

# Value Creation and Contestability: Findings From Italian Market

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## Abstract

The idea of this research starts from the debate about the efficiency of the Italian capital market. In an increasingly globalized context, where Italian companies have to compete not only among themselves but also with foreign forces, the inefficiency of the capital market could be a fundamental discriminant. This paper aims to analyze the contestability in the Italian market. As it is known, it has some peculiarities. If compared with the other market, the Italian one is strongly characterized by the presence of small and medium-sized enterprises (SME), most of them family-run. In the Italian listed companies the entrepreneur

and the manager are the same person, often chosen in the same family that exercises control. So the Italian market has a low contestability. Furthermore, the analysis conducted allows determining the existence of a relationship between value creation and contestability.

**Keywords:** Contestability, Financial structure, Ownership, Control, Value creation, Performance

## 1. Introduction

The analysis of Italian listed companies conducted in this work cannot ignore the typical Italian business environment and the main characteristics of the reference stock market. In particular in the Italian business we observe the prevalence of small and medium enterprises (SMEs), with the presence of a few large companies that can take on the role of public companies, or the fractional ownership model typical of the English markets. Information that emerges is a prevailing family ownership structure, similar to the German situation, with the difference that often even the members assigned to management belong to the same families. The Italian owners are also reluctant to delegate management to external subjects, something that happens with great frequency in all the other economic realities. Regarding the stock market listed companies are a minimum percentage and numerically they are around 300. This data evidences that a very low percentage of companies is listed, considering that the companies registered in Italy are near to 4.4 million. Surely this situation is due to the above reasons: the average size of the companies; the family structure. The prevalence of SMEs can be considered a brake on the development of the capital market, as often a quotation requires capacity, both from a management, forecasting and financial point of view, which are not typical of small-scale entrepreneurial companies. As just mentioned, the family structure also influences the possibility of quotation. The reasons are many, on the one hand we find the tendency of families in Italy not to sell their shares and therefore in this sense the listing on regulated markets could be a contradiction as it would risk an excessive dilution of holdings. On the other side also the non-delegation of management to external managers is a brake, in fact, by not resorting to administration specialists and relying solely on family members, there is the risk of losing a valuable tool for the financial supply which is the quotation. This requires a managerial culture often absent in SMEs. The private benefits of control also play a fundamental and interesting role. The Dick and Zingales study "Private benefits of control: an international comparison" in 2004. The private benefits of control are estimated in 39 countries, using 393 block sales (1990 / 2000). On average the value of the control is 14%, but in some countries it assumes a value of -4% and in other values above 65%. As expected, higher values are found in markets where the capital market is poorly developed and there is greater concentration of ownership. Private benefits of control refer to the amount of benefits that the controlling shareholders extract from the companies that they drive. This topic is very current and fundamental for the study of financial market development and protection for minority shareholders. These benefits are difficult to verify and measure. Two methods were used to quantify them. The first is Barclay and Holderness, which focused on the private negotiations for the sale of control blocks of publicly traded companies. The difference between the market price and the price paid, adjusted for some factors, is the value of control. The second method, by Lease, McConnell, Mikkelson, De Angelo, Rydqvist, focuses on

those companies that provide shares with different voting rights. The benefit of control in this case is represented by the market value, ie the differences in the value of these shares, which have similar property rights, but different voting rights.

William Baumol, Robert Willig and John C. Panzar introduced the concept of contestability of the markets in 1982. As claimed by the Contestable Market Theory, the threat of competition and the degree of market competition influences the quantity offered and the price. Considering a monopolistic market, if another company could enter the market, the behavior of the monopolist would tend to align itself with that of a producer in perfect competition. This can occur in a perfectly contestable market, ie a market where the costs of entry and exit from the market by potential rivals with the same technology as the monopolist are zero. So, new companies will quickly enter the market, attracted by the possibility to obtain extra profits, thus eroding the share of profits that the monopolist is able to obtain.

Extending this theory to the companies and considering the majority shareholder as a sort of monopolist, we can define companies based on their level of contestability. In particular, a company should not be defined contestable when there is a majority shareholder who alone or in a group, is able to impose its decisions precluding any possibility of hostile acquisition of control by every other subject. Conversely, contestable companies are those where investors external to the company, can obtain the control of the company without the consent of the majority shareholder.

## **2. Literature Review**

The first discussion about separation between ownership and control is traced back to Adolph Berle and Gardiner Means. Their work of 1932, entitled "The Modern Corporation and Private Property", analyzes the United States companies, which are characterized for an ownership of capital dispersed among many small shareholders and control exercised by management. This book helps to create the image of a modern corporation run by professional managers. After the publication of this work there is the development of a "managerial" literature including the works of Baumol (1959), Marris (1964), Penrose (1959), Williamson (1964) and Galbraith (1967).

Later, other authors (Jensen and Meckling (1976), Grossman and Hart (1980)) have studied the image of corporation conceived by Berle and Means. Over time, studies have focused on testing the empirical validity of this image. In this regard the works of Eisenberg (1976), Demsetz and Lehn (1985), Shleifer and Vishny and Morck (1988) show that even in the largest American companies the property is concentrated.

Holderness and Sheehan in a 1988 study identify in the United States some hundreds of listed companies that have majority shareholders, who hold more than 51%. In a further study (1999), the authors also found that managerial ownership in the US increased compared to the level that Berle and Means had theorized in their main work. Further studies on rich countries reveal a significant concentration of ownership in Germany, Japan, Italy and some OECD countries. La Porta and al. (1998) identify a high degree of concentration of ownership even in developing economies. All these studies show that many countries present

large companies that have majority shareholders and that these shareholders are able to impact on the company's governance. This contrasts with the idea developed by Berle and Means who believed that management was not able to influence management.

The Modern Corporation of Berle and Means could be a model of society diffused in countries with adequate protection of minority shareholders: the controlling shareholders are less afraid of being expropriated in case they lose control through the acquisition of shares from others and may be willing to sell their shares to raise resources or to diversify. Conversely, in countries where the protection of minority shareholders is scarce, losing control and becoming a minority shareholder could be excessively expensive in terms of waiver the private benefits of control.

For Bennedsen and Wolfenzon (2000) control structures characterized by a multiplicity of shareholders may represent the most efficient form of ownership structure, especially in those countries where there is a lack of shareholder protection. Bloch and Hege (2001) deny this view and argue that what is really important in the concept of control is the possibility that the position of the majority shareholder can actually be contestable: in fact, control appears to be contestable where this shareholder does not have the possibility of increasing the level of "income" that he can extract from the control exercised, without losing control. Empirical studies show that the presence of a larger number of shareholders is not a rarity respect to a large number of companies worldwide.

In 2004, Guti érez and Trib ó conducted an empirical analysis on the ownership structure that saw the presence of several majority shareholders, on a sample of Spanish companies in the period 1996-1999. Their study examined, in particular, the way in which the majority shareholders shared the exercise of control and extracted the related private benefits. Through an econometric analysis, the Authors conclude that company performance improves as the proportion of ownership held by the control group increases and this increase is divided between a larger numbers of members exercising control. They also argue that the expropriation of minority shareholders is not common in listed companies. Subsequently, Maury and Pajuste with their work "Multiple Large Shareholder and Firm Value" of 2004 focused their study on the effects of the presence of several majority shareholders on the valuation of companies. The reference sample is represented by 136 non-financial companies listed on the Finnish market from 1993 to 2000. Through this research it is shown that a more equitable distribution of votes among the big shareholders can have positive effects on the company's performance. This emerges even more clearly if the property is represented by a family, which usually also has members in the CDA. In addition to these aspects, the importance of the owners' identity in the performance-concentration ratio was also examined in the paper. Developing a model consistent with that used by Bennedsene and Wolfenzon in 2000, the two authors highlighted how the marginal cost linked to the possibility of extraction of private benefits could be higher in the case in which the share capital is divided between a multiplicity of holders, since this situation reduces the amount of private benefits that can be extracted from control: the study shows that a higher level of contestability, deriving from the presence of several shareholders, can lead to a better evaluation of the companies themselves. The main result that can be found in the analysis carried out by Maury and Pajuste is that the

value of the companies increases with the increase in the contestability of control. To reach these results the regression method is used, the variables concerning the contestability are Herfindhal index, Herfindal index of the difference between the percentages of control (in both cases the logarithm of the obtained value is used) and the Shapley value. While the performance variables are the Tobin Q and the ROA.

Attig, Guedhami and Mishra (2008) analyze a sample of 1165 companies from eight East Asian countries and thirteen Western European countries to test the hypothesis that the presence of several shareholders decreases agency costs and the asymmetries of information reflected in the cost of funding. From their study emerges that the cost of equity is reduced with the presence, the number and the vote of the big shareholders beyond the owner control. Furthermore, the presence of a second majority shareholder is important for defining the risk of corporate expropriation, especially in family-owned companies. The analysis shows that, especially in Asian companies, the presence of governance structures with various shareholders plays a fundamental role in reducing the extraction of private benefits and in contrasting information asymmetries.

In the work "Assetti proprietari delle società quotate italiane e valore d'impresa" by Mengoli and Sapienza analyze the relationship between contestability and value. In fact, as regards the corporate structure, in addition to the cash flow of the major shareholders, the degree of separation between ownership and control is also a measure that influences contestability. The result they reach is that a lower separation corresponds to better performances.

Another interesting study is "Corporate Ownership and Control Contestability in Emerging Markets: the case of Colombia", of 2005, by Gutierrez and Pombo. This paper studies, examining 233 non-financial companies listed from 1996 to 2004, studying the structure of control in Colombia. The situation that emerges is that of the proprietary concentration. Using then the regression methodology, it is noted that a better distribution of risk capital among large shareholders could lead to positive effects on company performance. In fact, when the contestability increasing, and the opportunity to extract private benefits from the controlling shareholders decreasing leads to better performances. Other elements that improve performance are certainly the level of capital market development and the level of legal protection for investors. The study conducted in 2010 by Foley and Greenwood evidences that countries with better forms of protection for investors have a more diluted ownership.

The research "Multiple large shareholders, control contests, and implied cost of equity" by Attig, Guedhami, Mishra of 2008 also studies the relationship between value and contestability with a difference compared to the previous ones: it is the only one that uses as a measure of value the cost of risk capital of the company being analyzed.

The paper, in addition to examining how the presence of several large shareholders can reduce agency costs and information asymmetries, extends research to the effects on the cost of risk capital of companies, considering it as a proxy of company value. The sample analyzed includes both listed companies in East Asia (Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan, Thailand) and Western Europe (Austria, Belgium,

Finland, France, Germany, Ireland, Italy, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom), for the period 1996-1999. Different indicators are used as measures of contestability, the share of the first shareholder, the share of the second shareholder, their relationship, the sum of the shares of the second, third, fourth, fifth shareholder, the ratio between the latter and the share of the largest shareholder and finally the Herfindahl differences of the first 5 shareholders. As for the cost of risk capital, it is considered as the rate that makes the present value of the expected future cash flows equal to the price of the shares. The methodology used is regression. The research empirically highlights how the presence of several large shareholders, with similar voting rights, mitigates the agency costs and decreases the cost of risk capital, plausibly because a good level of contestability (guaranteed by the presence of several large shareholders) is guarantee of a good quality of the information produced by the company and therefore of lower levels of capital cost.

Finally in the work of 2008 by Jara Bertin, Lopez Iturriaga, Lopes de Foronda, "The contest to the control in European family firms: how other shareholder affect firm value", the sample includes 1.208 companies from 11 EU countries in the period 1996-2000, out of a total of 3.091 observations. As a value-related variable, the market to book value is used, which is a measure linked to the market. To examine the contestability, instead, authors use different variables, such as the ratio between the share of capital held by the first shareholder and the sum of the shares of the second and third, the dummy TC variable, which is equal to 1 when the rights on the main shareholder's cash flows are in the first quarter (the third of the companies with the highest property value held by the main shareholder) and is equal to 0 in the other cases (this variable allows to verify the specific effect of some variables in the companies in which the main shareholder has a higher ownership and, consequently, greater ability and incentives to obtain private benefits), the two Herfindahl indices, calculated taking into account the three main shareholders. The result is that the contestability of the control is positively correlated to the value of family-owned companies and the Herfindahl indices have a negative impact on the value of the company (given that higher values of the Herfindahl indices are synonymous with less contendability).

In their work of 2014 Mwangi and others analyzed the existence of a relationship between capital structure and economic performance. They based the study on a panel of 42 non financial companies listed at the Nairobi Securities Exchange. The Authors found a negative relationship between the increase of financial leverage and the performance measured by ROE and ROA. The existence of a relationship between financial structure, ROE and ROA emerged also from the analysis conducted in 2016 by Muchiri and others. Using a panel of 61 non financial firms, for the period 2006-2016, listed at East Africa Securities Exchanges they found that both models with ROA and ROE had a significance level at 5%. In 2015 Preda found the existence of a non linear relationship between leverage and performance measured by ROE, ROA and MBV analyzing 16 pharmaceutical companies for the period 2001-2013 from Bulgaria, Poland, Ukraine, Romania and Hungary.

### 3. Data and Methodology

Data analyzed refer to 209 listed companies of the sectorial FTSE Italia sector indexes, for the 2008-2012 periods. Data after 2012 were not considered as the worsening of the economic and financial crisis affected the performance of the companies. For each company of the panel, the shareholding structure and the accounting structure were analyzed. The sectorial FTSE Italy indexes used in the analysis have replaced the historical sectorial MIB. They are created by dividing the shares of the FTSE Italia All Share index according to the ICB classification. The FTSE Italia index is divided in the following sectors:

- FTSE Italy Oil and natural gas;
- FTSE Italia Chemistry and raw materials;
- FTSE Italia Industry;
- FTSE Italia Consumer goods;
- FTSE Italia Health;
- FTSE Italia Consumer services;
- FTSE Italia Telecommunications;
- FTSE Italia Public services;
- FTSE Italia Finance;
- FTSE Italia Technology.

<b>FTSE Italy Sectors</b>	<b>N ° of companies</b>
Consumer goods	37
Chemistry and raw materials	3
Finance	46
Industry	51
Oil and natural gas	5
Health	7
Consumer services	25
Public services	16
Technology	18
Telecommunications	3
<b>Total</b>	<b>211</b>

Data on the shareholding structure were obtained from the Consob database; for the accounting data, we analyzed the financial statements available on the website of each companies or using the Italian Stock Exchange website. We computed the following indicators of performance and contestability:

- ROE (return on equity);
- ROA (return on assets);
- Market to Book value;
- Herfindal Index;
- Weighted Herfindal Index;

ROE is calculated by dividing net income by shareholders' equity. In formulas:

$$ROE = \frac{Net\ income}{Shareholder's\ equity}$$

ROA is computed as the ratio between EBIT (Earnings before Interests and Taxes) and total assets:

$$ROA = \frac{EBIT}{Total\ assets}$$

Market to book value is calculated with the following formula:

$$\frac{M}{BV} = \frac{Stock\ market\ capitalization}{Net\ assets}$$

The Herfindhal Index (HI) measures the concentration in the market and the "monopoly" power of a company in relation to other companies within the same sector. An increase in the index generally indicates a reduction in competition and an increase in market power. It is computed as follow:

$$HI = \sum_{i=1}^n \left( \left( \frac{Q_i}{100} \right)^2 \times 100 \right)$$

Where  $Q_i$  refers to the share held by the various shareholders. We can compute also the weighted version of this index obtaining the Weighted Herfindhal Index (WHI), where the weight is the capitalization of the company. In formulas:

$$WHI = HI \times Stock\ market\ capitalization\ (in\ millions)$$

In order to classify the companies on the basis of the degree of contestability it was necessary to identify the minimum level of contestability. This is the value over which there is no contestability. The minimum level of contestability is calculated as:

$$\% \text{ minimum of contestability} = \sum \frac{(100 - \text{own shares held})}{2}$$

As we can note from the formula, the minimum percentage of contestability depend on the own shares held. If the company does not hold its own shares, the threshold percentage for contestability is always constant and equal to 50%.

So we have three categories of companies: contestable companies; relatively contestable companies; non contestable companies. For contestable companies we talk about companies in which the first shareholder holds a percentage lower than the minimum threshold for contestability and, at the same time, the sum of the percentages of shares held by all the relevant shareholders is lower than the minimum threshold of contestability. Relatively contestable companies are those in which the first shareholder holds a lower percentage respect to the minimum contestability threshold, but the sum of the shares held by the relevant shareholders is higher than the minimum contestability threshold. Finally, companies in which the first shareholder holds a percentage share higher than the minimum contestability level are considered non-contestable.

In order to have a more significant analysis, we proceeded first to eliminate from the sample under examination the companies that have values of the indicators not in line with those presented by the entire sample and tend to be able to distort the results (outliers). So, the following values were identified:

- Min. understood as the minimum value assumed by each variable;
- Q1 as the first quartile;
- Q3 is the third quartile;
- Max. that is the maximum value that each variable can assume;
- IQR indicates the interquartile difference or difference, calculated as the difference between the third and the first quartile and gives indications about the width of the range of values containing the central half of the observed values;
- $Q1 - 1.5 * IQR$  defines the lower threshold value;
- $Q3 + 1.5 * IQR$  defines the upper threshold value.

With these parameters we proceeded to the construction of a boxplot that allows describing the distribution of the variables facilitating the identification of the "outliers". The last two parameters (represented by  $Q1 - 1.5 * IQR$  and  $Q3 + 1.5 * IQR$ ) are fundamental for this individuation and, as mentioned, define the thresholds of the interval: in fact the values are considered outliers if they are below of the lower threshold and above the upper threshold. Therefore, companies that presented "anomalous values" were excluded from the sample, even with reference to a single variable. This transaction was made with reference to the three types of companies (which can be contestable, cannot be contestable and are relatively contestable). Once the outliers companies were excluded, the Pearson Coefficient was calculated, a statistical index that expresses the existence of a possible linear relationship between two variables. Therefore, given two statistical variables, represented in the present analysis by an explanatory variable of the contestability and an explanatory of the value, the

Pearson correlation index was calculated as the ratio between their covariance and the product of the standard deviations of the two variables. This coefficient always assumes values between -1 and 1. It is possible to distinguish different types of correlation. In particular:

- if the coefficient assumes values higher than zero, the two variables are directly or positively correlated;
- if it takes values less than zero, they are inversely or negatively correlated;
- for index values exactly equal to zero, the variables are uncorrelated.

For direct and inverse correlation, we can further have that:

- if the coefficient assumes values between 0 and 0.3, then there is a weak correlation;
- if it is between 0.3 and 0.7, there is a moderate correlation;
- if the index assumes values greater than 0.7, it is called strong correlation.

As a further tool to discover the existence of a relationship between the control variables and the explanatory ones of the value, regression analysis was used. Generally, the linear regression model is defined by the following equation:

$$Y_i = \beta_0 + \beta_1 X_1 + \varepsilon_i$$

where:

$\beta_0$  is the intercept of the population regression line;

$\beta_1$  is the angular coefficient of the regression line;

$\beta_0 + \beta_1 X_1$  is the regression line;

$\varepsilon_i$  is the standard error.

As a result of the analysis we can present:

- a direct linear relationship;
- an inverse linear relationship;
- no relation between the variables X and Y;
- a direct polynomial relationship;
- a U-shaped curvilinear relationship;
- an inverse polynomial relationship.

Linear regression analysis is based on some assumptions of the least squares method. This method consists in the technique that allows finding a function that is as close as possible to a set of data: this function has the property of minimizing the sum of squares of the distances between the observed data and those of the curve that represents the function. Therefore, the

sum of the squares (defined SQT) must first be calculated, which is a measure of the sum of the square deviations of the Y values around the average. This parameter is composed of the variability explained (that is the variable part of the dependent variable Y that can be attributed to the existing relationship between X and Y, it is also called sum of the regression squares or SQR) and of the unexplained or residual variability (which indicates the part of variability not attributable to the relationship between the two variables is called sum of the squares of the SQE errors). In formulas:

$$SQT = \sum_{i=1}^n (y_i - \bar{y})^2$$

$$SQR = \sum_{i=1}^n (\hat{y}_i - \bar{y})^2$$

$$SQE = \sum_{i=1}^n (y_i - \hat{y}_i)^2 = \sum_{i=1}^n e_i^2$$

where:

$y_i$  are the values observed;

$\bar{y}$  is their average;

$\hat{y}_i$  are the data estimated by the regression model.

The ratio between SQR and SQT defines the coefficient of determination or  $R^2$ : a value of this parameter close to 1 indicates that the regressors explain well the value of the dependent variable. Then there is the standard error deriving from the fact that the regression, except in cases where all the points are located exactly on the straight line, never leads to exact and error-free predictions. Finally we have the p-value, also known as the level of significance that indicates the probability of obtaining a result equal to or more extreme than that observed. A series of data is said to be statistically significant if its p-value is lower than or equal to 0.05 (or 5%).

#### 4. Analysis and Results

The data necessary to calculate the indicators to be used in the analysis were first collected from the database Consob and from the company's website. Following the identification of the outliers as described above, the sample size has gone from the initial 209 companies to about 138 companies. The number varies over the years. In particular, in 2008 the sample was composed, by 124 companies; in 2009 we observe 130 companies; in 2010 there were 138 companies; in 2011 we observe 138 companies; in 2012 there were 134 companies. These series of companies have been used in the calculation of the Pearson correlation coefficient. With reference to this coefficient, the following results were obtained, indicated

year by year with reference to the three types of companies considered (contestable, not contestable and relatively contestable).

Pearson correlation coefficient (contestable companies)						
Indices						
Years	HI-ROE	HI-ROA	HI-MBV	WHI-ROE	WHI-ROA	WHI-MBV
2008	-0,17389	-0,02753	0,01088	0,42692	0,33781	0,44588
2009	-0,11221	0,12895	0,03582	0,40577	0,13514	0,27223
2010	-0,22250	-0,01986	-0,08060	0,20926	0,15527	0,03080
2011	0,09356	0,18009	0,11551	0,15764	0,43757	0,16414
2012	0,14265	0,12726	0,07086	0,03985	0,22284	0,11097

Pearson correlation coefficient (non-contestable companies)						
Indices						
Years	HI-ROE	HI-ROA	HI-MBV	WHI-ROE	WHI-ROA	WHI-MBV
2008	0,17232	0,02815	0,07795	0,34795	0,32177	0,15624
2009	0,28035	0,11144	0,21647	0,31641	0,20055	0,20916
2010	0,05373	0,01963	0,15004	0,25225	0,24249	0,25982
2011	-0,11960	-0,15377	-0,06297	0,20047	0,21513	0,03229
2012	-0,02720	-0,03847	0,10649	0,31851	0,38055	0,41411

Pearson correlation coefficient (relatively contestable companies)						
Indices						
Years	HI-ROE	HI-ROA	HI-MBV	WHI-ROE	WHI-ROA	WHI-MBV
2008	0,25085	0,00414	0,16866	0,02782	0,13013	-0,06214
2009	-0,17906	-0,27746	0,00463	0,24452	0,27238	0,16049
2010	0,23394	-0,05029	0,24334	0,54404	0,28230	0,09821
2011	-0,16567	-0,09627	0,02293	0,37231	0,25105	0,22560
2012	-0,29847	-0,43390	0,06873	-0,16531	-0,04521	-0,22101

From these data emerges the existence of a positive relationship between the contestability indicator and the ROE and ROA. In particular, it is possible to note that the correlation is greater in the case of the Herfindahl Index-ROE combination, while in the case of the combination with the ROA it appears to be weaker. This can be found especially in the group of the contestable and non-contestable companies. In fact, in the group consisting of the relatively contestable companies there is a stronger correlation between the Herfindahl index and the ROA. With reference to the group of companies that can be contestable and not contestable, it is possible to observe a correlation, even if weak, also between the contestability and the Market to book value. The data also shows the existence of a correlation also with reference to the intersection between the variable Weighted Herfindahl Index and the variables of the ROE, ROA and MBV values. From the tables it is possible to observe that this correlation is even stronger than that existing between the HI and ROE index, ROA and MBV. However, given the functioning of the correlation and performance index, this correlation is to be considered negative, and thus not useful for the purposes of the analysis. Moreover, considering this correlation more significant could lead to misleading results, in the sense that by weighing the Herfindahl index for the capitalization of the individual company, this weight could have an exaggerated effect on the contestability index.

The regression analysis was carried out considering the articulation of the sample being studied in contestable, non-contestable and relatively contestable companies. As an explanatory variable, the Herfindahl Index was chosen, while the value measures (ROE, ROA and MBV) were used as dependent variables. From the analysis of the correlation coefficient emerged the existence of a positive relationship between the Herfindahl index and the ROE and ROA, highlighting a stronger correlation with the first economic variable. Therefore, a similar result is expected also from the regression analysis. The results of the analysis are shown in the following tables where "a" indicates the intercept, "b" is the angular coefficient of the regression line, "Pval" indicates the level of significance, "CD" indicates the coefficient of determination and "SE" is the standard error.

HI-ROE (contestable companies)					
Years	a	b	pval	CD	SE
2008	0,00408	-0,00008	0,27639	0,05359	0,21671
2009	0,02997	-0,00007	0,31743	0,04994	0,15061
2010	0,04589	-0,00009	0,31814	0,04331	0,19865
2011	-0,13915	0,00006	0,68626	0,00692	0,36501
2012	-0,05733	0,00006	0,52911	0,01825	0,22397
HI-ROA (contestable companies)					
Years	a	b	pval	CD	SE
2008	0,01258	-0,00001	0,70056	0,00685	0,09815
2009	0,01655	0,00000	0,92251	0,00048	0,06741
2010	0,01623	0,00000	0,89900	0,00072	0,06123
2011	-0,07365	0,00003	0,41345	0,02805	0,10642
2012	0,00979	0,00001	0,57353	0,01462	0,06309

HI-MBV (contestable companies)					
Years	a	b	pval	CD	SE
2008	0,92132	0,00001	0,96953	0,00007	0,57008
2009	1,00046	-0,00017	0,95737	0,00015	0,65980
2010	0,99024	-0,00014	0,71533	0,00589	0,87827
2011	0,46257	0,00018	0,55418	0,01477	0,76585
2012	0,74983	0,00014	0,71118	0,00635	0,96297

HI-ROE (relatively contestable companies)					
Years	a	b	pval	CD	SE
2008	-0,07338	0,00005	0,15615	0,06184	0,13814
2009	0,05094	-0,00003	0,30489	0,03755	0,11338
2010	-0,10185	0,00006	0,17934	0,05739	0,18417
2011	0,08898	-0,00003	0,34222	0,02737	0,11852
2012	0,09134	-0,00005	0,05783	0,11126	0,11009

HI-ROA (relatively contestable companies)					
Years	a	b	pval	CD	SE
2008	0,03568	0,00000	0,98885	0,00001	0,05463
2009	0,05054	-0,00002	0,10830	0,08949	0,04561
2010	0,02683	0,00000	0,81215	0,00185	0,03662
2011	0,05163	-0,00001	0,58390	0,00919	0,03911
2012	0,06716	-0,00002	0,01160	0,18844	0,03917

HI-MBV (relatively contestable companies)					
Years	a	b	pval	CD	SE
2008	0,58232	0,00016	0,28455	0,03570	0,62541
2009	1,26857	0,00003	0,93124	0,00027	1,18189
2010	0,66021	0,00029	0,15017	0,06562	0,83210
2011	0,68696	0,00002	0,88378	0,00066	0,59522
2012	0,61049	0,00004	0,67399	0,00578	0,42529

The positive relationship between the variables is associated to an inverse linear relationship, characterized by a negative value of the angular coefficient of the regression line. With reference to this aspect, observing the data, it is possible to state that the negativity condition of the parameter "b" is satisfied for both groups of companies, mainly with reference to the HI-ROE relationship. About the other pairs of variables, it is possible to observe a difference in the sense that the relatively contestable companies have a negative b also in the case of the study of the relationship between HI and ROA (in fact 4 negative values are observed over 5 years of observation). Regarding to the HI-MBV relationship it can be seen how the value of

b is always positive and very close to zero, thus highlighting a very low relation between the two variables. Looking at the data of the contestable companies, it is noted that the b takes negative values with reference to the HI-ROA report only in 2008, while the HI-MBV report shows negative values of b with reference to two years. In other cases the angular coefficient of the regression line assumes positive values very close to zero. Turning to the analysis of the level of significance, it emerges that for both the contestable and the relatively contestable companies it assumes non-significant values, as they always appear above the threshold of 0.05 (a value of p lower than the 5% threshold is found in the group of the relatively contestable companies for the year 2012). With reference to the determination coefficient, it can vary between zero and one: precisely when it takes zero value it is possible to state that the model used does not explain the data; in the case of values equal to one the model perfectly explains the data. Well, with reference to the present analysis, the coefficient of determination mainly assumes values close to zero: therefore it could be concluded that the model is not able to explain the data.

In the following tables the analysis of the non-contestable companies is reported in order to investigate the existence of any differences or affinities with the other two groups of companies.

HI-ROE (non contestable companies)					
Years	a	b	pval	CD	SE
2008	-0,02922	0,00002	0,14155	0,03019	0,12084
2009	-0,11275	0,00004	0,01214	0,08311	0,11996
2010	0,03698	0,00001	0,61696	0,00349	0,10104
2011	0,09508	-0,00001	0,32278	0,01358	0,10143
2012	0,03782	0,00000	0,82518	0,00067	0,13735

HI-ROA (non contestable companies)					
Years	a	b	pval	CD	SE
2008	0,05384	0,00000	0,83499	0,00062	0,05146
2009	0,00120	0,00001	0,29160	0,01522	0,06234
2010	0,04339	0,00000	0,87810	0,00033	0,05732
2011	0,06711	-0,00001	0,19591	0,02312	0,05171
2012	0,04511	-0,00003	0,74189	0,00149	0,05347

HI-MBV (non contestable companies)					
Years	a	b	pval	CD	SE
2008	0,70396	0,00007	0,48082	0,00702	0,71559
2009	0,49154	0,00023	0,05477	0,04961	0,85760
2010	0,77307	0,00015	0,18717	0,02401	0,90286
2011	0,93003	-0,00003	0,61340	0,00356	0,52277
2012	0,58009	0,00015	0,34957	0,01200	1,12283

The same considerations developed above are also valid for non-contestable companies: the angular coefficient is very close to zero and principally takes positive values; the p-value is constantly above the threshold of significance and the coefficient of determination assumes values that lead to an inability of regressors to explain the model. Therefore, the contestable companies (considering together relatively contestable companies and contestable companies) do not have specific characteristics that differentiate them from the non-contestable companies. So, it could be concluded that, in relation to the companies belonging to the FTSE Italia sectors, there does not seem to be any relation between contestability and value.

We now proceed to perform regression analysis using, this time, the WHI as an explanatory variable. From the analysis of the correlation coefficient it was found the existence of a low correlation of this variable with the variables representative of the value: this correlation was, however, considered not useful for the purposes of the analysis. Given this and give the results of the regression analysis having as an independent variable the Herfindahl Index which highlighted the lack of a relationship between contestability and value, a greater significance of the results of the present regression would be attributable to the capitalization of the various companies being the Weighted Herfindahl Index calculated as a weighting of the individual company's Herfindahl Index for the respective capitalization.

The results of the regression are shown below, starting with the contestable companies.

WHI-ROE (contestable companies)					
Years	a	b	pval	CD	SE
2008	-0,10971	0,00000	0,02171	0,21721	0,19709
2009	-0,05934	0,00000	0,02945	0,21567	0,13685
2010	-0,03627	0,00000	0,30101	0,04641	0,19833
2011	-0,12464	0,00000	0,57202	0,01349	0,36380
2012	-0,01829	0,00000	0,96634	0,00008	0,22603

WHI-ROA (contestable companies)					
Years	a	b	pval	CD	SE
2008	-0,01536	0,00000	0,06832	0,14313	0,09151
2009	0,01062	0,00000	0,39525	0,03637	0,06618
2010	0,01278	0,00000	0,41546	0,02903	0,06035
2011	-0,07645	0,00000	0,03917	0,16547	0,09861
2012	0,00991	0,00000	0,33380	0,04250	0,06219

WHI-MBV (contestable companies)					
Years	a	b	pval	CD	SE
2008	0,80568	0,00000	0,02771	0,20168	0,51199
2009	0,87036	0,00000	0,18128	0,08753	0,63031
2010	0,88157	0,00000	0,87840	0,00104	0,88041

2011	0,48897	0,00000	0,30680	0,04346	0,75462
2012	0,74344	0,00000	0,49554	0,02137	0,95567

WHI-ROE (relatively contestable companies)					
Years	a	b	pval	CD	SE
2008	-0,01038	0,00000	0,87591	0,00077	0,14256
2009	-0,01235	0,00000	0,17268	0,06537	0,11173
2010	-0,04246	0,00000	0,14942	0,06585	0,18334
2011	0,01012	0,00000	0,02700	0,13968	0,11146
2012	0,02593	0,00000	0,23671	0,04486	0,11413

WHI-ROA (relatively contestable companies)					
Years	a	b	pval	CD	SE
2008	0,03033	0,00000	0,46323	0,01693	0,05416
2009	0,01350	0,00000	0,12289	0,08288	0,04631
2010	0,01699	0,00000	0,09985	0,08494	0,03506
2011	0,03550	0,00000	0,14197	0,06419	0,03801
2012	0,02860	0,00000	0,80040	0,00209	0,04344

WHI-MBV (relatively contestable companies)					
Years	a	b	pval	CD	SE
2008	0,83784	0,00000	0,72701	0,00386	0,63565
2009	1,16910	0,00000	0,41814	0,02355	1,16805
2010	1,04189	0,00000	0,57404	0,01030	0,85638
2011	0,60542	0,00000	0,17777	0,05434	0,57901
2012	0,74054	0,00000	0,24049	0,04416	0,41700

The parameter "b" (whose negativity is an index of positive relation between the variables) results in almost all the cases taking positive and close to zero values. Specifically, with reference to the group of companies that do not compete, negative values are never observed, while in the group of companies that are relatively contestable, the angular coefficient assumes negative values only with reference to the years 2008 and 2012. With regard to the significance level expressed by the p-value, we can see how it assumes prevalently values above the 5% threshold and therefore not significant. The coefficient of determination assumes values slightly above zero, so even in this case the data do not seem to explain any relationship between the variables taken into consideration. Next, the results of the regression concerning the group of non-contestable companies:

WHI-ROE (non contestable companies)					
Years	a	b	pval	CD	SE
2008	0,02946	0,00000	0,00515	0,10507	0,11608
2009	0,00349	0,00000	0,00721	0,09478	0,11920
2010	0,03800	0,00000	0,03816	0,05834	0,09822
2011	0,03617	0,00000	0,09518	0,03819	0,10016
2012	-0,01305	0,00000	0,00560	0,10044	0,13031

WHI-ROA (non contestable companies)					
Years	a	b	pval	CD	SE
2008	0,04719	0,00000	0,00945	0,09111	0,04908
2009	0,02294	0,00000	0,11244	0,03415	0,06174
2010	0,03427	0,00000	0,03252	0,06194	0,05553
2011	0,02948	0,00000	0,06925	0,04511	0,05112
2012	0,01947	0,00000	0,00072	0,14587	0,04945

WHI-MBV (non contestable companies)					
Years	a	b	pval	CD	SE
2008	0,84827	0,00000	0,09853	0,03797	0,70435
2009	1,15413	0,00000	0,08544	0,03998	0,86193
2010	1,12130	0,00000	0,03086	0,06310	0,88460
2011	0,80550	0,00000	0,82399	0,00069	0,52352
2012	0,75538	0,00000	0,00025	0,16885	1,02985

The main observation is that the p-value assumes significant values. This emerges in particular with reference to the relationship between WHI and ROE and WHI and ROA where, in a series consisting of five reference periods, in four cases p-values below the significance threshold of 5% are found. This is new, since the previous regressions have never highlighted this result. Turning to the analysis of the angular coefficient, it results as in the previous observations that it assumes values close to zero and positive; remembering, however, that in order to highlight a relationship between the two variables angular coefficient must assume negative values, it is possible to affirm that this relationship does not exist. Finally, with reference to the coefficient of determination, also in this case the values assumed to be closer to zero than to one make us lean towards an inability of data to explain the model. Ultimately, once again we must conclude that there is no relation between contestability and value.

## 5. Conclusions

Contestability is a recently discussed topic; therefore, most of the contributions taken into consideration are linked to what is a theme closely connected with the contestability that is the theme of the separation between ownership and control. After a description of the methods used for the constitution of the sample and the various indicators used, we

conducted an analysis on the shareholding structure of the companies. From the analysis the small size of the stock market characterized by a small number of listed companies emerges first of all. In fact, the universe of companies listed on the Italian Stock Exchange is composed on average of 300 companies; for the purposes of the present discussion, the number of companies taken as reference is on average 200 companies, since not all the companies are included among the sector indicators of the FTSE Italia. This happens for reasons related to the composition of these indices which excludes companies belonging to certain segments of the market (such as the micro-capitalization sector). Although over time there has been a reduction in the share held by the majority shareholder, it is possible to state that the stock market continues to remain a market characterized by low competition. The analysis of the Herfindahl index, an explicative measure of the proprietary concentration, shows that for the whole period considered it assumes relatively high values that remain almost constant. Then, the analysis was carried out to ascertain the existence of the relationship between contestability and value.

The companies that presented anomalous values (even with reference to only one of the parameters used, namely ROE, ROA, M-BV, HI and WHI) were eliminated from the series. The analysis was carried out separately, distinguishing the companies into three groups: contestable, non-contestable and relatively contestable. The Pearson correlation coefficient was first calculated. The existence of a probable relationship between the Herfindahl Index and ROE and ROA emerged: the relationship is more pronounced with reference to the ROE. In the group of contestable and non-contestable companies there is a weak connection also with reference to the HI-MBV ratio. We then proceeded to perform the regression analysis from which confirmed the existence of a relationship between HI and ROE. However, these relationships are not significant because the angular coefficient of the regression line results to assume values constantly close to zero in all the considered ratios. Also with reference to the regression analysis which assumes the WHI as an independent variable, the results that emerge are in line with those of the previous regression that used HI as an explanatory variable. Therefore, unlike the prevailing literature which supports the existence of a positive relationship between contestability and performance, in this case it must be concluded that it is not possible to find such a situation, since the regression results show non-significant values. A possible motivation for this difference could be based on the fact that the studies characterizing the majority literature are conducted on samples of companies belonging to contexts characterized by greater contestability (think of the English market which has always been a model of efficiency). Future extensions of this study could involve a major number of companies or more recent data.

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