic for each coefficient is reported in parentheses.

Hence, the results support the fact that the CEO shareholdings one-year lagged have no effect on contemporaneous firm value (the first model). Additionally, it is confirmed the negative influence of insider ownership one-year lagged, both globally (the second model) and distinctly considered according to the three levels of ownership (the models 3-5), on contemporaneous firm value. Moreover, we ascertain the fact that the influence of insider ownership one-year lagged on contemporaneous firm value is lower than the influence exerted by contemporaneous insider ownership, with the exception of the insider shareholdings until the threshold of 5% (the third model).

As regards the control variables, only the impact of leverage and the number of years since listing on the BSE on industry-adjusted Tobin's Q ratio was statistically validated (Table 8). Furthermore, by considering the control variables one-year lagged, only the influence of leverage on firm value was statistically validated (Table 9).

Therefore, the hypothesis of a nonlinear relationship between insider ownership and the value of the companies listed on the Bucharest Stock Exchange is rejected. We documented a negative relationship between both the percentage of shares held by the Chief Executive Officer and the percentage of shares held by insiders, separately considered in multivariate regression models for panel data, and firm value. Also we ascertained the fact that unconcerned to the level of shareholdings; the concerns of insiders regarding the goal of shareholders wealth maximization are different. Our results confirm the results achieved by Morck et al. (1988) and Holderness et al. (1999) only for the insider shareholdings between 5% and 25%. Also we admit the conclusion established by Kim et al. (2004) for the case of emerging countries, according to which the insiders benefit from a favorable environment in order to undertake certain activities interfluent with their interests. However, similar Jensen and Meckling (1976), the insiders of the companies listed on the BSE, both holding low and high stakes, have not enough incentives in order to achieve the goal of shareholder wealth maximization because their substantial compensation allow them to meet their interests without altering their positions in the companies. Table 10 exposes the results of pairwise Granger causality tests.

Table 10. Pairwise Granger causality tests results

Lag(s)	1		2		3	
Null Hypothesis:	F-Statistic	Prob.	F-Statistic	Prob.	F-Statistic	Prob.
QAdj does not Granger cause CEOShare	0.28127	0.5965	0.40531	0.6676	0.41768	0.7408
CEOShare does not Granger cause QAdj	0.08895	0.7659	0.16237	0.8503	0.51058	0.6761
N	182		136		90	
QAdj does not Granger cause InsiderShare	0.02689	0.8699	0.08363	0.9198	0.38139	0.7667
InsiderShare does not Granger cause QAdj	**8.75017**	**0.0035****	1.27710	0.2821	0.24250	0.8665
N	195		145		95	
QAdj does not Granger cause Insider.0to5	1.32374	0.2514	0.08926	0.9147	0.08629	0.9674
Insider.0to5 does not Granger cause QAdj	**7.17035**	**0.0081****	1.31099	0.2728	0.07459	0.9735
N	195		145		95	
QAdj does not Granger cause Insider.5to25	0.00554	0.9407	0.43130	0.6505	0.56974	0.6364
Insider.5to25 does not Granger cause QAdj	**9.91588**	**0.0019****	1.91408	0.1513	0.54049	0.6558
N	195		145		95	
QAdj does not Granger cause Insider.over25	0.04069	0.8404	0.10149	0.9036	0.22757	0.8770
Insider.over25 does not Granger cause QAdj	**5.35479**	**0.0217***	0.91453	0.4031	0.52200	0.6683
N	195		145		95	

Source: Author's computations. The description of the variables is provided in Table 1.
Notes: $^{\dagger}p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.
The t-statistic for each coefficient is reported in parentheses.

Thus, the results of the test show a unidirectional Granger causality relationship between insider ownership, both globally and distinctly considered according to the three levels of ownership, and firm value. However, the causal relationship is statistically validated only for the first lag. Therefore, by rejecting the null hypothesis, insider shareholdings Granger cause industry-adjusted Tobin's Q ratio.

5. Concluding Remarks

We concluded a negative relationship between the percentage of shares held by the Chief Executive Officer and insiders, considered separately and the value of the companies listed on the Bucharest Stock Exchange during the period 2007-2011. Thus, unconcerned to the level of shareholdings, there resulted an emergence of managers' entrenchment, detrimental to firm value and external shareholders. The limits of our research emerge from the lack of sufficient data regarding the CEO and insider shareholdings due to a reduced level of transparency. Likewise, as we mentioned in the section related to sample description, there are Chief Executive Officers and insiders which held shareholdings in the companies they manage daily, but through another companies, fact difficult for us to identify them. Therefore, we did not consider such cases. However, the endogeneity potential problem, emphasized by Demsetz (1983), Demsetz and Lehn (1985), and Himmelberg et al. (1999) was not considered. As future directions of research we could take into account additional ownership structures of another types of shareholders, as state ownership, employees associations ownership, or the shareholdings of the companies from financial intermediation sector, in order to study the simultaneous effect on firm value. Besides, we could consider another types of econometric methods of estimation in order to control for the endogeneity of ownership structure such as 2SLS (two-stage least squares) or the generalized method of moments (GMM) developed by Arellano and Bond (1991).

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