The Association of Board Composition, Intellectual Capital and Firm Performance in a High Ownership Concentration Context: Evidence from Italy

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Abstract

The association of Corporate Governance (CG) with Firm Performance (FP) has always been an issue relevant to management literature. Nevertheless, the notable heterogeneity of studies and their mixed results highlight the opportuneness of continuing to investigate the association of CG with FP. The article aims to contribute to this research by building and employing a sophisticated model to take into account beyond the   board composition ownership structure and firm efficiency in using its intellectual capital (as measured by VAIC^{TM}). The findings provide evidence that the board composition, the ownership concentration and the efficiency of intellectual capital increases firm efficiency in producing profits (as measured by ROA). Furthermore, our findings add knowledge to the relationship between CG and FP, by confirming a positive relationship in Italy, a continental European capital market under-investigated on this issue

Keywords: corporate governance, firm performance, board composition, intellectual capital, ownership concentration, ROA, Italy

1. Introduction

Studies in the literature on the association of Corporate Governance (CG) with Firm Performance (FP) are characterized by marked heterogeneity, which has led to mixed results.

This article adds knowledge on the issue by designing a research framework to unveil the association of CG with FP by including other variables in the right side of the model supposed to affect performance variations, namely the ownership structure (OS) and the intellectual capital (IC) performance of the firms.

CG is measured with board independence as, consistently with the majority of the literature (Fama & Jensen, 1983; Hermalin & Weisbach, 1991), we believe the board of directors is the main monitoring tool whose principal task is to monitor shareholders, in the light of agency theory.

Variable ownership structure has been added because, consistently Aceiro Fraile and Alcade Fradejas (2014), we believe not only that it characterizes entire contexts and is therefore responsible for the differences in CG across countries, but also it affects the board of directors and firm performance (Acero Fraile & Alcade Fradejas, 2014; Perini et al., 2008; Barontini & Caprio, 2006).

Intellectual capital efficiency has been included in the model as we, consistently with Keenan and Aggestam (2001), believe the efficiency of a firm in using its key tangible and intangible resources affects the CG.

In the article firm performance is measured by Return on Assets (ROA) as this ratio measures firm efficiency in producing profits, and is therefore complementary with the variable used to measure IC efficiency: the VAIC ratio.

This complex and holistic framework has been applied to non-financial Italian listed companies in the three-year period 2008-2010. The Italian context was chosen for its peculiarities under a CG profile.

To the best of our knowledge, this is the first model which investigates the relationship between CG and FP including OS and IC as explanatory variable and this is the main originality of the paper.

The findings provide evidence of the better explanatory power of this holistic model, so adding knowledge to the

lively debate on the CG-FP issue.

2. Literature Review

Companies are managed through corporate governance choices. An effective corporate governance is thus expected to provide more reliability of public disclosures, to reduce the cost of capital and to improve firm effectiveness, so affecting firm performance (Jaggi et al., 2016; Mazzotta & Veltri, 2014).

In an agency theory framework, the boards of directors is considered a key CG monitoring tool; its primary role is connected to the separation between ownership and management in organizations and to the necessity of controlling the agent (that is, manager) who acts on behalf of the principal (that is, shareholder) (Hermalin & Weisbach, 1991; Bachiller et al., 2016). An effective board is thus expected to lead to improved financial performance of the firm (Conheady et al., 2015).

Many studies have tried to understand the influence the board characteristics have on company performance. With respect to the board composition, the most relevant aspect is the presence of insider and outsider directors or, from another perspective, the presence of executive, non-executive and independent, and non-executive but non-independent directors. Empirical studies investigating the relationship between board composition and FP found mixed results. Some studies found a negative correlation between these variables (Agrawal & Knoeber, 1996; Bhagat & Black, 1999), others supported the idea of a positive correlation between the variables (Dahya & McConnell, 2007), others found a not statistically significant relation between the two variables (Hermalin & Weisbach, 1991).

Recently, research frameworks started to include ownership structure, as in contexts where equity ownership is highly concentrated, the corporate governance problem is not a problem between shareholders (principals) and managers (agents (type I problem), instead it is focused on the relationship between small and large shareholders (type II agency problem). In this second case, the board of directors is called to broaden the scope of its supervisory function to safeguard the interests of small shareholders (Baglioni & Colombo, 2013).

As regards empirical studies addressed to investigate the association of the board of directors with the FP (including the ownership structure variable and effected in high ownership concentration contexts), the evidence is inconclusive: the research of Baglioni and Colombo (2013) in the Italian context shows firm performance is negatively affected by the share of independent members on the board and positively affected by the share of executive members; the research of Jameson et al. (2014) finds that controlling shareholders board membership in Indian firms has a statistically significant negative association with the FP measured by Tobin's Q, in contrast to the findings of Anderson and Reeb (2004) in the US context. Some studies deepen the analysis on the outsider membership of the board by differentiating between nominee and independent directors. Nominee directors represent significant shareholders, whereas independent directors do not have any type of relationship with the organization. Such a distinction is really important in high ownership concentration contexts, as are the independent directors who are asked to safeguard the interests of small shareholders (Acero, Fraile, & Alcade Fradejas, 2014). The research of Lefort and Urzúa (2008), based on a sample of Chilean firms, evidences that the proportion of outside directors appears to affect company value but, when separating the proportion of independent and nominee directors, the analysis finds only the proportion of independent directors positively affects company value. The research of Leung et al. (2014), based on a sample of Hong Kong firms, finds no significant association of the independence of corporate boards or board committees with firm performance in family firms, whereas board independence is positively associated with firm performance in non-family firms (Note 1). Kouki and Guizani (2015), in their research based on Tunisian firms, find that family ownership negatively moderates the outside directors-FP relationship, and Reyna et al. (2012) in their research on the high ownership concentrated context of Mexico find outside directors have a positive association with FP and ownership concentration has an important effect on the board of directors composition.

Another recent literature stream, starting from the article of Keenan and Aggestam (2001), finds connections between CG and IC constructs. The rationale is that IC exists in the firm, and CG is accountable for IC as well as for financial capital. In detail, several empirical papers investigated a supposed association of ownership structure with IC efficiency, providing evidence of a negative effect of insider ownership on IC performance, as measured by the VAIC index (Pulic, 2000) (Saleh et al., 2009; Bohdanovich & Urbanek, 2013; Bohdanovich, 2014). Moreover, coherently with the literature stream addressed to find an association of IC with firm performance, we believe IC, the key driver of the competitive advantage of the third millennium enterprise firm, is a variable that should be added in an holistic framework addressed to explore the association among CG with FP (Note 2).

Only recently, researchers started to investigate the association of CG with FP, including ownership structure and IC as explanatory variables. Wang (2013), who conducted a research on Taiwanese listed firms in the information electronics industry, finds evidence of a positive relationship between variously measured IC (Tobin's Q, Knowledge Capital Earnings, VAIC) and FP and also that the characteristics of the board of directors are correlated with the valuation of IC. The same positive association of CG with FP is highlighted by the research of Makki and Lodhi (2014) conducted on Pakistan listed firms using structural equation modeling based on partial least squares, and by the research of Bambang et al. (2015) on Indonesian listed companies, also finding a different effect of managerial ownership, which moderates the relation between CG and FP with respect to the institutional ownership.

As regards Italy, the researches of Celenza & Rossi (2013) could not provide an unequivocal association of ownership structure, board composition, IC with FP, leaving room to deepen the analysis in a context in which closely held firms are the dominant CG model (Baglioni & Colombo, 2013).

In their conclusions, Celenza and Rossi (2013) stress their results need further study in future to understand better the nature of this complex relationship. Our paper therefore takes up this challenge, by investigating the complex relationships among ownership concentration (OC) structure, IC and FP within the Italian context including the board of directors (measured in terms of board composition) as a key explicative variable of the performance variations.

On the basis of the above literature, we formalize the three subsequent research hypotheses:

H1: the CG is associated with the FP

H2: the CG and the OC are associated with the FP

H3: the CG, the OC, and the IC are associated with the FP

3. Methodology: The Regression Models and the Measurement of the Variables

The methodology employed to verify the research hypotheses was the econometric technique of OLS regressions on pooled data (POLS), that could be used in case of non-existence of individual effects (time invariant characteristics that could be peculiar to each company), revealed in our implementing a poolability test.

From a conceptual point of view, it is plausible to accept that at individual level there are no effects related to CG mechanisms, as most CG items remain unchanged for long periods of time. Brown et al. (2011) refer to this property as "stickiness".

In order to overcome the econometric problem, often related to the OLS estimates, of the heteroscedasticity of residuals, we correct our estimates by using standard errors robust to heteroscedasticity (Woolridge, 2009).

3.1 Searching for an Association of Board Composition with Firm Profitability

To test research hypothesis H1 the following model was used (1):

$$ROA_{it} = \alpha_0 + \alpha_1 ID_{it} + \alpha_2 NOM_{it} + \alpha_3 ED_{it} + \alpha_4 FS_{it} + \alpha_5 L_{it} + \varepsilon_{it} \tag{1}$$

Where:

ROA = Return on Assets, proxy of FP.

ID = Independent directors.

NOM = nominee directors.

ED = Executive directors.

FS = The dimension of the firm (firm size).

L = the level of firm indebtedness (Leverage).

The FP in the research was proxied by the accounting FP measure of ROA (return on assets) given by the ratio between net income and total net assets. The choice is justified by the consideration that in the article we are interested in measuring firm efficiency in using its resources and a profit measure like ROA demonstrating the efficiency of the firm's operations (Masa'deh et al., 2015), ideally complementing the measurement of IC, measured by an index to assess the firm's capability to employ its IC. Coherently with Joh (2003), in our article we use accounting measures of FP as they are not affected by market inefficiency, but are more directly concerned with firm's survival and profitability than market measures and they are available for both listed and unlisted firms. Moreover, among accounting-based measures, ROA is the preferred ratio when the relationship between CG and FP is investigated (Hutchinson & Gul, 2004; Mashayekhi & Bazazb, 2008; Nuryanah & Islam,

2011; Al-Matari et al., 2014) and it is considered one of the most relevant accounting measures (Aliabadi et al., 2013). In fact, ROA is a better metric of financial performance than income statement profitability measures like return on sales (ROS) or ROE, as it shows how productive the firm's total assets are in producing profits (Hagel III et al., 2010; Masa'deh et al., 2015).

CG in the research is proxied by the board of directors independence. The equation includes three proxies for the board composition: the executive directors (ED); the non-executive but non independent directors, elected with the controlling shareholder votes (NOM) and the non-executive and independent directors, elected without the controlling shareholders votes (ID). ED and NOM are calculated as the proportion of total directors; instead, ID is calculated in a more complex way. Coherently with Bozcuk (2011) and Fracassi and Tate (2012), ID was measured for each sampled firm using the number of independent directors on the board and their proportion in terms of representation on the board. The two variables were combined in a dummy variable equal to 1 when there are at least two independent directors on the board and contemporaneously one third of the board is made up of independent directors, as defined in the Italian Code of Conduct (joint independence). The choice to derive the criteria for measuring independence exogenously from the Code of Conduct provides some comfort that the results obtained in the empirical researches are not driven by the problems associated with endogeneity.

Control variables are used to control for firm specific characteristics because the inclusion of the control factors reduces the risk of model misspecification due to missing variables. As control variables, coherently with the previous studies in the CG-FP literature, the *firm size* and *leverage* variables were added to the model (Joh, 2003; Vo & Nguyen, 2014; Acero Fraile & Alcaide Fradejas, 2014). Firm size is also supposed to affect the board composition (Zhara & Pearce II, 1989). We use a natural log transformation of total sales as a measure of firm size in order to eliminate scale effects (Brealey et al., 2007). Moreover, leverage is likely to affect CG, as debt holders can control management actions (Jensen & Meckling, 1976; Stiglitz, 1985; Short & Keasey, 1999; Weir et al., 2002). The ownership structure can be influenced by the debt structure (Jensen, 1989; Sun et al., 2015). Moreover, a firm with increased debt can limit its investment in R&D, and threaten IC development and FP (Ho & Williams, 2003).

3.2 Including in the Research Framework the Ownership Structure and the Intellectual Capital Efficiency

To test hypothesis H2, the following model was employed:

$$ROA_{it} = \alpha_0 + \alpha_1 ID_{it} + \alpha_2 NOM_{it} + \alpha_3 ED_{it} + \alpha_4 OC_{it} + \alpha_5 F_{it} + \alpha_6 L_{it} + \mathcal{E}_{it} \qquad (2)$$

Where:

OC = ownership concentration.

As revealed in the literature section, the OC is related to the FP (Perrini et al., 2008; Barontini & Caprio, 2006), to the board of directors (Aceiro Fraile & Alcade Fradejas, 2014) and to the IC (Bodhanowicz & Urbanek, 2013; Bodhanowicz, 2014). In the article, OC is measured by the sum of the % of equity holdings equal to, or above, 2 percentage and it is used to represent total ownership concentration, coherently with Acero and Alcalde Fradejas (2014), García-Meca and Sanchéz-Ballesta (2011), Kapapoulos and Lazaretou (2007). The choice of measuring OC with this variable allows for measuring it exogenously from the Borsa Italiana, so providing some comfort that the results obtained in the empirical researches are not driven by the problems associated with endogeneity (Note 3).

In accordance with the agency theory, we hypothesize a high concentration of ownership can worsen the FP, shareholders being likely to pursue their own interests expropriating the minority shareholder interests (expropriation hypothesis) (Lefort & Urzúa, 2008; Alipour, 2013).

To test hypothesis H3, the following model was employed:

$$ROA_{it} = \alpha_0 + \alpha_1 ID_{it} + \alpha_2 NOM_{it} + \alpha_3 ED_{it} + \alpha_4 OC_{it} + \alpha_4 VAIC_{it} + \alpha_6 F_{it} + \alpha_7 L_{it} + \mathcal{E}_{it} \qquad (3a)$$

Where:

VAIC = proxy of IC.

A detailed description of the IC measurement methods goes beyond the scope of this article; we focus on the VAIC[TM] method (Pulic, 1998, 2000, 2004) as it is the method used in this paper to measure a firm's ability to create value by using its tangible and intangible resources efficiently. VAIC™ has become the most used IC index for comparison of firm performance despite its main limitations: HC and SC being calculated derivatives of each other, human capital being the main focus of the method, VAIC™ not measuring human capital, but just the use of human capital, IC measures being accounting measures derived from company accounts, and, not least, the value added measure being problematic, as it varies considerably in structure among different sectors

and can be calculated using different configurations (Ståhle et al., 2011; Laise & Iazzolino, 2013). VAIC^{TM} is the most-used IC index as it makes use of financially oriented, audited and published data to assign an economic value to the components of IC (Silvestri & Veltri, 2014).

As a recent meta-analysis provides evidence of the more significant association of VAIC^{TM} with FP when VAIC^{TM} is articulated into its three components (Veltri, 2012), we run the regression considering the single VAIC^{TM} components (model 3b).

$$ROA_{it} = \alpha_0 + \alpha_1 ID_{it} + \alpha_2 NOM_{it} + \alpha_3 ED_{it} + \alpha_4 OC_{it} + \alpha_5 HCE_{it} + \alpha_6 SCE_{it} + \alpha_7 CEE_{it} + \alpha_8 Fit + \alpha_9 L_{it} + \mathcal{E}_{it} \quad (3b)$$

Where:

HCE = Human Capital efficiency.

SCE = Structural Capital efficiency.

CEE = Capital Employed efficiency.

To calculate the variables for the VAIC^{TM} calculation, we need to calculate the value added. Consistently with Rihai-Belkaoui (2003) and Ho and Williams (2003), we make reference to the Net Value Added configuration (Note 4).

Table 1 presents the description and measurement of all variables included in models 1, 2 and 3.

Table 1. Variable definitions

Variable		Measurement
Return on assets	ROA	Net income /total assets
Independent directors	ID	1 = joint independence (contemporaneously two independent directors and one third of the board are independent)
		0 = otherwise
Nominee directors	NOM	Number of nominee non-executive directors/total number of directors
Executive directors	ED	Number of executive directors/total number of directors
Ownership Concentration	OC	Sum of the percentage of equity holdings equal to, or above, 2%
Capital Employed Efficiency	CEE	CEE = VA/CE
Human Capital Efficiency	HCE	HCE = VA/HC, where HC is measured by salaries and wages
Structural Capital Efficiency	SCE	SCE = SC/VA
		where SC= VA-HC
Capital Efficiency	VAIC	CEE+HCE+SCE
Leverage	L	(Total debt / Total shareholder equity)
Firm size	FS	Natural log of annual sales

4. Sample Selection

In the article we analyze the non-financial firms listed on the Italian Stock Exchange in the period 2008-2010.

Italy was chosen because, in terms of board features, the Italian corporate system offers a relatively unique environment for assessing the effect of CG mechanisms on a firm's VA efficiency. The Italian market is a less developed one in an equity context than the U.S. and the British markets (Allegrini & Greco 2013). The Italian manufacturing system is characterized, with few exceptions, by small- and medium-sized firms, in which banks take an active role as credit lender (bank-centered market). Listed firms are mainly family owned, with a high ownership concentration. Moreover, even though it has grown in recent decades, the number of listed companies remains exiguous with respect to the benchmark markets. There are also a significant number of state-owned companies. Compared to the US and the UK, the market, the institutional investors, the financial institutions and the regulators are less active as corrective mechanisms against management entrenchment and corporate failure; this makes the role of internal governance mechanisms, such as the board of directors, relevant in Italy. The Italian stock exchange is characterized by companies with large controlling shareholders, who can influence the board and the committees' agenda, so the agency problem in Italy is not one between ownership and control, rather, it is a problem between majority and minority shareholders, whose interests need to be legally protected (Brealey et al., 2007; Allegrini & Greco 2013; Baglioni & Colombo, 2013; Perrini et al., 2008).

The initial number of companies (293) is subject to a reduction due to the incompleteness of data. The criteria for the sample selection were the following:

1)   We included the firms listed in the three-year period 2008-2010;

2)   We took into consideration only those firms not banned by regulators;

3)   We eliminated observations relating to listed firms in which one or more key variables were missing.

The final sample is made up of 179 firms (537 observations as shown in Table 2).

Table 2. The sample selection process

Sample selection process	Number of firms
Total firms listed in the Italian Stock Exchange Firms belonging to the financial sector	293
Total non-financial listed firms	(56)
Firms with incomplete data	237
Final sample	(58)
	179
Observation (179 for three years)	537

Once the sample was defined, we proceeded with the gathering of the secondary financial and accounting data (ROA) through the database Datastream to calculate the VA firm's efficiency in using its resources and for the control variables. Conversely, data for the corporate board features were hand-collected, the CG annual reports being available on the companies' web sites. The CG data was collected separately and compared by the authors, who conducted a data reliability analysis by sample verification. Information on ownership structure was retrieved by Consob (Italian Securities Exchange Commission) web site for 2008-2010.

5. Ownership Structure and Corporate Governance of Italian Listed Firms: A Descriptive Analysis

The characteristics of the overall sample in the period 2008-2010 are shown in table 3. The sample consists of 537 observations for 179 companies (Table 3).

Lipton and Lorsch (1992), in their study, suggest that a board composed of around 8 or 9 members is ideal from a monitoring perspective, so the figures reported for the present sample would appear to be approximately closer to their suggested target. Moreover, independents make up more than a third of all board members (39%).

Table 3. Descriptive statistics

Variable	Full sample	Median	Standard deviation
Ownership first shareholder (%)	47.31	52.06	18.91
Ownership second shareholder (%)	8.42	6.77	6.73
Ownership third shareholder (%)	4.36	3.35	4.25
Ownership fourth shareholder (%)	2.69	2.25	2.83
Ownership fifth shareholder (%)	1.38	0	2.28
Ownership 5sh (%)	63.87	66.33	15.21
Ownership concentration (%)	66.11	67.82	14.90
Number of relevant shareholder	4.28	4	2.54
Firm Size	12.69	12.44	1.82
Board Size (number) (independent + nominee + executive)	9.53	9	3.11
Independent director (number)	3,68	3	2.17
Joint independence	0.59	1	0.49
Executive director (number)	2.82	3	1.53
Nominee directors (number)	3.03	2	2.47
Leverage	70.85	38.07	151.38
ROA	1.03	2.12	9.04
VAIC	-2.56	0.44	36.57
HCE	0.25	0.17	1.11
CEE	0.03	0.03	0.13
SCE	-2.84	-0.09	36.55
Number of observation	537		

Table 4. Difference across concentrated and non-concentrated companies

Variable	Concentrated companies (ownership > 50%)	Non Concentrated companies (ownership ≤ 50%)	P-value diff. *
Ownership first shareholder (%)	52.70	23.09	0.00
Ownership second shareholder (%)	8.73	6.99	0.31
Ownership third shareholder (%)	4.38	4.22	0.46
Ownership fourth shareholder (%)	2.26	2.69	0.08
Ownership fifth shareholder (%)	1.29	2.81	0.02
Ownership 5sh (%)	69.33	38.82	0.00
Ownership concentration (%)	71.01	43.58	0.00
Number of relevant shareholder	4	4	0.00
Firm Size	12.55	13.30	0.02
Board Size (number)	9.34	10.43	0.00
Independent director(number)	3.5	4.51	0.00
Joint Independence	0.58	0.68	0.04
Executive director (number)	2.95	2.22	0.00
Nominee directors (number)	2.87	3.70	0.15
Leverage	72.25	64.44	0.88
ROA	1.28	-0.14	0.29
VAIC	-3.05	-0.33	0.29
HCE	0.25	0.23	0.49
CEE	0.03	0.03	0.81
SCE	-3.33	-0.60	0.18
Number of observation	310	227	

6. Main Findings

A Pearson correlation analysis is performed on all variables included in the models, to check for the degree of multicollinearity among the variables, which can cause bias in the regression coefficients. The results are shown in table 5, this provides pairwise correlation among the main variables considered in the analysis.

Table 5. Correlation matrix

	ED	ID	NOM	ROA	FS	L	OC	CEE	SCE	HCE	VAIC
ED	1										
ID	-0.14 ***	1									
NOM	-0.33 ***	-0.33***	1								
ROA	0.14 ***	0.01	-0.08**	1							
FS	-0.02	0.25***	0.19***	0.34***	1						
L	-0.06	0.07	0.05	-0.08**	0.15***	1					
OC	0.18***	-0.17***	-0.002	0.05	-0.19***	-0.00	1				
CEE	0.14***	0.03	-0.01	0.78***	0.37***	0.03	-0.00	1			
SCE	-0.00	0.04	-0.04	-0.02	-0.02	0.03	-0.02	-0.03	1		
HCE	0.03	0.08***	0.02	0.59***	0.49***	0.03	-0.00	0.66***	-0.00	1	
VAIC	0.00	0.04	-0.04	-0.00	-0.00	0.03	-0.00	-0.00	0.99***	0.03	1

***,** = significant at the 5 and 10% level respectively.

In the Pearson correlations reported in table 6, the coefficients do not exceed 0.8, which is used as an indicator of serious multicollinearity (Gujarati, 1992). Only the SCE variable and VAIC variable are highly correlated, but not used in the same model, thus not provoking multicollinearity problems. The independent variables are not correlated.

6.1 Main Findings of the Model 1 and 2

Table 6 illustrates the results of model 1, which as for all the other models is significant at 10% confidence level. The dependent variable is ROA.

Table 6. Regression results of the model 1

Variable	Model 1 Coefficient	Beta (Note 5)	VIF
Intercept	-22.75		
	(0.000)		
ID	-2.50	-0.136	1.40
	(0.005)		
NOM	-0.64	-0.175	1.50
	(0.001)		
ED	0.40	0.068	1.25
	(0.067)		
FS	2,09	0.420	1.21
	(0.000)		
L	-0.007	-0.117	1.03
	(0.017)		
			Mean VIF 1.28
R^2	0.1726		
Adj R^2	0.1648		
F-Test	12.20		
	(0.000)		

Notes. 2 tailed p-value are given in brackets.

The findings evidence that non-executive directors (NED), both independent and nominee directors, negatively affect firm performance. The result also implies NED are generally not effective monitors in a high ownership concentration context like Italy. This result is not in line with the agency theory, but is coherent with the results of Hemalin and Weisback (1991), Agrawal and Knoeber (1996), Bhagat and Black (1999), Erickson et al. (2005) and also with the findings of Baglioni and Colombo (2013), focused within the Italian context. From the findings, it appears FP is negatively affected by the NEDs, while being positively affected by the EDs. A possible explanation is EDs contribute to the efficiency of the decision process by bringing specific knowledge. More relevant for our research is the issue of the NEDs and of their effect on FP. The puzzling result can be explained considering NEDs play mainly a monitoring role, which can reduce the speed and efficiency of the board decision-making process. Also other two theoretical interpretations of the negative association between NEDs and FP can be suggested. The first is linked to the consideration that listed firms, to accomplish the recommendations introduced at national level to promote "good governance" (such as the Code of Conduct), could feel forced to introduce an inefficiently large independent component in their boards. The second reason is related to reputational concerns: even in the absence of explicit regulatory constraints, some companies could feel forced to sub-optimally add independent directors giving them a formal role and not a substantial one.

As regards the control variable, *size of the firm*, the results evidence the existence of a positive association between firm size and FP, coherently with Quang and Xin (2014), Alimehmeti and Paletta (2012), Lefort and Urzúa (2008); Reyna et al. (2012), Alipour (2013), Kamis et al. (2015), Wang (2013); Bodhanowicz and Urbanek (2013), Bodhanowicz (2014), which is consistent with the assumption that large firms can access funds more easily and are able to create entry barriers. The other control variable, *leverage,* shows a negative and significant relationship with FP, coherently with Titman and Wessels (1988), Rajan and Zingales (1995), Zeitun and Tian (2007), Kapapoulos and Lazaretou (2007), Quang and Xin (2014), and consistently with the pecking order theory, where firms use internally generated funds as the first option to finance projects before resorting to debt.

Table 7 illustrates the results of model (2). The dependent variable is ROA.

Table 7. Regression results model 2

Variable	Model 2 Coefficient	Beta	VIF
Intercept	-27.60		
	(0.000)		
ID	-2.34	-0.128	1.41
	(0.009)		
NOM	-0.66 (0.001)	-0.181	1.50
ED	0.28	0.048	1.29
	(0.174)		
OC	0.000	0.100	1.09
	(0.064)		
FS	2,18	0.438	1.25
	(0.000)		
L	-0.007	-0.120	1.03
	(0.008)		
R^2	0.1820		
Adj R^2	0.1727		
F-Test	10.53		
	(0.000)		

Notes. 2 tailed p-value are given in brackets.

The inclusion of the OC variable does not affect the sign and the significance of the board composition and control variables. In line with most of the studies addressed to test a relationship between OC and FP, the findings provide evidence of a positive and significant association of the two variables. Theoretically speaking, the results are coherent with the monitoring hypothesis, where a higher concentration of ownership gives large shareholders stronger incentives and greater power at lower cost to monitor management (Hu and Izumida, 2008).

Our results are in line with the empirical results of studies focused on Continental Europe and East Asian economies, likely to have a high concentration ownership context (Kapapoulos & Lazaretou, 2007; Hu & Izumida, 2008) and above all with the other studies conducted within the Italian context (Perrini et al., 2008; Alimehmeti & Paletta, 2012; Celenza & Rossi, 2013). This evidence confirms large shareholders are better monitors than dispersed shareholders (La Porta et al., 2000; Perini et al., 2008) and ownership concentration is not detrimental to FP instead, in an Italian-like environment, it affects FP positively. In other words, the results confirm the agency theory that higher OC increases shareholder power and control, allowing managers and shareholders' interests to be aligned, consequently increasing FP.

6.2 Main Findings of Model 3a and 3b

Table 8 illustrates the results of model 3a and 3b. The dependent variable is ROA.

Models 3a and 3b include IC, as measured by VAIC, by allowing both the measurement of IC by a single index, and the measurement of IC articulating it into VAIC sub-components. The inclusion of VAIC in model 3a is not significant, not surprisingly as many studies re-elaborated also in a meta-analysis (Veltri, 2009) of the relationship between IC and FP show the better explicative power of the VAIC sub-components instead of VAIC index. Thus, if we focus on model 3b, we can observe all variables maintain their sign and significance with respect to models 1 and 2, except for the executive directors. As regards the VAIC components, we can notice they are significant and positively associated with FP, the efficiency of human capital (HCE) and the capital employed efficiency (CEE), while the relationship between the efficiency of structural capital (SCE) and the FP is not negative but not significant. The results are in line with the majority of studies investigating the relationship between VAIC components and FP, which provide evidence of a better explicative power of the HCE component in explaining performance variations (Veltri, 2009). In detail, HCE and SCE are constructed in a complementary way and this is likely to affect the sign and significance of the two variables (see Silvestri & Veltri, 2014; Sthale et al., 2011; Iazzolino & Laise, 2013).

Summarizing, we can observe the R^2 largely increases with respect to the other models and the F value (which measures the conjoint significant of the coefficients of the variables included within the model records a strong

improvement with respect to the previous model. From an economic point of view, these results show that the board composition, ownership concentration and the efficiency of intellectual capital increases firm profitability, as measured by ROA.

Table 8. Regression results model 3a and 3b

Variable	Model 3a			Model 3b		
	Coefficient	Beta	VIF	Coefficient	Beta	VIF
Intercept	-27.59			-6.56		
	(0.000)			(0.023)		
ID	-2.36	-0.13	1.41	-1.30	-0.071	1.42
	(0.009)			(0.022)		
NOM	-0.66	-0.18	1.50	-0.44	-0.120	1.52
	(0.001)			(0.000)		
ED	0.28	0.05	1.29	-0.112	-0.019	1.31
	(0.174)			(0.501)		
OC	0.06	0.10	1.09	0.040	0.066	1.09
	(0.056)			(0.096)		
VAIC	0.00	0.00	1.00			
	(0.792)					
CEE				46.95	0.671	1.83
				(0.000)		
HCE				0.911	0.111	2.04
				(0.017)		
SCE				-0.000	-0.003	1.01
				(0.743)		
Firm size	2.18	0.43	1.25	0.49	0.099	1.66
	(0.000)			(0.001)		
Leverage	-0.007	-0.12	1.03	-0.006	-0.104	1.03
	(0.008)			(0.008)		
R^2	0.1820			0.6363		
Adj R^2	0.1712			0.6307		
F-Test	9.09			22.09		
	(0.000)			(0.000)		

Notes. 2 tailed p-value are given in brackets.

7. Conclusions

The aim of the paper was to contribute to the debate on the nature of the relationship between CG and FP by trying to overcome one of the limits attributed by the literature to previous empirical studies: the possible bias in the regression coefficients deriving from the use of a research framework not including variables likely to affect both CG and FP. Our main contribution therefore was to design a research framework to unveil the association of CG with FP including two variables the literature showed to affect CG and FP: OC and IC. By examining the previous literature, and its mixed results, we chose the variables to use in our research framework (board composition as proxy for CG, ROA as proxy for FP, VAIC as proxy for IC, block holder equal or superior to 2% as proxy of OC).

The findings provide evidence of a better superior explicative power of the proposed model inclusive of OC and VAIC components with respect to the other models which do not include them.

The findings of the paper therefore add knowledge to the relationship between CG and FP, by confirming the existence of a positive relationship in the context of a continental European capital market, which is less investigated than the US and UK markets, in a high concentrated ownership context, also taking into consideration the role played by IC for the performance variations.

The main limit of the paper lies in the data sample used which covers a comprehensive but geographically limited data set: the Italian context. A future research direction could be to replicate the estimates using a broader sample of firms from other European capital markets, to compare the results obtained in the different contexts.

Other future research directions could be to progress the regression model, for instance by including industry dummies to account for effects due to the nature of firm industry, to take into consideration the year and time effect, to measure the main variables (FP, IC, CG and OC) with different proxies. In detail, there is room to improve the OC variable, by considering its multiple dimensions (managerial, foreign, institutional). Among these, a peculiar importance is assumed by family ownership, Italy being characterized by a prevalence of family firms. A future research direction could explore this aspect, by examining a possible relation between the owner identity and firm performance. Additional suggestions for future research include the development of a generalized non-linear model specification for OC, which takes into account its possible endogeneity.

Acknowledgments

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Notes

Note 1. Family firms for their features are included within the high ownership concentrated firms (Baglioni and Colombo, 2013).

Note 2. Intellectual capital (IC) can be defined as the dynamic and firm-specific system of intangible resources and activities in gaining and sustaining firm competitive advantages (Reed et al., 2006; Martín-de-Castro et al., 2011). In the prevalent literature, IC is articulated into three abstract categories, which must interact to create company value: human capital, organizational (structural) capital and relational capital (Edvinsson and Malone, 1997; Meritum, 2002). Briefly, human capital (HC) is composed of tacit knowledge, capabilities, and competences possessed by the employees. Organizational capital (OC) is made up of structured knowledge in the form of patents, databases, procedures, etc., but it also comprises "softer" elements such as organizational and managerial processes, the organizational structure, the corporate culture, etc. Lastly, relational capital (RC) encompasses the relations which a company develops with its stakeholders, that is customers, suppliers, institutions, etc.

Note 3. The Italian National Stock Market Commission (Borsa Italiana) defines significant shareholdings as those exceeding 2 per cent of the capital.

Note 4. The question of which elements should be included in the VA figure has been the subject of controversies in the literature. In any event, the different figures of VA address different purposes (Haller, 1997; Morley, 1979). The choice to employ the net figure is justified by the consideration that, from a conceptual point of view, amortization and depreciation should be regarded as costs related structurally to the firm and then contributing to the creation of the VA, rather than to its distribution (Montrone, 2000).

Note 5. Values reported in the Beta column are the standardized versions of the regression coefficients, which are not dependent on the units of measurements of variables. As they are directly comparable, these values provide a better insight into the importance of a predictor in the model.

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