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Corporate Ownership and Firm Performance

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Abstract

All the approaches of the theory of the firm are based on the fundamental hypothesis that the main source of value from the firm's performance is the ownership of the physical and monetary capital. This approach has always been challenging already from the decade of '30s, mainly after the appearance of the path breaking work of Berle and Means (1932), claiming that in the big corporations there exists explicit separation between ownership and control and that the decision are made by multiple hierarchical levels of administration where ownership and management form a complex mixture. Nowadays, where the performance of the firm acquired high degree of complexity the problem of the relation between ownership and control has become decisive. The present article is an effort to statistically test the effects- if any- of the ownership structure, as measured by the distribution of the shares in the shareholders, the book value and the market value of the firm, the recovery costs of the firm's assets and the capital expenditure on the firm's performance, particularly on the firm performance, as measured by the Tobin's q. The concrete statistical analysis on the existing data does not reveal any clear connection between corporate ownership and performance.

Keywords: Theories of Corporate Ownership, Theories of Corporate Control, Tobin's q.

I. Introduction

What were the characteristics of the industrial institutions which caused the mutation of the economic hegemony from England in the end of nineteenth century to the United States in the first decades of the twentieth century, the raise and the decline of the Japanese economy during the last four decades, and nowadays the emergence of China as important rival of the USA in several aspects? What were the resources of the internal and external economies, which permitted to these countries the comparative advantage to go a step ahead to their rivals? And why gradually lose the pioneering countries the superiority? Tremendous questions, the answer of each demands deep inquiry into the causes of the changes in the societies. However, looking in the economic history of the countries which once acquired the economic hegemony, one can isolate causes involved in the mode of production-technology and organization and the distribution of the product between the agents of the economic activity. Common characteristic of the mode of production in all countries which experienced economic development was the development of the private firm, especially of the corporate company.

And the development of the corporate company, starting from the early stages of the mercantilist capitalism, has not ceased to acquire new forms, new structures and new functions up to now. A striking characteristic of the corporate company in its first phases of development was the fusion of the ownership with the management. But the modern corporate company cannot enjoy this concentration of ownership and management in the same hands out of several reasons: the need of creation of joint ventures in order to undertake big, risky projects; the need to homogenize the management-managers and the personnel under them; the contribution of the governments in creating a friendly and safe environment in which the firm operates; and most of all the technological and economic complexity of the running a corporate company. This element calls for people with special knowledge and performances- the managers. Besides, the growth of the wealth in the advanced economies created investors who find in the corporate company a good resort to invest without undertaking duties, which they could not afford if they acted alone- the stakeholders. This mixture of people with different functions, contributions and interests under the same institution could not but create problems relating to responsibility of decision taking, duties, functions, interests and eventually conflicts. Since the time of the famous article of Coase (1937) which investigates fundamental problems of the nature and the performance of the corporate company a vast literature has been developed with various approaches to the theme of the theory of the firm. The marginalist microeconomic models, for example Kogiku (1971), Henderson and Quandt (1971) Lancaster (1974) ignored entirely the internal structure of the firm and did not considered fundamental problems relating to reasons of existence of the firm as institutional entity or who actually runs the firm? Or for whom really operates the firm? The prevailing neoclassical theories of the firm simply focus the interest on themes such as the profit maximization in the frame of the market cost/price prevailing conditions, which through the price mechanism ensure the optimal use of resources. However, by the end of the decade of ’70s the industrial sociologists started researching deeper problems faced by the firms, mainly caused by failures of markets, ineffective management, inappropriate motivations for the managers and the personnel and new sources of risks with increasing intensity. In this way the theory of the firm retaining the principles of the economic calculus extended the interest from the narrow, short-term optimization problems to the investigation of the firm’s behavior, its organization structure, the hierarchy of power in the firm, effectiveness of control and most important the motives and the practice of the decision makers.

Based on data acquired from fifty corporations the article investigates the anticipated existence of systematic relationship between the managers ownership with some important parameters of the firm, as Tobin’s q, considered as investment criterion, the liquidity index, the shares’ volatility, the management shareholdings, the shares distribution in the shareholders, the assets replacement cost, the capital expenditure and the market value of the firm’s equity.

II. Literature Review

In the frame of this problematic were developed some modern bodies of theories, with many orientations within each body: theories based on the Transaction Costs, theories of Contracts, and theories of Ownership Rights/Implicit Contracts. The theory of Transaction Costs was first advanced by Coase (1937). According to Coase the main advantage that offers the firm as institutional and legal entity is the possibility that enjoys the business world to decide if for any productive activity the firm will use the market or it will prefer to perform the productive activity in the frame of its organizational structure. Each choice implies its specific costs. The choice will be on the criterion which transaction-within the structure of the firm or transaction with the market results to the lower cost. The Coase’s analysis is extended by Williamson (1975, 1985, 1988), who supported the idea that the transaction costs are particularly important in the cases that the agents in view to close a contract invest to a specific relationship/contract, in which each side of the contract expect its own interests, resulting from the adoption of the transaction costs. Investing under these criteria can offer the possibility to each side to reduce the costs or to increase the value of the operational sources in an optimal manner, which

could not be achieved in any other alternative investment/transaction with other persons. When this relationship/synergy is completed the members enter in a strong tie between each other. Hence, according Williamson, the transaction within the frame of the firm and the avoiding of market narrows the speculative behavior and improve the motives to investing in the relationship. Alchian and Demsetz (1972) extended- and to a certain degree reviewed the aspects of Coase, pointed as main characteristic of the firm not the managerial and organizational structures, as analyzed by Coase, but the inner mechanisms of controlling and promoting the procedures of the collective production. This is the factor, according to the authors, the factor which minimizes the transaction costs in the firm. The control and animation should allow the firm to evaluate the individual performance of the personnel in the environment of the collective effort. The person/persons responsible to accomplish this duty share the ownership rights and become an integral part of the corporate ownership, which is the absolute principle in the decision making. In this manner the firm is defined as a complex of institutional and legal contracts. The approach of Alchian and Demsetz was extended by other industrial researchers as Jensen και Meckling (1976) and Fama (1980). But how the integration of activities according to the contracts theory can affect the motives for effectiveness? This question tried to answer the theories of Ownership Rights/Implicit Contracts, initiated by Grossman και Hart (1986). The authors try to clarify problems of the type: how are delimited the borders of the firm? How the ownership rights copes with problems involved in the separation between ownership and management performance? They claim that property and control cannot be separated and extensively investigate the repercussions resulting from the change in the ownership status. The changes in the system of the motives caused by changes of the ownership status in the firm will affect not only the motives higher levels of management but also the motives of the personnel in all levels of the firm.

The theories of the firm do not cease to develop- sometimes on entirely new postulates and hypotheses- in order to answer to old problems and to new ones emerging from the increasingly complexity within the frame of the firm and in its political and social environment.

III. The Statistical Approach of the Problem and the Statistical Analysis

In this section are tested some statistical relationships which are considered to directly or indirectly reflect the effect of the ownership structure to firm performance. As criterion for the firm performance is chosen the Tobin's q, the index of firm's expected profitability from its investments. Tobin's q expresses the dynamic view of the firm's performance. The index is formally defined as:

q = Internal rate of return of an investment under consideration/wanted rate of return.

It can be shown that the above definition under the hypothesis of infinite investment (perpetuity) is equivalent to the expression:

q = Market value of assets/(Estimated) replacement cost

The numerator includes all the firm's dept and equity securities, and the denominator includes all assets.

The statistical treatment of the data is performed in three steps:

III.1 Definition of variables, table of original data and data descriptives

III.2 Correlation analysis

III.3 Regression analysis between the selected variables

All the calculations, the tables and the graphics were produced with the help of SPSS module.

III.1. Definition of Variables, Original Data and Data Descriptives

In the table 1 are shown all the variables involved in the statistical analysis- symbols, names and abbreviation of the names.

Table 1: List of variables

Variable	Name	Abbreviation
V1	Tobin's q 98 Replacement Cost	Tobin's q 98 RC
V2	Tobin's q 98 Book Value	Tobin's q 98 BV
V3	Tobin's q 97 Book Value	Tobin's q 97 BV
V4	Liquidity	Liquidity
V5	Standard Dev Profit (last 3 years)	StDev Profit
V6	Shares' Volatility	Volatility
V7	Management Shareholdings as % of Total Equity	MGT % of Equity
V8	Blockholders stake as % of Equity	Blockholders % of Equity
V9	Major Blockholder as % of Equity	Major Blockh % of Equity
V10	Replacement Cost of Assets (£000's)	RC Assets (£000's)
V11	Capital Expenditure/ Replacement Cost	Cap Exp/RC
V12	Research & Development Expenditure / Replacement Cost	R&D Exp/RC
V13	Leverage	Leverage
V14	Market Value of Equity (£000's)	MV of Equity (£000's)

Table 2 shows the values of the variables over the 50 observations- original data.

Table 2: Original data.

V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14
19,611	20,284	6,27	0,3527	3055	0,042	0,1	0	0	73473	0,1122	0,061	0,017	5420800
2,4146	2,615	2,25	0,3105	4337	0,035	0,1	25,5	14,1	123627	0,0973	0	0,0021	1423700
1,45	1,478	1,1	0,1603	1025	0,011	0	52,3	11,5	95045	0,0281	0,067	0	724300
1,1359	0,471	0,97	0,2353	26350	0,044	1	34,4	19,4	604651	0,2117	0,003	0,0881	543600
1,3913	1,343	1,23	0,0966	21338	0,014	43,6	3,7	3,8	1527834	0,1104	0	0	39200
8,0409	8,33	7,07	0,3459	806	0,048	1,7	22,4	13,8	16664	0,2672	0	0	188500
0,9352	0,999	1,22	-0,057	7919	0,03	0,2	32,5	22,5	261285	0,0142	0,022	0	3245800
2,6227	1,212	3,95	0,2806	2642	0,027	4,6	27,8	6,8	96156	0,09	0	0	144700
0,9857	1,013	1,22	0,1631	13369	0,045	23,8	33	17	299116	0,0137	0	0,001	10167400
1,3773	1,136	1,04	0,095	192993	0,027	15,9	32,1	8,1	7245286	0,1035	0,032	0	241300
1,6462	1,44	1,57	0,1572	21932	0,01	0,1	35,5	11	2309013	0,178	0	0,0373	327500
1,9462	2,039	1,7	0,1749	15092	0,024	1,7	60,3	11,8	639929	0,0578	0,011	0,0452	192100
1,8287	1,894	2,43	0,2302	5627	0,022	0,4	45,4	7,5	252986	0,079	0,011	0	256100
2,8675	3,589	1,98	0,2348	175	0,005	4,8	48,3	18,1	38719	0,1871	0,086	0,0233	256200
3,7159	2,285	1,79	0,4089	75901	0,048	1,1	19,8	5,8	1594645	0,1123	0,004	0,1159	178100
2,472	1,96	2,37	0,327	2249	0,024	32,8	46,5	11,9	94380	0,188	0,006	0	103100
1,1033	1,265	1,11	0,1455	31977	0,017	0	34,2	12	1843060	0,0825	0,008	0,022	549800
1,2039	1,34	2,47	0,0639	4203	0,011	0,5	42,9	18,6	384713	0,1236	0	0	29000
2,3288	1,984	1,8	0,2065	20149	0,01	0	62,4	51,5	2091658	0,1894	0	0,5706	1547400
2,4825	2,51	2,47	0,1577	19710	0,019	0,1	10,8	4,2	1064573	0,0457	0,045	0,0671	2556400
0,5267	0,507	0,48	0,1375	1901	0,008	1,1	16,6	5,1	234988	0,1686	0,017	0,025	241000
1,7437	1,439	1,94	0,0864	834	0,012	24,2	30,4	10,5	70861	0,0602	0	0,0285	76000
4,2835	4,53	5,17	0,2534	23188	0,048	5,1	49,1	13,4	479006	0,1837	0	0,0296	104200
1,2812	1,414	1,5	0,2309	1431	0,009	0,1	40,5	25,6	160248	0,1068	0	0,2833	440800
6,0785	6,152	19,44	0,1049	2383	0,024	0,9	30,3	8,6	98294	0,0127	0	0	347600
0,9297	0,945	0,96	0,0797	3468	0,011	0,7	25,3	10,9	321260	0,0591	0	0	801600
3,6323	3,499	4,1	0,1027	1263	0,015	12	69,8	21,3	86283	0,3154	0	0,1027	180300
8,4264	7,483	5,32	0,273	203213	0,026	26	28,9	14,9	7897957	0,0526	0,145	0	50800
1,7579	1,483	1,2	0,2184	19141	0,156	61,2	4,6	4,6	122571	0,0454	0	0,0347	251600
4,2491	4,411	4,53	0,3912	1629	0,109	0,1	18,4	10,1	14974	0,3656	0	0,1309	1059000
2,5186	2,539	1,68	0,3222	274426	0,161	0,7	48,9	20,1	1700058	0,1879	5E-04	0,2345	258200
3,4979	2,937	2,98	0,2757	5167	0,033	4,6	20,9	6,7	156775	0,0627	0	0	116500
4,8693	4,778	66,39	0,095	685	0,053	0,3	18	5,6	12899	0,0165	0	0,2778	706600
2,5675	2,902	1,96	0,444	6114	0,026	17	12,2	9,1	233354	0,3211	0	0	411700
20,791	23,926	20,9	0,5738	2400	0,129	1,2	19,8	7,3	18626	0,0856	0	0,1123	440100
2,5601	2,793	2,5	0,1913	1631	0,057	1,6	33,1	11,8	28825	0,2163	0	0	184000
10,524	10,661	5,53	-0,086	3844	0,358	0,3	39,8	8,9	10739	0,0763	0,411	0	523600
1,7124	2,287	13,48	0,2751	798	0,031	1,1	15,8	5,4	25372	0,3336	0	0,0039	3821700

Table 2: Original data. - continued

2,4592	1,783	1,72	0,1583	803	0,016	8,7	65,6	14,1	50331	0,0663	0	0	8700
0,7883	0,836	0,86	0,1963	1439	0,005	0	41,4	33,8	263848	0,082	0,009	0,0586	50884300
5,6818	5,691	51,78	-0,374	6487	0,198	0,2	31	9,3	32739	0,0283	0	0,0281	442800
2,9337	3,237	37,69	0,1484	1504	0,024	0,1	39,1	12,2	61506	0,104	0,029	0	91100
1,9871	1,983	2,18	0,1259	11473	0,029	15,5	52,8	45,9	390625	0,0097	0	0	208200
0,9454	1,001	1,04	0,1186	542	0,003	0,1	46,2	25	162464	0,059	0,003	0	406500
2,0389	4,143	2,94	0,169	1423	0,016	0,3	36,1	11,1	86825	0,208	0	0,0234	300400
17,129	14,707	1,37	0,0099	276	0,042	0,6	38	10,1	6591	0	0	0	463200
5,1165	3,912	2,74	0,2918	45167	0,034	13,4	22,6	5,6	1314833	0,1673	0	0,1021	436700
0,991	0,935	1,48	0,0977	4202	0,008	0	43,7	20,6	531402	0,0358	0,003	0,0013	529600
1,85	1,778	1,37	0,1888	1254	0,025	6,4	12,3	7,4	49451	0,0402	0,004	0,0032	29300
0,9079	1,018	1,45	0,2174	1709	0,003	56,3	0	0	574990	0,1557	0	0	44500

Table 3 shows some descriptives of the variables: Number of observations, minimum and maximum value, mean and standard deviation of each variable.

Table 3: Variables descriptives

	N	Minimum	Maximum	Mean	Std. Deviation
Tobin's q 98 RC	50	,5267	20,7908	3,726762	4,4676516
Tobin's q 98 BV	50	,4710	23,9260	3,697940	4,6571848
Tobin's q 97 BV	50	,4800	66,3900	6,253800	12,6939669
Liquidity	50	-,37444	,57377	,1881110	,14662041
StDev Profit	50	175	274426	22012,88	53956,937
Volatility	50	,00297	,35792	,0436342	,06168502
MGT % of Equity	50	,00	61,20	7,8460	14,26646
Blockholders % of Equity	50	,00	69,80	32,4200	16,65474
Major Blockh % of Equity	50	,00	51,50	13,2880	9,93954
RC Assets (000's)	50	6591	7897957	717110,16	1535285,931
Cap Expend/RC	50	,00000	,36563	,1183530	,09165899
R&D Expend/RC	50	,00000	,41130	,0195540	,06258987
Leverage	50	,0000	,5706	,049390	,1015717
Market V. of Equity (000's)	50	8700	50884300	1839912,00	7277388,076

III.2. Correlation Analysis

In order to acquire a general view of the inter-relationships between all the variables involved in the statistical analysis it is necessary to analyse the correlations between variables, always keeping in mind that high (low) correlation does not necessarily imply high (low) dependence between variables. As correlation measure is used the Pearson coefficient of correlation. The correlations between the variables are shown in table 4.

Table 4: Correlations matrix of the variables (correlations statistically significant at level of significance 5% with 2-tailed t-test are highlighted)

		V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14
V1	Pearson	1,00	0,99	0,23	0,20	-0,01	0,38	-0,16	-0,20	-0,25	-0,03	-0,09	0,28	0,00	-0,07
	Sig. (2-tail)	,	0,00	0,11	0,17	0,93	0,01	0,28	0,16	0,08	0,84	0,54	0,05	1,00	0,63
V2	Pearson	0,99	1,00	0,25	0,23	-0,04	0,38	-0,17	-0,21	-0,24	-0,07	-0,05	0,27	0,00	-0,06
	Sig. (2-tail)	0,00	,	0,08	0,11	0,77	0,01	0,23	0,14	0,09	0,66	0,72	0,06	1,00	0,68
V3	Pearson	0,23	0,25	1,00	-0,29	-0,11	0,26	-0,18	-0,13	-0,18	-0,14	-0,17	-0,03	0,18	-0,07
	Sig. (2-tail)	0,11	0,08	,	0,04	0,44	0,07	0,22	0,39	0,21	0,35	0,25	0,85	0,22	0,64
V4	Pearson	0,20	0,23	-0,29	1,00	0,13	-0,20	0,07	-0,23	-0,11	0,03	0,45	-0,22	0,15	0,01
	Sig. (2-tail)	0,17	0,11	0,04	,	0,35	0,16	0,63	0,11	0,46	0,83	0,00	0,13	0,29	0,94
V5	Pearson	-0,01	-0,04	-0,11	0,13	1,00	0,15	0,10	0,06	0,03	0,77	0,01	0,11	0,16	-0,08
	Sig. (2-tail)	0,93	0,77	0,44	0,35	,	0,29	0,49	0,71	0,82	0,00	0,94	0,45	0,26	0,60
V6	Pearson	0,38	0,38	0,26	-0,20	0,15	1,00	-0,01	-0,08	-0,16	-0,10	-0,03	0,62	0,05	-0,09
	Sig. (2-tail)	0,01	0,01	0,07	0,16	0,29	,	0,96	0,56	0,27	0,50	0,82	0,00	0,75	0,53

Table 4: Correlations matrix of the variables (correlations statistically significant at level of significance 5% with 2-tailed t-test are highlighted) - continued

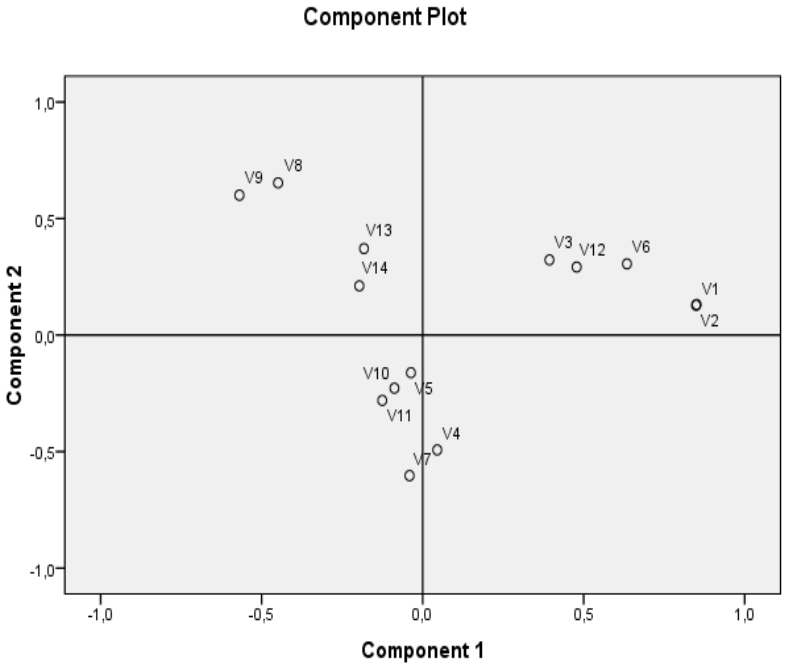
V7	Pearson	-0,16	-0,17	-0,18	0,07	0,10	-0,01	1,00	-0,34	-0,21	0,18	-0,03	-0,06	-0,18	-0,08
	Sig. (2-tail)	0,28	0,23	0,22	0,63	0,49	0,96	,	0,02	0,15	0,20	0,85	0,69	0,21	0,57
V8	Pearson	-0,20	-0,21	-0,13	-0,23	0,06	-0,08	-0,34	1,00	0,65	-0,01	-0,03	0,05	0,20	0,04
	Sig. (2-tail)	0,16	0,14	0,39	0,11	0,71	0,56	0,02	,	0,00	0,97	0,84	0,71	0,16	0,81
V9	Pearson	-0,25	-0,24	-0,18	-0,11	0,03	-0,16	-0,21	0,65	1,00	0,04	-0,02	-0,08	0,46	0,29
	Sig. (2-tail)	0,08	0,09	0,21	0,46	0,82	0,27	0,15	0,00	,	0,79	0,90	0,57	0,00	0,04
V10	Pearson	-0,03	-0,07	-0,14	0,03	0,77	-0,10	0,18	-0,01	0,04	1,00	-0,06	0,17	0,07	-0,06
	Sig. (2-tail)	0,84	0,66	0,35	0,83	0,00	0,50	0,20	0,97	0,79	,	0,69	0,24	0,63	0,66
V11	Pearson	-0,09	-0,05	-0,17	0,45	0,01	-0,03	-0,03	-0,03	-0,02	-0,06	1,00	-0,12	0,17	-0,08
	Sig. (2-tail)	0,54	0,72	0,25	0,00	0,94	0,82	0,85	0,84	0,90	0,69	,	0,39	0,23	0,60
V12	Pearson	0,28	0,27	-0,03	-0,22	0,11	0,62	-0,06	0,05	-0,08	0,17	-0,12	1,00	-0,13	-0,02
	Sig. (2-tail)	0,05	0,06	0,85	0,13	0,45	0,00	0,69	0,71	0,57	0,24	0,39	,	0,38	0,88
V13	Pearson	0,00	0,00	0,18	0,15	0,16	0,05	-0,18	0,20	0,46	0,07	0,17	-0,13	1,00	0,01
	Sig. (2-tail)	1,00	1,00	0,22	0,29	0,26	0,75	0,21	0,16	0,00	0,63	0,23	0,38	,	0,94
V14	Pearson	-0,07	-0,06	-0,07	0,01	-0,08	-0,09	-0,08	0,04	0,29	-0,06	-0,08	-0,02	0,01	1,00
	Sig. (2-tail)	0,63	0,68	0,64	0,94	0,60	0,53	0,57	0,81	0,04	0,66	0,60	0,88	0,94	,

In the correlation matrix is shown that statistically significant correlations exist between the variables:

- V1 and V2 (Tobin's q 98 RC and Tobin's q 98 BV, r=0,99)
- V1 and V12 (Tobin's q 98 RC and R&D Exp/RC r=0,28)
- V2 and V6 (Tobin's q 98 BV and Volatility r=0,38)
- V3 and V4 (Tobin's q 97 BV and Liquidity r= -0,29)
- V4 and V11 (Liquidity and Cap Exp/RC r=0,45)
- V5 and V10 (StDev Profit and RC Assets (£000's) r=0,77)
- V6 and V12 (Volatility and R&D Exp/RC r=0,62)
- V7 and V8 (MGT % of Equity and Blockholders % of Equity r= -0,34)
- V8 and V9 (Blockholders % of Equity and Major Blockholders % of Equity r=0,65)
- V9 and V13 (Major Blockholders % of Equity with Leverage r=0,46)

A panoramic view of the correlations between the variables is given in graph 1, which is the factorial plane obtained by the Principal components technique.

Graph 1: Factorial plane for the first two principal components



In the graph are re-found the major correlations, positive and negative, shown in the correlation matrix, but this time one has the visual structure of the correlations. The graph exhibits the strong correlation between the variables V1 and V2 (Tobin's q 98 RC and Tobin's q 98 BV, between the variables V8 and V9 (Blockholders % of Equity and Major Blockholders % of Equity) and the negative correlation between the variables V7 and V8 (MGT % of Equity and Blockholders % of Equity).

The reliability of the positions of the variables in the factorial plane is satisfactory, since as shown in table 5 the variance explained by the first two principal components is 35% indicating a very good result for the application of the Principal components technique to a matrix of dimension 50x14.

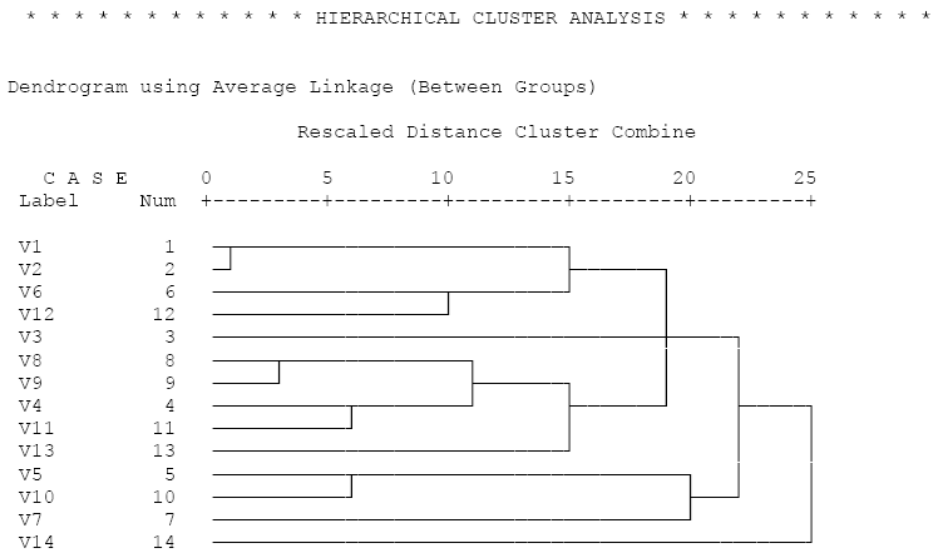
Table 5: Total Variance explained by the first two principal components

Total Variance Explained			
	Extraction Sums of Squared Loadings		
Component	**Total**	**% of Variance**	**Cumulative %**
1	2,856	20,401	20,401
2	2,049	14,639	35,040

Extraction Method: Principal Component Analysis.

Graph 2 below shows the hierarchical inter-correlation between the variables. It was obtained by the technique of hierarchical cluster analysis with the method of average linkage and using as proximity measure the Pearson's coefficient of correlation.

Graph 2: Hierarchical cluster analysis- dendrogram- of the variables



III.3. Regression Analysis

In this section are performed the regression analyses in order to investigate the existence of functional relationships between some key-variables in the article, especially between the variables pertaining to the ownership structure. The analysis contains simple and multiple regressions.

All the simple regression models have the form:

$Y_i=b_0+b_1X_i+u_i$ (i=1,2,..,50)

b_0, b_1 and u are the constant, the slope and the regression residual respectively. For the residuals we make the usual hypotheses pertaining to Ordinary Least Squares method: they are independent random variables, normally distributed, with zero mean and constant variance. These hypotheses are necessary for the application of t-tests for checking the significance of the regression parameters b_0 and b_1. The multiple regression model relates the variable Tobin's q as dependent variable to the variables Management Shareholdings, Blockholders and Major Blockholders as independent variables. The

model corresponds to the hypothesis that the ownership structure affects the firm's performance. It has the form:

$\mathbf{Y_i}=b_0+b_1X_{1i}+b_2X_{2i}+b_3X_{3i}+u_i$ (i=1 to n=50)

Y_i: Tobin's q 98 RC

X_{1i}: MGT % of Equity

X_{2i}: Blockholders % of Equity

X_{3i} : Major Blockholders % of Equity

u_i : Random residual

In the case of multiple regression they are also adopted the same hypotheses for the residuals as in the case for simple regression (independence, normal distribution with null mean and constant variance). The regression details are shown in tables 6 through 16.

Table 6: Regression of Tobin' q 98 RC vs. Capital Expenditure

Model	Dependent Variable: Tobin's q 98 RC	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	4,242	1,045		4,059	,000	2,141	6,343
	Cap Expend/RC	-4,355	7,007	-,089	-,621	,537	-18,444	9,734

R Square Analysis									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,089[a]	,008	-,013	4,495934	,008	,386	1	48	,537

The regression shows no significant effect of Capital Expenditure to Tobin' q 98 RC (significance of t value for the slope b is 0,537>0,050). Also the F-test for all regression parameters does not reject the hypothesis of simultaneous nullity of the model parameters (significance of F change value=0,537>0,050).

Table 7: Multiple regression of Tobin's q 98 RC vs. MGT % of Equity, Blockholders % of Equity and Major Blockholders % of Equity

Model	Dependent Variable: Tobin's q 98 RC	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	6,914	1,566		4,415	,000	3,762	10,066
	MGT % of Equity	-,079	,046	-,251	-1,709	,094	-,171	,014
	Blockholders % of Equity	-,044	,051	-,163	-,864	,392	-,145	,058
	Major Blockholders % of Equity	-,087	,082	-,193	-1,064	,293	-,251	,077

R Square Analysis									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,346[a]	,120	,062	4,325825	,120	2,089	3	46	,115

The regression shows no significant effect on Tobin's q 98RC of the variables:

- MGT % of Equity (significance of t value for the parameter b_1 is 0,094>0,050).
- Blockholders % of Equity (significance of t value for the parameter b_2 is 0,392>0,050).
- Major Blockholders % of Equity (significance of t value for the parameter b_3 is 0,293>0,050).

Also the F-test for all regression parameters does not reject the hypothesis of simultaneous nullity of the model parameters (significance of F change value=0,115>0,050).

Table 8: Regression of MGT % of Equity vs. Capital Expenditure

Model	Dependent Variable: MGT % of Equity	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	8,346	3,349		2,492	,016	1,612	15,080
	Cap Expend/RC	-4,223	22,457	-,027	-,188	,852	-49,377	40,931

R Square Analysis									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,027[a]	,001	-,020	14,409027	,001	,035	1	48	,852

The regression shows no significant effect of Capital Expenditure to MGT % of Equity (significance of t value for the slope b is 0,852>0,050). Also the F-test for all regression parameters does not reject the hypothesis of simultaneous nullity of the model parameters (significance of F change value=0,852>0,050).

Table 9: Regression of MGT % of Equity vs. Tobin's q 98 RC

Model	Dependent Variable: MGT % of Equity	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	9,706	2,633		3,686	,001	4,412	14,999
	Tobin's q 98 RC	-,499	,455	-,156	-1,096	,279	-1,414	,416

R Square Analysis									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,156[a]	,024	,004	14,237244	,024	1,201	1	48	,279

The regression shows no significant effect of Tobin's q 98 RC to MGT % of Equity (significance of t value for the slope b is 0,279>0,050). Also the F-test for all regression parameters does not reject the hypothesis of simultaneous nullity of the model parameters (significance of F change value=0,279>0,050).

Table 10: Regression of MGT % of Equity vs. Market value of Equity

Model	Dependent Variable: MGT % of Equity	Unstandardized Coefficients		Standardiz. Coeffic.	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	8,142	2,097		3,883	,000	3,926	12,358
	Market V. of Equity (000's)	-1,610E-07	,000	-,082	-,571	,571	,000	,000

R Square Analysis									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,082[a]	,007	-,014	14,365599	,007	,326	1	48	,571

The regression shows no significant effect of Market value of Equity to MGT % of Equity (significance of t value for the slope b is 0,571>0,050). Also the F-test for all regression parameters does not reject the hypothesis of simultaneous nullity of the model parameters (significance of F change value=0,571>0,050).

Table 11: Regression of Blockholders % of Equity vs. Capital Expenditure/RC

Model	Dependent Variable: Blockholders % of Equity	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	33,051	3,910		8,454	,000	25,190	40,911
	Cap Expend/RC	-5,329	26,215	-,029	-,203	,840	-58,038	47,380

R Square Analysis									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,029[a]	,001	-,020	16,820081	,001	,041	1	48	,840

The regression shows no significant effect of Capital Expenditure/RC to Blockholders % of Equity (significance of t value for the slope b is 0,840>0,050). Also the F-test for all regression parameters does not reject the hypothesis of simultaneous nullity of the model parameters (significance of F change value=0,840>0,050).

Table 12: Regression of Blockholders % of Equity vs. Tobin's q 98 RC

Model	Dependent Variable: Blockholders % of Equity	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	35,239	3,047		11,564	,000	29,112	41,366
	Tobin's q 98 RC	-,756	,527	-,203	-1,436	,158	-1,816	,303

R Square Analysis									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,203[a]	,041	,021	16,477281	,041	2,061	1	48	,158

The regression shows no significant effect of Tobin's q 98RC to Blockholders % of Equity (significance of t value for the slope b is 0,158>0,050). Also the F-test for all regression parameters does not reject the hypothesis of simultaneous nullity of the model parameters (significance of F change value=0,158>0,050).

Table 13: Regression of Blockholders % of Equity vs. Market value of Equity

Model	Dependent Variable: Blockholders % of Equity	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	32,273	2,455		13,148	,000	27,338	37,209
	Market V. of Equity (000's)	7,975E-08	,000	,035	,242	,810	,000	,000

R Square Analysis									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,035[a]	,001	-,020	16,817113	,001	,058	1	48	,810

The regression shows no significant effect of Market value of Equity to Blockholders % of Equity (significance of t value for the slope b is 0,810>0,050). Also the F-test for all regression parameters does not reject the hypothesis of simultaneous nullity of the model parameters (significance of F change value=0,810>0,050).

Table 14: Regression of Major Blockholders % of Equity vs. Capital Expenditure/RC

	Dependent Variable: Major Blockholders % of Equity	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	13,528	2,334		5,796	,000
	Capital Expenditure/RC	-2,024	15,650	-,019	-,129	,898

Adjusted R Square Analysis									
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	**Change Statistics**				
					R Square Change	**F Change**	**df1**	**df2**	**Sig. F Change**
1	,019[a]	,000	-,020	10,040799	,000	,017	1	48	,898

The regression shows no significant effect of Capital Expenditure/RC to Major Blockholders % of Equity (significance of t value for the slope b is 0,898>0,050). Also the F-test for all regression parameters does not reject the hypothesis of simultaneous nullity of the model parameters (significance of F change value=0,898>0,050).

Table 15: Regression of Major Blockholders % of Equity vs. Tobin's q 98 RC

Model	**Dependent Variable: Major Blockholders % of Equity**	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	15,332	1,800		8,518	,000
	Tobin's q 98 RC	-,548	,311	-,246	-1,762	,084

R Square Analysis									
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	**Change Statistics**				
					R Square Change	**F Change**	**df1**	**df2**	**Sig. F Change**
1	,246[a]	,061	,041	9,732721	,061	3,105	1	48	,084

The regression shows no significant effect of Tobin's q 98 RC to Major Blockholders % of Equity (significance of t value for the slope b is 0,084>0,050). Also the F-test for all regression parameters does not reject the hypothesis of simultaneous nullity of the model parameters (significance of F change value=0,084>0,050).

Table 16: Regression of Major Blockholders % of Equity vs. Market value of Equity

Model	**Dependent Variable: Major Blockholders % of Equity**	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	12,555	1,402		8,955	,000
	Market value of Equity	3,985E-7	,000	,292	2,113	,040

R Square Analysis									
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	**Change Statistics**				
					R Square Change	**F Change**	**df1**	**df2**	**Sig. F Change**
1	,292[a]	,085	,066	9,605602	,085	4,466	1	48	,040

The regression shows significant effect of Market value of Equity to Blockholders % of Equity (significance of t value for the slope b is 0,040<0,050). Also the F-test for all regression parameters rejects the hypothesis of simultaneous nullity of the model parameters (significance of F change value=0,040<0,050).

The results of the above regressions indicate that out of the tested relationships only the relationship between major blockholders and the market value of equity can represent a causal

relationship. The interpretation of this result requires more investigation in the mode in which these two entities are connected.

IV. Conclusions

The preceding statistical analysis did not give evidence to the hypothesis that the corporate ownership structure and the assets recovery costs statistically affect the firm performance. It is possible that the cause of this result was the specific data or the conceptualization of the variables, which were supposed to really reflect what is meant by the term corporate ownership. Besides, other statistical techniques or more complicate regression models might offer results advocating to the adoption, or at least not rejection, of the hypothesis of causal relationship between corporate ownership and firm performance. Nevertheless, the non agreement of the statistical results cannot *ipso facto* be the ultimate critique of the plausibility- or even more the correctness of a theory. The statistical results are the start, not the end of a social theory, as this of the corporate ownership and control. An institution as the modern corporate company is a social institution and as such it can never become fully transparent, since this would require complete knowledge of humans motives and expectations, which is an impossible. But on the other side the statistics remain to be the only source of knowledge in the social affairs. More data and more elaborated techniques, combined with more elaborated firm theories can shed more light in the problem approached in this article.

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