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Article

The Relationship between Governance Quality and the Cost of Equity Capital in Italian Listed Firms: An Update

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Abstract: This paper investigates the relationship between corporate governance quality and the cost of equity capital, intended as the discount rate the market applies to a firm's expected future cash flows to evaluate the current share price. Using data from the Italian listed corporations in 2018, this paper combines several attributes like board independence, board size, the existence of the internal audit, and CEO duality incorporated in a corporate governance quality index. Our results do not provide evidence of a statistically significant relationship between the corporate governance score and the firm's equity capital cost. A possible explanation is that in recent years a greater homogeneity, and a generalized increase in corporate governance quality standards, has been observed in the Italian framework with worse companies that closed the gap with those with higher performances. Hence, lower variability in the corporate governance index results in a not significant effect of a composite index on reducing the cost of equity capital.

Keywords: corporate governance; quality of governance; cost of equity; listed corporations



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1. Introduction

Corporate governance is a broad term that includes many shades, behaviors and codes of conduct that, for a long time, have been underestimated, but in more recent times, has become a pivotal point in many studies.

The literature recognizes the central role of corporate governance (CG) in affecting firm performance (Judge et al. 2003; Koji et al. 2020; Bhagat and Bolton 2008), and in reducing the cost of equity capital (CEC).

CEC can be defined as the discount rate the market applies to a firm's expected future cash flows to arrive at the current stock price. The reason for addressing the impact of the CG on CEC has a theoretical foundation in the agency costs theory, well displayed by Shleifer and Vishny (1997). According to that theory, the separation between ownership and control increases the level of information asymmetry between shareholders and managers in corporations, which increases the risks deriving from the agency relationship. In more detail, the agency relationship is a fiduciary relation, where one party (called the "principal") allows an agent to act on his/her behalf. The main risk associated with the agency relationship is that agents pursue their own to the detriment of the "principal". In the case of corporate governance, the "principals" are the shareholders, while the agents are the managers of the firm, who may lead firms in the pursuit of their own interests instead of the shareholders' interests. In this framework, shareholders ask for a premium to cover the agency risks, with the consequence of raising the CEC. On the other hand, to reduce the agency costs, firms may implement a set of improved internal CG mechanisms, in order to improve the control of managing bodies. These mechanisms are a set of rules and procedures, which can guarantee transparency and fairness in managers' behaviors (Weir et al. 2002; Mazzotta and Veltri 2014).

According to that theory, a good governance quality helps reducing the perceived risk of a firm, with the effect of leading potential shareholders to require lower rates of return on their invested capital. In this way, firms obtain a reduction of the CEC. Literature is plenty of studies which identify good CG mechanisms connected with a decline of CEC, focusing on firms' ownership concentration, the composition of the board of directors, and the compensations of managers (Agrawal and Knoeber 1996; Ashbaugh-Skaife et al. 2004; Derwall and Verwijmeren 2007; Chen et al. 2003; Byun et al. 2008; Reverte 2009; Hsieh et al. 2020).

This paper considers the Italian case, which is interesting due to the exigence of measuring the long-run consequences of the 2003 Corporate Law Reform, which aimed at improving corporate governance quality in the Italian context, with the aim of introducing best governance practices implemented to protect minority shareholders, by promoting the rise of independent members in the board of directors and the establishment of internal committees that are supposed to improve the control mechanisms.

In more detail, in this paper, we want to test the hypothesis that in Italian-listed corporations, a good quality in CG is connected to lower observed values of the CEC. In order to do this, we follow the study of Mazzotta and Veltri (2014), by constructing a CG index that summarizes in a unique score the quality of best governance practices with respect to Italian firms. Then, using data from listed Italian companies in 2018, we implement a regression analysis, where CEC is assumed to be affected by the CG quality index.

In light of this brief introduction, the remainder of the paper is organized as follows: Section 2 will develop a literature review on the relationship between governance practices and the cost of equity capital; Section 3 introduces the materials and the methods used in the paper; Section 4 displays empirical results, while Section 5 discusses the results and concludes.

2. Literature Review and Research Hypotheses

Literature concerning the determinants of the cost of equity capital is widespread. Past studies generally make a distinction between the role of both external and internal governance mechanisms. On the one hand, some studies pointed out as country-level determinants are more effective in influencing the cost of equity than firm-level characteristics (Hail and Leuz 2006; Gupta et al. 2018). In this framework, firms placed in countries characterized by an extensive disclosure and stronger securities regulation document lower levels of cost of capital. Moreover, Zhu (2014) finds that corporations operating in countries with better institutional quality have a lower cost of equity. On the other hand, another strand of literature (Chen et al. 2009) emphasizes the role of firm-level governance predictors in increasing or reducing the cost of equity capital. Many studies belong to this field, focusing on the interaction between shareholders' interests and the managers' actions. According to Tran (2014), firms with high levels of financial transparency and bonus compensations display a lower cost of equity capital. With respect to the ownership structure, the presence of block ownership seems to be negatively correlated with firms' cost of equity, especially when the block-holders are firms, managers, or in the presence of a family business. Lambert et al. (2007) also support an inverse relationship between the quality of governance and the cost of equity capital, in particular focusing their attention on the information transparency, which is linked to good governance mechanisms: A higher information precision lowers investors' uncertainty of a firm's future cash flows. That reduction favors a decrease in the cost of equity. In addition, a good quality in governance mechanisms affects the cash flows quantity that managers hold back for themselves: In this framework, top-quality corporate governance reduces managers' appropriation of corporate resources. This element also contributes to decreasing the cost of equity capital.

Garmaise and Liu (2005) investigate to what extent corporate governance and agency problems impact firms' systematic risk, by suggesting that strong shareholder rights can reduce overinvestment problems, which decreases the cost of capital.

Ashbaugh-Skaife et al. (2004) also support the importance of firm-level governance variables in decreasing the cost of equity capital, by distinguishing the role of four pivotal attributes for the quality of corporate governance: Financial information quality, the ownership structure, the shareholder rights, and the board structure, using a sample of US firms. Chen et al. (2009) showed the results of a comparative study on emerging markets in 2001, finding that there exists a role of firm-level corporate governance in decreasing the cost of equity capital. This effect is particularly strong in countries where the legal protection of investors is strong, by demonstrating that the country context interacts with firm-level predictors.

On the contrary, several studies show a lack of significance in the relationship between the cost of equity capital and governance features: Ali et al. (2019) state that both the size of the board of directors and the high presence of independent members do not contribute to CEC reduction, while the CEO tenure does matter. Gupta et al. (2018) found a decisive role of the legal origin and of the contextual variables, while the effect of firm-level governance is weak for firms operating in non-Common Law countries. Bhagat and Black (2002), as well-known in the literature, did not find evidence of a relationship between board composition (in terms of the percentage of the independent directors) and firm performances.

In this paper, we focus on a single country analysis, which is particularly interesting in a time comparative perspective, because we collected data approximately fifteen years after the introduction of the 2003 Corporate Law Reform. Previous studies (Mazzotta 2007; Mazzotta and Veltri 2014) tried to evaluate whether the 2003 Corporate Law Reform improved governance practices in Italy and whether those improvements contributed to increasing firm performance and reduced the cost of equity capital. Results showed that corporate governance in terms of the ownership structure and of the protection of minority shareholders greatly improved with respect to the time of the introduction of the Reform. However, the most recent analysis on listed Italian Corporation dates back to data collected in 2009 (Mazzotta and Veltri 2014) and documented as large variability still existed in terms of percentages of independent members in the board of directors and in terms of the functioning of internal committees. In addition, the CEO duality, deeply investigated in past studies (Tang 2016), was not addressed in the case of Italy.

In light of these reflections, the choice of a single country study focusing only on Italy could close a gap in the literature, and have the final word on the effects of the introduction of the 2003 Corporate Law Reform. Hence, a case study limited to the Italian listed corporations, without denying the importance of external governance mechanisms, is obviously focused on promoting the firm-level governance mechanisms. Indeed, the peculiarities of the Corporate Law Reform concern corporations listed in the Italian stock exchange market with the obvious impossibility of and homogeneous comparison across different legal systems.

The comparative perspective also leads to the choice of the variables that are supposed to increase or decrease the cost of equity capital. In the literature, we can find a source of the key predictors to be used for the subsequent analysis: Bhagat and Bolton (2008) and Bhagat and Black (2002) explored the long-run relationship between the board size, the independence of board directors, and the firm performance, with an additional model, which investigates the effect of independency in the board of directors on the value of a firm. Results were controversial and not in favor of a significant relationship. On the contrary, if the dependent variable has been replaced with the cost of equity capital, as in Ashbaugh-Skaife et al. (2004), boards of directors which include a higher percentage of independent members are more likely to reduce the cost of the equity capital. The lower presence of independent directors is commonly thought of as a signal of weak governance, which exposes shareholders to greater agency risk, which is connected in turn to higher cost of equity. The effect of the size of a board of directors is investigated in Pham et al. (2012), who show evidence that smaller and independent boards contribute to reducing

the perceived risk of a firm, with the consequence of leading investors to demand lower rates of return on capital provided to the firm.

Although the size and independence of the board of directors are deeply investigated in the literature, other components can be used to measure governance quality of listed corporations; a debated issue concerns the significance of the effect of CEO duality; when the CEO is also the chair of the board of directors, the effect on performance is controversial. On the one hand, [Baliga et al. \(1996\)](#) stated that in the presence of CEO duality the operating performance reduces in the long-run. This is due to the lower level of control related to the concentration of power in the hands of a single leading figure. Other studies ([Mubeen et al. 2020](#)) underlined a negative relationship between CEO duality and firm performance, with the additional finding that capital structure mediated the association between CEO duality and firm performance. Recent studies ([Ali et al. 2019](#)) do not found a relationship between CEO duality and the cost of equity capital, but with findings restricted to Pakistan.

Finally, the presence of an internal committee is assumed to play also a relevant role in improving corporate governance quality as documented in both international ([Alzeban 2020](#)) and national literature ([Mazzotta 2007](#); [Mazzotta and Veltri 2014](#)), showing that internal mechanisms of control help to reduce rates of return on capital required by the shareholders, through an improvement of the quality of controls of the firm management. In addition, the combined effect of a higher percentage of independent directors, of the absence of CEO duality, and the existence of internal committees within the board of directors is assumed to improve governance quality. This is the reason on the basis of the choice of [Mazzotta and Veltri \(2014\)](#) to build a composite index of governance quality (CG index). This choice is not unique in corporate governance investigation; [Teti et al. \(2016\)](#) also use a CG index, in order to evaluate the impact on the CEC in the case of Latin American companies. Nevertheless, the relationship between a multi-item index and the cost of equity capital is significant if there is an acceptable level of variability—that is, if there is a gap between best and worse companies in terms of governance indicators that can produce variability in the cost of equity capital. What we expect ten years after this seminal work (for the Italian listed corporations) is that the gap between best and worse companies has been reduced, with an alignment to best governance practice widespread in developed economies.

Hence, following previous literature, two competitive hypotheses (we named them “H0—Null hypothesis” vs. “H1—Alternative hypothesis”, according to the statistical lexicon of Hypothesis testing) can be formulated with respect to the relationship between a CG index and the CEC:

Hypothesis 0 (H0). *The CG index is not related to a change of the CEC.*

Hypothesis 1 (H1). *The CG index decreases the CEC value.*

If data support H0, this means that CG in recent years stopped affecting the CEC or that, alternatively, there are other significant governance features omitted in the CG index. Conversely, if data support H1, we have that CG still decreases the CEC value, in continuity with the findings of [Mazzotta and Veltri \(2014\)](#). In this case, we could provide some evidence that the relationship is not changed in the time span taken into account.

3. Materials and Methods

In this paper, we use a multivariate approach, using the model developed by [Mazzotta and Veltri \(2014\)](#), in which features of internal corporate governance (mainly with regard to the board and internal committees’ dimensions) impact the cost of equity capital, in order to prove the existence of a “governance risk premium”.

Therefore, the general model used is the following:

$$CEC_i = \beta_0 + \beta_1 GOVQuality_i + X_i^T \beta_2 + \varepsilon_i$$

where:

CEC_i is the cost of equity capital, which is the dependent variable of the model;

$GOVQuality_i$ is a comprehensive quality index of corporate governance which represents the main explanatory variable of the model;

X_i is a set of explanatory variables, including the risk of the firm, which is included in the model as a control variable. In addition, some control, such as the return on asset (ROA), leverage and the segment, and the sectors where the enterprises are involved are added.

3.1. General Features of the Corporate Governance Quality Index (GOVQuality)

The board of directors plays a fundamental role in mitigating the conflicts between majority and minority shareholders (the two “parties” between which the agency problem rises). Therefore, the CG index is strongly related to the board characteristics. The dimensions considered by [Mazzotta and Veltri \(2014\)](#) for their original proposal for an index measuring CG quality are: Board size, board independence, the existence of internal committees, and the independence of board committees.

In our study, we provide an index that partially modifies the proposal of [Mazzotta and Veltri \(2014\)](#), by replacing the independence of the internal board committees with CEO duality.

Hence, the dimensions consider building the two index proposals, are listed below with the respective arguments:

1. Board size

Literature posits that smaller boards are more effective. Indeed, when the board of directors is characterized by a limited size, the communication process is easier, the decision-making is smoother and more feasible, the resolution of conflicts becomes simpler, and a higher degree of participation can be expected. Previous studies ([Lipton and Lorsch 1992](#); [Jensen 1993](#)), which [Mazzotta and Veltri \(2014\)](#) refer to, claim that, in order to be at the highest possible efficiency, the board should include a number of members that falls into a specific range of values.

In general, the literature identifies a negative relationship between board size (intended as the number of directors) and the quality of corporate governance.

2. Board Independence

An independent director is a personality believed to be non-executive and non-family (following the criteria provided by the Code of Conduct).

Independent non-executive directors represent important identities in a company because they are supposed to check and keep under observation opportunistic behaviors of executive directors. Thus, they play a fundamental role in a context characterized by the eventuality of agency problems and annex costs.

The independence of the board can be measured using various approximations—we choose the same two picked by [Mazzotta and Veltri \(2014\)](#).

The first one is the number of independent outside directors on the board, which provides the impact of having outsider directors on the quality of corporate governance. The second proxy is the ratio between independent outside directors and the total number of members of the board. This second measure captures the relative weight of the independent directors in the decision-making process.

We recognize that if these two measures indicate an increase in the board’s independence, the quality of the corporate governance will be better off.

Thus, we assume a positive relationship between board independence and the CG quality index.

3. Existence of internal board committees

The literature on corporate governance (and the Preda Code, which represents the main regulatory source for the 2003 Corporate Law Reform) identifies three main types of internal committees whose presence can improve the general quality of CG.

The nomination committee. The Code posits that this committee has a consultancy role in identifying a shortlist of directors, it can suggest eligible professional figures whose work can benefit the board and should give advice on the composition of the board. As regards the nomination committee, the Code claims that it should be made up of at least three members, and, in order to guarantee autonomy and independence, for the majority non-executive independent directors.

The remuneration committee should provide proposals and suggestions of adequate remuneration for executive directors and other relevant personalities within the firm. The importance of the work carried out by this committee, because the remuneration is the main leverage to align the managers' interests with the shareholders. The Code posits that the remuneration committee should be made of only non-executive directors, most of which independent.

The auditing committee has the chore of identifying the guidelines of the internal control system, keep checking on its adequacy, transparency, and efficiency. The code includes indications about the committee's composition and claims that it should be made of non-executive directors, most of which independent. Furthermore, at least one of the members should have adequate experience in accounting and finance.

Previous literature and research on the functioning and impact of these committees on the companies' internal mechanisms are almost exclusively circumscribed to the auditing committee, because the auditing committee is proved to be the most relevant with regards to the information given to the firm's stakeholders.

However, studies on remuneration committees, like those provided by [Laksmana \(2008\)](#), prove their effectiveness in preventing opportunistic behaviors, while further research on nomination committees—we can cite [Vafeas \(1999\)](#)—find that their establishment has a positive impact on the director's independence.

Thus, we recognize a positive relationship between the presence of board internal committees and the quality of corporate governance.

In this case study, we adopt the same criteria used by [Mazzotta and Veltri \(2014\)](#), and we assume that to consider a positive correlation with CG, all three committees need to be established.

4. Independence of board committees/CEO duality

As outlined above, the Code of Conduct claims that to be properly effective, the committees should be "independent", meaning that they should be composed of a majority of independent directors. The independence of the committees is supposed to improve accountability and transparency. Thus, we assume a positive relationship between this feature and the firm's quality of corporate governance. However, even if we are aware of the impact this dimension can have, we build the CG Quality index considering the CEO duality instead.

CEO duality occurs when the CEO also covers the function of chairman of the board of directors. Such a situation has been pointed out as a significant occasion for conflicts of interest to rise. Indeed, from an agency point of view, the duality brings about a potential conflict for the CEO and enforces his power relative to the board, thus decreasing the board's typical function of controlling and monitoring.

The Italian firms are characterized by a "separated leadership" structure, even though around 30% of Italian companies show a "joint leadership" structure. CEO duality usually occurs in those enterprises characterized by a low amount of non-executive and independent directors.

Consistent with [Mazzotta and Veltri \(2014\)](#) and the observations aforementioned, we assume a negative correlation between the presence of CEO duality and the firm's corporate governance.

3.2. Determination of CG Quality Index

Following the previous study ([Mazzotta and Veltri 2014](#); [Teti et al. 2016](#)), we want to reproduce a comprehensive corporate governance quality index that synthesizes the four

internal CG dimensions explained above (board size, board independence, existence of board committees, and CEO duality), in order to obtain an economic interpretation of the overall performance in terms of governance that will represent the independent variable of our multidimensional model, whose dependent variable is represented by the cost of equity capital.

The aim at this step of the process is to select a principle, in order to be able to compare the different CG attributes (expressed in different measure units) and to bring them together in one general quality index, which, in turn, identifies the “well-governed” (Strong governance) companies and the “badly-governed” (Weak governance) ones.

The criterion selected, and that we adopt as well for our analysis, is the mean: we use a dummy variable that assumes a value of 1 if the board dimension is less than the sample mean, and a value of 0 otherwise. Considered that we assumed a negative correlation between board size and the quality of CG, the mean, in this case, represents a sort of “limit” above which adding a member to the board brings inefficiency.

In regard to the board members’ independence, we have taken into account two measures: The absolute number of non-executive independent members and the ratio that compares the number of independent members to the overall size of the board, in order to have an insight on the weight that the independent directors have through the decision process. The fictitious variable for these dimensions is supposed to take the value of 1 if both measures are above their respective mean; thus, it assumes a 0 value if at least one between the number of independent directors and their weight on the board is below the mean.

With respect to the existence of board committees, the dummy variable is equal to 1 if all three internal committees exist in the firm, and it is equal to 0 otherwise.

Finally, with regards to the Chief Executive Officer duality, measures indicate if the CEO is also the chairman of its board. The dedicated fictitious variable assumes a value equal to 1 (meaning that the governance is “strong”) if the firm does not present a joint leadership structure. Thus, it takes a value of 0 (meaning that the governance is “weak”) otherwise (the firm is characterized by a separated leadership structure).

After the computation of a dummy variable for each one of the four dimensions of internal corporate governance has been considered, we can put them together into one synthetic governance measure: the comprehensive governance quality index. In doing so, we assign the same weight to each dimension, since we assume that they all give an “equal contribution” to the overall CG quality.

Hence, the index is finally built as follows:

$$GOVQuality_i = I(\text{Board size}_i < \text{mean}) + I(\% \text{ independent directors}_i > \text{mean}) + I(\text{number of Internal committees}_i = 3) + I(\text{Separation between CEO and Chairman for firm } i)$$

where the indicator function $I(X) = 1$ if the condition in parenthesis is satisfied and $I(X) = 0$ otherwise. Therefore, the CG quality index can take a value between 0 and 4, with 4 indicating the greatest governance quality and 0 the lowest.

3.3. The Estimation of the Cost of Equity Capital

The estimation of cost of equity capital has always represented a tough and discussed argument, as reported in [Kim et al. \(2015\)](#) and [Botosan and Plumlee \(2005\)](#).

Indeed, the CEC is not a directly observable value, but, in turn, it is an estimation based on other estimated values.

Generally, the reference model to compound the CEC is the Dividend Discount Model (DDM) that provides a share price equal to the present value of the future expected dividends.

$$P_t = \sum_{t=1}^{\infty} \frac{E_t(Div_t)}{(1 + CEC)^t}$$

where:

P_t is the share price at time $t = 0$;
 $E_t ()$ is the expected value operator conditioned at date t ;
 Div_t is the dividend paid at time t ;
 $(1 + CEC)^t$ is a discount factor with CEC equal to the cost of equity capital.

One major issue of calculating the cost of equity with the formula above is due to the fact that the expected share returns required experts to use realized returns instead, under the assumption that realized returns are an unbiased estimate of the market's required return. At the end of the '90s, research proved that this kind of approximation is not entirely accurate. Thus, the study that we are trying to implement for 2018, following the hint given by previous research (i.e., [Derwall and Verwijmeren 2007](#); [Byun et al. 2008](#); [Reverte 2009](#)), uses an ex-ante measure to estimate the cost of equity capital. The method used to forecast the returns is the price/earnings-to-growth ratio (PEG), which was proved to be ([Botosan and Plumlee 2005](#)) the dominant model with regards to the empirical relationship with the risk approximations.

The PEG ratio is the Price/Earnings-to-growth ratio, and it is used to evaluate the share price with a more comprehensive view. It includes the calculation insights on the firm's earnings growth, giving an outcome that is more reliable than the P/E ratio itself.

Thus, with due adjustments, the formula for the computation of the cost of equity is:

$$CEC_{i,t} = \sqrt{\frac{Eps_{i,t+2} - Eps_{i,t+1}}{P_{i,t}}}$$

where:

$Eps_{i,t+1}$ and $Eps_{i,t+2}$ is the forecast of the firm's earning per share for firm I for the next year;
 $P_{i,t}$ is the share price at date t ;
 $CEC_{i,t}$ is the cost of equity capital applied at firm i at the forecast date.

Subsequently, we need to verify the reliability of our CEC's estimate. In order to do so, basing our decision on previous research and literature ([Fama and French 1995](#)), we use a multidimensional risk model. The main intuition that lies beneath this approach is that, even after diversification through a portfolio, investors have to face systematic firm-specific risk. The elected proxies for the risk are the following:

1. *Market Beta (BETA)*, which has a positive relation with expected return ([Sharpe 1964](#))
2. *Size (SIZE)*, variable that presents a negative relation with return ([Banz 1981](#));
3. *Market-to-book ratio (MB)*, negatively correlated to expected returns ([Fama and French 1998](#)).

As regards beta, its positive relation with expected return is a founding concept of this kind of evaluations. BETA is a coefficient that evaluates the volatility (or "systematic risk") of a stock, compared to the general volatility of the market. Since for a higher risk rational, investors will require a higher return, the relation between these two variables is positive.

With respect to the size, the intuition is that, under the market efficient hypothesis, investors facing small firms are in possession of less information. Thus, when a company's size increases, the flow of information is supposed to be more consistent and reliable with a subsequent decrease of the risk. With a lower level of risk rational investors will require lower returns.

Finally, the market-to-book ratio (also known as a price-to-book ratio) compares the company's book value (computed using the firm's historical costs) to the company's market value (defined by using the stock price prevailing in the market and the number of outstanding shares, thus the market capitalization). A high MB ratio can be seen as the market currently valuing the firm's equity higher than the book value. Thus, when a company presents a low market-to-book ratio, investors undervalue the firm and will ask for a higher risk premium to keep the stock in their portfolio.

In addition, a set of control variables is added to the model, in order to reduce unobservable heterogeneity:

1. Return on Asset (ROA%), whose value is supposed to be negatively correlated with the CEC. Indeed, the higher is the firm performance, the lower the return required by the investors, according to [Teti et al. \(2016\)](#).
2. Leverage is computed as the ratio between total debt and total asset, according to [Teti et al. \(2016\)](#), [Kim et al. \(2015\)](#) and [Tran \(2014\)](#).
3. Sector dummies (Financial, Industrial, Services) is a set of sector dummies that are included in the model to take into account the heterogeneity of the capital structure between Financial and non-Financial companies.
4. Market dummies (BC, STAR, STD) are a set of categorical variables for identifying the segment of the market where an enterprise is listed; BC stays for Blue Chips (the segment characterized by firms with the largest value of market capitalization), STAR segment collects the small-medium business enterprises with characteristics of excellence in terms of liquidity, transparency and corporate governance. *STD* (i.e., "Standard") segment is the residual one.

To carry out this study, we used the Italian listed firms, which at the end of the fiscal year 2018 amount to 357.

We picked a representative sample of 230 firms belonging to all three sectors: Financial, industrial, and services. From this point of view, our empirical study differs from the one previously completed by [Mazzotta and Veltri \(2014\)](#), indeed on their study based on Italian listed firms at the end of the fiscal year 2009, the firms belonging to the financial sector (banks, insurance firms, funds, financial institutions) were excluded to guarantee a higher level of homogeneity regarding the accounting profile. On the contrary, we wanted to have a more "comprehensive" outlook on the relationship between the cost of equity capital and corporate governance attributes, and thus, we opted for a sample, including all sectors.

Our aim is to produce an outcome with sufficient temporal distance from the previous study and from the issue of the Preda Code and the other regulations in terms of corporate governance, in order to draw significant conclusions in both directions: Main changes from 2009 and evolution following the introduction of the new regulation. Thus, our empirical analysis is centered on 2018.

The main steps for the construction provide for building variables based on corporate governance and financial dimensions.

With regards to the first one, the main information that is needed is the number of board directors, the amount of executive, non-executive, and independent members, the existence of the board committees (nomination, remuneration, and internal control or auditing), and the presence of CEO duality. This kind of data was collected from the Italian Stock Exchange website, on the corporate governance reports, and from DATASTREAM.

After a first screening, we noticed that eight firms (i.e., Nexi, Olidato, Società Polisportiva Lazio, Unione di Banche Italiane, Gruppo Mutuonline, Wiit) had missing data.

With reference to the cost of equity dimension, the main information needed to compute the PEG ratio and to validate this estimation of the CEC are the share prices, the forecasts of EPS for 2019 and 2020, the Beta calculated through Capital Asset Pricing Model, Market capitalization. This information was retrieved from Bloomberg. In this respect, two observations need to be made: (1) That the forecast of the earning per share is not easily available, and (2) that in order to estimate the cost of equity capital through the PEG ratio, the EPS_{t+2} (EPS2020) needs to be greater than EPS_{t+1} (EPS2019). Due to both these observations, 83 firms were eliminated (72 because of missing data, mainly EPS, and 11 because the earning per share for period $t + 2$ was smaller or equal to the earning per share for period $t + 1$). Thus, the final sample consists of 139 firms, as displayed in [Table 1](#).

Table 1. Sample description: Italian firms, 2018.

Classification of the Sample	Frequencies
Number of firms	230
Number of firms with missing CG data	8
Number of firms with missing CEC data	83
Final sample	139

The variables (dependent and independent) included in the model are listed in Table 2 with their labels:

Table 2. Variables.

Code	Variable Description
CEC	Cost of the Capital Equity
GOVQuality	Score of the CG Quality Index [from minimum 0 to maximum 4]
BRD_SIZE	Board size (=number of directors)
BRD_IND	Independence of the Board of directors (% of independent directors)
COM3	% of firms with all internal committees (nomination, remuneration, auditing)
DUA	% of firms with Separation of Chair and CEO
BETA	Market Beta
MB	Market to Book value ratio
SIZE	Natural log of the fiscal year-end market value of equity for firm <i>i</i> .
ROA	Return on Assets %
Leverage	Ratio between Total Debt and Total Assets
Sector	Sector classification of the enterprise; financial, industrial or services
Market	Segment in the stock exchange market: STD, BC or STAR.

4. Results

Table 3 below shows the main descriptive statistics for the corporate governance and the control variables, which are numerically coded, considered for the sample, the cost of equity capital, and the risk variables for the entire sample. We remind the reader that this distinction is based on whether the GOVQuality dimension is greater than the mean or not.

The table below shows that the median for the first attribute of corporate governance considered, which is the board size, is 9, while the mean result is 10.568 for the entire sample. These numbers are perfectly in line with the previous literature, especially with the studies carried out by [Lipton and Lorsch \(1992\)](#), whose results propose as an optimal range of 8 to 9 directors, in order to properly perform the typical controlling function of the board. From this point of view, the overall sample is almost equally divided, meaning that 74 firms out of the 139 considered, result in having less than the mean value of directors of the board, and the remaining 65 firms have more directors than the mean. Considering the literature which suggests that smaller boards appear to be more effective, since the communication process and the decision-making are smoother, 53.2% of the sample can be considered as “Strong governance firms” and the 46.8% as “Weak governance firms” if we consider as “Strong governance firms” those that have an index value greater than the sample mean.

With respect to the existence of the internal committees, 108 firms out of 139 present all three of them (nomination, remuneration, and auditing). If we consider the existence of at least two of the three committees considered, the figure improves even more. Indeed, only two firms (1.44%) dispose of only one or no committees.

Considering the two subsamples based on the overall GOVQuality index, 100% of the strong governance firms (GOVQuality > Mean) have all three committees, while this percentage is (54/85) 63.53% for weak governance firms. In the sample studied by [Mazzotta and Veltri \(2014\)](#) in 2009, the percentages were 31% for the strong governance firms and 0% for the weak governance ones. Again, also with regards to this corporate governance dimension, a remarkable enhancement has occurred.

Table 3. Descriptive statistics.

Variables	Mean	Median	Min	Max
CEC	0.116	0.095	0.021	0.976
GOVQuality	2.978	3.000	0.000	4.000
BRD_SIZE	10.568	9.000	5.000	22.000
BRD_IND	0.547	0.500	0.200	1.000
COM3	0.777	1.000	0.000	1.000
DUA	0.770	1.000	0.000	1.000
BETA	0.889	0.869	0.224	1.690
MB	2.782	1.535	0.086	83.599
SIZE	5.300	5.065	0.472	10.178
ROA	3.6649	3.6450	−36.640	39.580

The average percentage of independent directors is 54.7%, which is a value close to that of the median (50%).

Finally, concerning the CEO duality, 77% of our sampled firms do not present this feature, while the remaining 23% of the firms are characterized by duality.

Even if our CG quality index cannot be exactly compared to the one developed by [Mazzotta and Veltri \(2014\)](#) (since we substituted the fourth attribute of board committees' independence with CEO duality and the criterion of the median with that of the mean), it is worth considering the improvement of this figure that should indicate the general quality of the CG mechanisms within the firms: In [Mazzotta and Veltri \(2014\)](#) the average GOVQuality index for strong governance firms was 2.19, while it was less than 1 (0.74) for those considered to be characterized by weak governance.

A significant difference was recorded for the dependent variable: The estimated cost of equity capital. In [Mazzotta and Veltri \(2014\)](#) study, the CEC was significantly higher for the weak governance firms subsample (19.6%) than for the strong governance firms (11.5%). In this analysis, we notice that the two subsamples do not present such a divergent result: The strong governance firms present an estimated cost of equity capital equal to 12.0%, while the weak governance subsample has an average cost of equity equal to 12.4%.

Theoretical and empirical analysis suggest that proper measures of expected return are positively related to Beta (weekly market beta calculated an estimation over two years prior to a firm observation), and negatively related to the size (the natural logarithm of market capitalization for each firm) and price-to-book ratio (market value of equity divided by the book value of equity for each firm).

In order to validate the CEC estimates computed using the PEG ratio, we run a regression model that has the cost of equity capital as the dependent variable, and the beta, the size, and the market-to-book ratio as the independent variables:

Three models are presented in [Table 4](#): The first one with only control variables (Beta, Size, Market to Book Value), Model 2 with the CG quality index, and Model 3 with the CG and a full set of control variables:

Model 1 in [Table 4](#) shows that market beta is the only independent variable with a positive and statistically significant relationship with the cost of equity capital. The market-to-book ratio and the size do not seem to be negatively and significantly related to the CEC, as expected. To test whether the stronger governance firms have effectively applied a lower cost of equity capital, we run the regression computed in Model 2, including the CG quality index. Again, the only variable that showed a statistically significant relationship with the cost of equity results to be the market beta. Thus, according to our multilinear multiple regression, we cannot confirm that strong governance listed Italian firms have applied a lower cost of equity capital than weak governance firms.

Even though our findings with the regression in Model 2 do not show a statistically significant relationship between CG quality and the CEC, we proceed with a further investigation.

Table 4. Regression analysis results.

Variables	Model 1		Model 2		Model 3	
	Coef	SD	Coef	SD	Coef	SD
Beta	0.089 *	0.042	0.086 *	0.042	0.104 **	0.036
MB	0.001	0.001	0.001	0.001	0.001	0.001
Size	−0.005	0.004	−0.005	0.004	−0.003	0.004
GOVQuality			0.011	0.008	0.006	0.011
ROA					−0.006 **	0.001
Leverage					0.039	0.033
<i>Sector dummies</i>						
Financial					Ref.	-
Industrial					0.062 *	0.025
Services					0.025	0.026
<i>Market dummies</i>						
BC					Ref.	-
STAR					0.006	0.019
STD					0.097 **	0.025
Intercept	0.065 *	0.030	0.054	0.035	−0.026	0.053
R-squared	0.058		0.064		0.293	

** indicates a significance at 1% level, * at 5% level. Robust Standard errors are computed to correct for heteroscedasticity.

Model 3 shows the results with the presence of the Governance Quality Index jointly with a set of control variables as the ROA (which is a performance measure), the sector of the enterprise, and the segment of the market where the corporation has been listed.

As we can see from the table, Quality Governance Index is still not significant in determining the CEC level, while the inclusion of the full set of explanatory variables helps to increase the percentage of explained variance of the model: In more detail, industrial companies show higher levels of the CEC with respect to the financial and the service sectors. Similarly, the dummy introduced to identify the segment of the market is still significant with the STD market that displays higher values for the cost of equity capital. This is not surprising, because BC collects the most performing companies in terms of market capitalization (often linked to lower values for the CEC), and STAR segment collects a set of small-medium enterprises characterized by high reputation in terms of governance practice.

Finally, firms with high values for the ROA lower the CEC value, according to the literature (Teti et al. 2016). Leverage, although with the expected sign, is not significant instead.

The last regression, shown in Table 4, also points out an increased R-squared (29.3%) compared to the previous ones (6.4% and 5.8%), which indicates that a bigger proportion of the variance of the dependent variable is predictable by the independent variables when control variables were added—nevertheless, both Model 2 and Model 3 support H0.

In conclusion, the results still show that there is not a statistically significant relationship between the adopted CG index and the cost of equity capital.

Probably the reduced variability in the CG index is a good explanation of this, as demonstrated in Table 5. Indeed at least 95% of the firms scored 2 or above in the CG governance index.

Table 5. CG index distribution (percentiles, mean and standard deviation).

	Min	5%	50%	95%	Max	Mean	SD
GOVQuality	0.000	2.000	3.000	4.000	4.000	2.978	0.737

Several robustness checks were implemented to support the findings of the model. First, a Breusch-Pagan test has been run, in order to detect heteroscedasticity. Results

denote that the variance of the error is not constant across the observations. Hence, robust standard errors are computed with respect to all the models in Table 4.

Secondly, collinearity has been investigated using the variance inflation factor (VIF). Fortunately, in all the models specified and for any variable included, the value of VIF is much lower than the critical value equal to five. Results of the regression diagnostics are reported in Table 6.

Table 6. Regression analysis diagnostics.

Variables	Model 1	Model 2	Model 3
	VIF	VIF	VIF
Beta	1.003	1.009	1.143
MB	1.005	1.014	1.202
Size	1.009	1.009	1.078
GOVQuality		1.015	1.071
ROA			1.333
Leverage			1.052
<i>Sector dummies</i>			
Financial			Ref.
Industrial			2.675
Services			2.392
<i>Market dummies</i>			
BC			Ref.
STAR			1.315
STD			1.245
Breusch Pagan Test (H0: σ^2 constant)	54.33 **	57.73 **	280.27 **
Hausman Test (H0: OLS consistent)	-	1.18	0.71
Sargan Test (H0: instruments valid)	-	1.92	0.22

** indicates a significance at 1% level. VIF, variance inflation factor.

In addition, to protect estimates from the possible presence of endogeneity in the relationship between CG index and CEC, a two stage regression model (2SLS) has been run with the percentage of the first shareholder and the lagged value of the percentage of attendance of board directors at the internal meeting as instrumental variables for the CG index. These variables were incorporated in a 2SLS competitive model, because they satisfy the null hypothesis of the Sargan test (for the validity of the instruments in an overidentified setting). Then, the 2SLS model has been compared with the Ordinary Least Square (OLS) one specified in Table 4, using a Hausman test of endogeneity.

Results for the Hausman test are in favor of the OLS specification reported in Table 4, supporting the consistency of the estimates of an OLS regression model: Test results do not allow for rejecting the null hypotheses for Model 2 and Model 3. Obviously, the Hausman test has not been performed for Model 1, due to the lack of the CG Index in the set of explanatory variables. Finally, the last regression has been run only on the non-financial firms to test whether the sector moderates the effect of the CG index; results do not significantly differ from the whole model.

5. Conclusions

This study presented an alternative hypothesis (H1)—that as governance qualities are intended to decrease and limit the agency problem, and thus, the agency costs, they should also impact the firm's cost of equity capital. This alternative hypothesis was formulated against a null one (H0), stating that there is no correlation between CG and CEC.

Following Mazzotta and Veltri (2014), we built a comprehensive corporate governance quality index (GOVQuality), based on four dimensions that, based on previous literature and empirical analysis on CG, were predicted to have a significant impact on the cost of equity. The dependent variable, the cost of equity capital, has been computed using the

PEG ratio, which, in turn, followed four previous studies (Ashbaugh-Skaife et al. 2004; Derwall and Verwijmeren 2007; Byun et al. 2008; Reverte 2009), which proved the PEG ratio to be a reliable estimate of the CEC.

Previous studies tested the relationship between corporate governance and cost of equity for the Italian listed firms for the fiscal year 2009. This is because, until 2012, there was a lack in these kinds of studies in the national context, and because authors did not want the results to be conditioned by investors' reactions and expectations following the recent economic crisis of 2008.

We sampled the Italian listed firms at the end of the fiscal year 2018 to see how the introduction of stricter regulations and the economic reaction following the crisis might have changed the results obtained by the previous empirical analysis.

Furthermore, Mazzotta and Veltri (2014) considered the Italian listed firms at 2009 fiscal year-end except for the companies operating the financial sector (banks, insurance firms, etc.), to assure homogeneity of accounting information. Instead, we sampled the Italian listed firms operating in all three sectors (industrial, services, financial to have an overall outlook of the context. To distinguish the contexts, we added sector dummies.

Finally, it suggested computing a CG quality index based on the following four dimensions: Board size, board independence, the existence of the three internal committees (remuneration, nomination, auditing), and board committees' independence. We built a comprehensive CG quality index following the previous literature, but we considered the CEO duality rather than the independence of the internal committees as the fourth dimension, due to the evidence explained in the literature review.

While Mazzotta and Veltri (2014) presents results (consistently with Allegrini and Greco 2011; Anderson and Reeb 2004) that efficient board characteristics play a successful role in decreasing the agency problem, and thus, the cost of equity, our findings suggest that there is not a statistically significant relationship between the corporate governance and the cost of equity capital, supporting the null hypothesis formulated (H0). This different result needs some considerations. Firstly, between previous studies and our empirical analysis, there are the aforementioned differences in the methodology (corporate governance quality index incorporating CEO duality instead of committees' independence, samples including all three sectors), which results in two analyses that are not perfectly comparable. Furthermore, even if the literature shows findings that prove the existence of a relationship between good corporate governance quality and a lower cost of equity capital applied to the firm, the evidence is weak, given the not restrictive significance level chosen by the previous study: Only the 10% level.

Hence, a consideration about the context and its evolution is necessary to describe our results in lights of the current literature: Mazzotta and Veltri (2014) carried out an empirical analysis focused on 2009 in which the attention to corporate governance mechanisms, corporate social responsibility, transparency, and so on, were relatively "new". The sample of our analysis refers to 2018, nine years later, in which the consequences of the financial crisis, the issue, and application of new regulations. Moreover, the implementation of strict codes of conduct brought about a new context, where the respect of good CG behaviors is a prerequisite rather than a distinctive element. This last observation is strongly supported by every corporate governance attribute considered (especially the existence of the internal committees), and thus, an increased average CG quality index for all the collected firms. Hence, worse and better firms present in 2018 close values for the Quality CG index adopted in that analysis; from a statistical perspective, a decrease in variability of the CG index is less likely to produce a significant variation in the dependent variable (CEC).

These results do not deny that good governance practices are helpful to improve the performances, but they suggest: (1) A convergence of firms to a better and common standard quality after a long tradition, and/or (2) the need to focus to new and different governance issues that can make the difference among the sampled firms. We particularly refer to the gender composition of the board, the age of directors, their education levels, and the satisfaction of sustainable requirements.

Hence, given the results of the study, we suggest further investigation, in order to dig deeper into the relationship between governance mechanisms and the existence of a governance risk premium. In more detail, a panel design covering the time windows between the implementation of the 2003 Reform could represent the occasion of capture the dynamic of the relationship between CG and performance in the Italian context.

A further path for future research relates to the link between corporate social responsibility and firm performance. In more detail, the requirement of social, environmental, and governance disclosures for large business enterprises (Silvestri and Veltri 2020; Mazzotta et al. 2020), according to the Directive 2014/95/EU and the introduction of sustainability reports also for SMEs (Caputo et al. 2017) represents new governance elements to be considered for a possible connection with firm performance.

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