Corporate governance and auditor choice

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Abstract

This paper analyzes the relationship between some internal corporate governance characteristics and external auditor choice. We use a sample of Italian listed companies during the period 2007 – 2010. The companies investigated operate in the industrial, merchandising, and service industries. External auditors are classified in two groups: Big 4 and non-Big 4 audit firms. Following previous research, we assume that audit services provided by the Big 4 are associated with higher audit quality. Corporate governance is observed through some features of the board of directors (BOD). Univariate and multivariate analysis show that BOD independence does not play a role in the choice of external auditor. The concentration of power stemming from the dual function of the CEO and Chairman of the Board is negatively associated with the choice of a Big 4 auditor. The BOD size appears to be positively associated with the choice of a reputed external auditor (Big 4). Overall, a small BOD and a concentration of power stemming from the dual role of Chairman and CEO tend to discourage the choice of a reputed auditor. One possible explanation is that there is a tendency to maintain information asymmetry, with a potentially higher conflict of interest, to the detriment of other stakeholders, particularly the minority shareholders, assuming a strict link between the majority shareholders, the BOD, and the CEO.

Key words: corporate governance, auditor choice, board of directors, Italian listed companies, audit quality, audit firms.

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1. Introduction

The aim of this paper is to analyze the relationship between some internal corporate governance (CG) mechanisms and external auditor choice. This study may contribute to a better understanding of one aspect of the complex interactions between internal and external CG mechanisms (MacDonald and Beattie, 1993). Both mechanisms intend to improve the quality and reliability of financial reporting. In particular, we consider the role played by the independent external auditor and some features of the board of directors (BOD). Previous studies have attempted to analyze the drivers of auditor change and auditor quality (e.g., Beattie and Fearnley, 1995).

We analyze the Italian context, which is characterized by high ownership concentration. As a consequence, CG mechanisms may have different connotations in comparison to other economic environments with dispersed ownership systems (e.g., the U.S.). As underlined by Shleifer and Vishny (1997), in most countries, the primary agency problem is the expropriation of minority shareholders by controlling shareholders rather than the expropriation of all shareholders by firm managers. In addition, the Italian context represents an interesting research setting because of the presence of international networks of large audit firms in the audit market for listed companies. Moreover, following an international trend, in recent years, there has been a growing interest in the issues of sound corporate governance and reliable accounting information (e.g., changes in the corporate law and the new edition of corporate governance code issued by the Italian Stock Exchange - *Borsa Italiana*, see Section 2).

Audit firms are classified in two main groups: Big 4 and non-Big 4, assuming that market participants may perceive the brand of the Big 4 as an indication of higher audit quality in comparison to the audit services provided by non-Big 4 firms. Internal corporate governance is examined by observing BOD characteristics. The key question refers to the auditor choice and its

association with some internal CG elements. As stated by Lin and Liu (2009: 45): "There is always a trade-off between hiring a high-quality auditor to improve corporate governance and hiring a low-quality auditor to sustain the opaqueness gains from relatively weak corporate governance mechanism (e.g., benefits through earnings management and 'tunneling' behaviors for the controlling owners of the listed firms). Thus auditor choice is an issue with significant theoretical and practical implications". Our empirical analysis covers the period 2007-2010 using a sample of Italian listed companies operating in the industrial, merchandising, and service sectors.

With univariate and multivariate tests, we show that BOD independence does not affect external auditor choice. The concentration of power stemming from the dual function of CEO and Chairman of the Board is negatively associated with the choice of a Big 4 firm. BOD size appears to be positively associated with the choice of a reputed external auditor (Big 4). Overall, we show that internal corporate governance mechanisms have a significant effect on the choice of the type of auditor.

The paper continues as follows. First, we depict the Italian institutional framework. We then present the literature review and the hypothesis development. After presenting the research design, we show the empirical results and then conclude the paper.

2. The Italian institutional framework

The Italian CG and audit environment has changed in recent years. However, during the period under study (2007 – 2010) the main reference is to the Legislative Decree (*D. Lgs.*) No. 58/1998, also named the Unified Financial Act (*T.U.F. - Testo Unico sulla Finanza*), as amended by the Legislative Decree No. 121/2005, and the CG code issued by *Borsa Italiana* in the edition of 2006. It is worth mentioning that the Legislative Decree (*D. Lgs*.) No. 39/2010 implemented in Italy the European Directive 2006/43/CE to improve the reliability of audited financial statements and to

avoid fraudulent corporate behavior. The new regulation emphasizes, among other things, the notion of audit quality control.

The Consob (*Commissione nazionale per le società e la borsa*), the Italian Security and Exchange Commission, must monitor the proper implementation of audit quality procedure according to the auditing standard No. 220. Recent evidence reported in Consob's annual reports (2008 – 2010) show that there exist organizational and procedural weaknesses in medium to small auditing firms. This finding may lead one to believe that in the Italian context, auditor size may be associated with a higher level of audit quality. However, Cameran et al. (2010) show that in the Italian market, the Big 4 are not necessarily perceived to be superior in comparison to smaller audit firms.

The T.U.F. and the CG code (BI, 2006) suggest the inclusion of an adequate number of independent directors in the BOD and the separation of the roles of Chairman and CEO (BI, 2006). As a consequence, we focus on those features of the BOD to observe different corporate behaviors. Moreover, the auditor choice is made by the (controlling) shareholders. In particular, art. 159 of T.U.F. (as amended by the Legislative Decree No. 303/2006) provides that under the traditional corporate governance model, the shareholders' meeting appoints the audit firm based on a proposal expressed by the statutory board of auditors (*collegio sindacale*). The BOD may play a substantial role in this process through its influence on the statutory board of auditors (*collegio sindacale*) and the shareholders' meeting. However, our purpose is not to demonstrate the influence of the BOD on the statutory board of auditors (*collegio sindacale*) but to show whether some features of the CG are linked to the auditor choice. In addition, the Italian context features a mandatory auditor rotation. Art. 3 of *D. Lgs.* No. 303/2006 of December 29, 2006 amended art. 159 of T.U.F. and imposed a term of nine fiscal years on the length of an independent auditor's mandate.

3. Background and hypothesis development

3.1 The role of the external auditor

The classic argument stemming from agency theory is that the separation of ownership and management may lead to a conflict of interests between the two stakeholders mentioned above. In this framework, published accounting information risks a loss of credibility because of the potential manipulation (earnings management or other form of accounting manipulation) that the management may try to implement to its own advantage. This situation creates the space for an independent third subject, which may add credibility to the published financial statements by auditing and expressing an opinion on this financial information. As a consequence, the external auditor, in theory, has a key role in attempting to limit accounting manipulation, thus limiting conflicts of interest and reducing information asymmetry between the principal and agent (Choi, 1982; Jensen and Meckling, 1976, Watts and Zimmerman, 1983).

The effectiveness of the external auditing function in the business community is an object of discussion in the political, business, professional, and academic contexts and at the national and international levels. One of the labels used to describe audit service is "audit quality". How to measure audit quality remains an open question. DeAngelo (1981) defines audit quality as the joint probability that the auditor detects anomalies (errors or fraud) and reports them to the public in an audit report. In other words, audit quality depends on professional competence (probability of detecting anomalies) and auditor independence (probability of reporting anomalies). According to DeAngelo (1981), large audit firms, currently the so-called Big 4, have a greater incentive than small audit firms to provide audit services of higher quality to protect their reputational capital. This argument may explain the association between large audit firms (Big 4), their reputation in the market, and the audit quality services they provide (DeAngelo, 1981; Klein and Leffler, 1981). Some empirical evidence confirms this association between the international network of the large

audit firms and the quality of the service they provide (e.g., Francis, 2004; Lennox and Pittman, 2011; Teoh e Wong, 1993). However, this link may have different operational meanings, depending on the institutional infrastructure and the economic variables used as a proxy of audit quality in empirical analysis. For example, focusing on the bond (debt) market in the U.S., Mansi, Maxwell, and Miller (2004) and Pittman and Fortin (2004) find a higher cost of capital for firms not employing Big 4 auditors. However, Khurana and Raman (2004) show that, unlike in the U.S., financing costs do not decrease for firms retaining a Big 4 auditor in Australia, Canada, or the United Kingdom.

During our research period, the Register of Auditors supervised by the Consob featured 22 audit firms, among which the Big 4 audit firms are Deloitte & Touche, KPMG, PriceWaterhouseCoopers, and Reconta Ernst & Young. As reported by Consob's annual reports (2008 – 2010), the Big 4 audit firms account for a significant share of the Italian audit market. This finding is in line with the evidence of Choi and Wong (2007) that external auditors (Big 5 audit firms in their paper) generally play a more important governance function in firms in weak legal environments, where protections of outside investors are weak and which typically feature concentrated ownership and insider-dominated corporate governance structures. Moreover, the audit market concentration is under discussion in the U.S. (e.g., GAO, 2008) and Europe (EC, 2010). The basic concern is that market concentration limits a company's choice of auditor and that oligopolistic dominance may lower audit service quality (GAO, 2008). To the extent that institutional incentives (e.g., litigation exposure and reputation loss) are not a guarantee of audit quality, concentration in the audit market may make auditors more tolerant of earnings management, thereby lowering audit quality. However, an alternative view is that audit market concentration could increase, rather than decrease, audit quality. Under this view, auditor concentration could raise audit quality by lowering the need to please the client and by strengthening the auditor's professional values and traditional commitment to the independent watchdog function. Francis at al. (2013) show that Big 4 dominance

7

per se does not appear to harm audit quality and is in fact associated with higher earnings quality after controlling for other country characteristics that potentially affect earnings quality. In our research, we assume this latter approach, linking the choice of a Big 4 auditor (reputed auditor) to a higher level of audit quality in comparison to audit services provided by small audit firms.

3.2. Internal CG mechanisms and auditor choice

The mechanisms of CG are the object of particular attention to improve corporate behavior and the reliability of accounting information provided to the stakeholders. Given the theoretical role of the external auditor, it is possible that there exists a complementarity or substitute relationship between audit quality choice (Big 4) and some features of internal CG mechanisms. For example, Jensen and Payne (2003) find a substitute relationship between some internal CG characteristics and the choice of higher-quality audit services in local public entities. Fan and Wong (2005) also show that the choice of a Big 4 auditor tends to compensate for a monitoring function in Asian firms with higher agency problems. A complementarity relationship is documented by Lin and Liu (2009) in China: "firms with weaker internal corporate governance mechanism are more likely to choose a low-quality auditor since they have more opaqueness gains to protect". This relationship may be described as a negative complementarity in that a low level of audit quality is added to weak CG, leading to a general deteriorating effect in CG.

3.2.1. Independent directors

In general, independent directors in the composition of the BOD are viewed as a tool to limit conflicts of interest between management and shareholders (Fama, 1980; Fama and Jensen, 1983). However, in the Italian context, characterized by concentrated ownership, it is possible that directors classified as independent may not be independent in substance (Prencipe and Bar-Yosef, 2011). In this context, it is difficult to predict the sign of the association between BOD independence and auditor choice. The first alternative, assuming a substitute relationship, would

8

predict that the external auditor will play a substitute role when the internal CG tool appears weak. Therefore, a negative relationship exists between BOD independence and the choice of a Big 4 auditor. The second alternative assumes a complementary relationship between BOD independence and auditor reputation. For example, Beasley and Petroni (2001) show a positive relationship between the presence of independent directors and the choice of an auditor specialized in the insurance industry. Based on the Italian concentrated ownership system and the difficulty of evaluating directors' independence in substance, we formulate the following non-directional hypothesis expressed formally in the null form:

Hypothesis 1 (H1): the proportion of independent directors in the BOD is not associated with the choice of reputed auditors (Big 4).

3.2.2. Concentration of power stemming from the dual function of Chairman of the Board and Chief executive officer (CEO)

The concentration of power stemming from the dual function of Chairman of the BOD and CEO may be negatively perceived because the monitoring role of the BOD over the management is weakened by the presence of the same person in the two functions. In this way, potential conflicts of interest and information asymmetries between management and shareholders (or, in general, stakeholders) increase. Therefore, the CEO-Chairman duality undermines the checks and balances in the top management of the firm. Jensen (1993) argues that a CEO who is also Chairman of the BOD exercises considerable power and could abuse such power by engaging in deceitful activities. Some evidence in the U.S. shows that business entities manipulating earnings are more likely to have a CEO who acts as Chairman of the BOD (e.g., Dechow et al., 1996); other research has failed to observe such a link (e.g., Beasley et al., 2000). However, we may argue that the choice of a Big 4 auditor may reduce the dominant power expressed by the dual function, so it may not be desirable by the CEO and Chairman of the company. This argument is strengthened when it is coupled with

high ownership concentration, as is common in the Italian context (Melis, 2000). For this reason, we formulate the following hypothesis:

Hypothesis 2 (H2): the combined role of Chairman of the BOD and CEO is negatively associated with the choice of a reputed auditor (Big 4).

3.2.3. Board size

In general, large BODs are believed to have a negative effect on CG for organizational and coordination problems in their activity. As a consequence, the management may find more space to express its power (Jensen, 1993). Small BODs may be considered more efficient in their monitoring activity to protect shareholder interests. However, in the Italian context, which features a high concentration of ownership, large BODs may be an indicator of more contribution to better corporate governance (Di Pietra et al, 2008). A large BOD may have also an interest in choosing a reputed external auditor to mitigate organizational problems and thus improve the perception of the audit quality of the published financial statements. For this reason, we formulate the following hypothesis:

Hypothesis 3 (H3): BOD size is positively associated with the choice of a reputed auditor (Big 4).

4. Research Design

To test our hypothesis, we selected a sample of Italian listed companies operating in the industrial, merchandising, and service industries. Beginning from the listed companies as at December 31, 2010, we added additional firms going back to 2007. Table 1 shows the sample selection procedure, leading to 667 firm / year observations, over the period 2007 – 2010.

Table 1

The univariate analysis performs a parametric test (t-test) and non-parametric test (Chi-square test) to show whether the CG variables are different in the two group of companies with Big 4 audit firms or non-Big 4 auditors.

In the multivariate analysis, the dependent variable BIG4 takes the value (1) when the auditor is one of the Big 4 or the value (0) otherwise. Among the explanatory variables, we consider BOD independence (BOD_IND), measured by the proportion of independent members over the total number of the BOD components. According to hypothesis 1, the predicted sign on this variable is uncertain. The second independent variable signals the concentration of power occurring when the roles of Chairman of the BOD and the CEO are combined (DUAL). Following hypothesis 2, the predicted sign on this variable is negative. The third variable is the Board size (BOD_SIZE), measured by the total number of the BOD components, with an expected positive sign (hypothesis 3). In addition to the main variables, we added two control variables. The first is the firm size, measured by the natural logarithm of total assets at the end of the year (SIZE). In general, a positive relationship between company size and the choice of a Big 4 firm is predicted (e.g., Agrawal and Knoeber, 1996). The other control variable is the level of debt, captured by the ratio of total liabilities over total assets (LEV), with an uncertain expected sign (Agrawal and Knoeber, 1996; Abbott e Parker, 2000). Because the dependent variable (BIG4) is binary, we use the following logistic regression model:

BIG4 = a + b1 BOD_IND + b2 DUAL + b3 BOD_SIZE + b4 SIZE + b5 LEV + e

5. Results

5.1. Descriptive statistics

Table 2 shows the descriptive statistics of the variable used in this research. On average, over the total number of observations, the proportion of independent directors on the BOD is 37.5%. This level of BOD independence is in line with evidence reported in previous research and is lower than

what is observed in other countries, such as the U.S. and the U.K. (e.g., Allegrini and Grego, 2013). The average membership size of the BOD is 9.5 members, and the role of Chairman of the BOD and CEO is combined in 181 cases (27%). The audit market shows a strong presence of the Big 4, with 581 observations, representing approximately 87% of our sample, thus confirming the dominant role of the Big 4 in the audit market for listed companies.

Table 2

5.2 Univariate analysis

Table 3 reports the outcome of the univariate tests. The BOD independence does not appear to differ between the two groups of firms. Companies where the roles of Chairman of the BOD and CEO are combined tend to choose non-Big 4 auditors, corroborating hypothesis 2. In fact, in the group of firms with non-Big 4 auditors, the DUAL function has a frequency of approximately 51%, whereas in the remaining group with Big 4 auditors, DUAL is approximately 24%. This difference is statistically significant. Moreover, a large BOD tends to choose a Big 4 auditor, validating hypothesis 3. In the group of firms with Big 4 auditors, the average total number of BOD components is 9.7, whereas in the group of non-Big 4, the average size of the BOD is 7.3 members. This difference is statistically significant. To perform the Chi-square test, the variable BOD_IND has been split in two groups: low BOD independence when the proportion of the independent members is equal or less than the median value (0.3333); the remaining group has BOD_IND higher than the median value. We used a similar approach for the variable BOD_SIZE, classifying the observations in two groups: small size, when the total number of board members is equal or less than the median value (9), and the remaining group. Table 3 confirms that the results of the Chi-square tests are coherent with the outcome of the t-tests.

Table 3

Overall, these results show that in the Italian context, the choice of a non-Big 4 auditor appears to be associated with a small BOD and concentrated power as manifested by the combined roles of Chairman of BOD and CEO. In fact, additional evidence is that in companies with higher concentrated power (DUAL = 1), the average BOD size is 8.11, whereas in the other cases (DUAL = 0), the average number of BOD components is 10.06; this difference is statistically significant (t = 7.2503, p = 0.0000). Overall, a small BOD and a high concentration of power in the dual role of Chairman and CEO tends to avoid the choice of a reputed auditor. One possible explanation is that there is a tendency to maintain informative asymmetries and thus potentially higher conflicts of interest, to the detriment of other stakeholders, in particular, the minority shareholders, assuming a strict link between the majority shareholders, the BOD, and the CEO.

5.3 Multivariate analysis

This section reports the results of the multivariate analysis performed using the logistic regression model. The correlation coefficients and their significance between the variables used in the model are reported in Table 4. It appears that there are no particular problems of multi-collinearity. In addition, the variance inflation factors (VIF) are low. It is worth noting that some of the correlations confirm the univariate analysis: the choice of a Big 4 auditor is positively associated with the board size and negatively correlated with the dual function of Chairman and CEO. Moreover, there is an association between the firm size, the BOD size and the choice of the Big 4. Major companies tend to have a large BOD and to choose a reputed auditor (Big 4).

Table 4

Table 5 reports the outcome of the logistic regression. With reference to hypothesis 1, it appears that the BOD independence is not significant, as already shown in the univariate analysis. This result may be due to directors' independence in form but not in substance in a context of a high concentration of ownership (Di Pietra et al., 2008; Prencipe and Bar-Yosef, 2011). In fact, it is not

possible to state whether there is a complementarity or substitute relationship between BOD

independence and the choice of a reputed auditor (Big 4). The negative and significant coefficient

on the variable DUAL corroborates hypothesis 2. The coefficient on the variable of the Board size

is positive and significant, so hypothesis 3 is also validated. Among the control variables, as

expected, it is confirmed that large companies tend to choose a Big 4 auditor.

Table 5

6. Conclusions

This paper analyzes the relationship between some internal CG characteristics and the external

auditor choice. The empirical analysis is conducted on a sample of Italian listed companies

operating in the industrial, merchandising, and service industries over the period 2007 – 2010. The

external auditors are classified in two groups: Big 4 and non-Big 4. CG is observed mainly by

examining some characteristics of the BOD. Performing the univariate tests and the multivariate

analysis, we show that BOD independence is not associated with the choice of external auditor.

There is a strong evidence that the dual function of Chairman of the BOD and CEO is negatively

linked to the choice of a reputed auditor (Big 4). The size of the BOD is positively associated with

the choice of a Big 4 auditor. Our evidence suggests that internal CG mechanisms are relevant in

choosing the external auditor. In particular, in the Italian context, it appears that the size of the BOD

drives the choice toward more reputed auditors, whereas the proportion of independent directors is

not significant. As shown in other research (e.g., Di Pietra et al., 2008), in highly concentrated

ownership systems, such as the Italian one, a large BOD may contribute positively to sound CG. In

fact, when ownership is concentrated, a small BOD may indicate the absence of discussion and

contrapositions in the BOD, to the detriment of the monitoring role that this BOD should play. This

argument is confirmed by the strong evidence of a negative association between the dual function of

Chairman and CEO and the choice of a reputed auditor. In these cases, we may assume a dominant

role of the management, representing the majority shareholders, with a tendency to choose a non-Big 4 auditor. Overall, a small BOD and a high concentration of power stemming from the dual role of Chairman and CEO tend to discourage the choice of a reputed auditor. One possible explanation is that there is a tendency to maintain the informative asymmetry and correspondingly potentially higher conflicts of interest, to the detriment of other stakeholders, particularly minority shareholders, assuming a strict link between the majority shareholders, the BOD, and the CEO.

However, our analysis cannot prove a causal relationship between CG characteristics and the external auditor choice, but it does show some associations that could be the subject of further investigation to examine the complementary or substitute relationship between internal CG mechanisms and external auditor choice. In addition, we cannot exclude that an audit risk procedure is followed by a Big 4 firm choosing to accept an audit engagement based, among other factors, on some internal CG characteristics.

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Table 1 – Sample selection

	2010	2009	2008	2007	Firm – year observations
Listed companies at 31/12/2010	277				
Foreign companies	(5)				
Companies suspended or not listed	(6)	(1)	(3)	(8)	
Financial companies (banks, insurance)	(76)				
Missing data	(11)	(3)	(11)	(26)	
Total	179	178	166	146	667

Table 2 – Descriptive statistics of variables used (N = 667 firm – year observations)

Variables	Mean	SD	Min	1Q	2Q	3Q	Max
BOD_IND (%)	37.52	16.29	0.00	25.00	33.33	44.45	88.89
BOD_SIZE	9.54	3.20	4	7	9	11	21
SIZE	20.037	1.763	16.272	18.874	19.665	20.975	25.848
LEV	0.6215	0.1916	0.0476	0.5122	0.6377	0.7500	2.0526
BIG4 (= 1), No. 581 (87%)							
DUAL (= 1) No. 181 (27%)							

Variable definitions: BOD_IND = number of independent board members over the total number of board members; BOD_SIZE = total number of board members; SIZE = natural log of total assets at end of year; LEV = total liabilities over total assets; BIG4 = company auditor variable, taking the value (1) for a Big 4 audit firm and (0) for a non-Big 4 auditor; DUAL = indicator variable taking the value (1) if the role of Chairman and CEO are combined and (0) otherwise.

Table 3 – Univariate analysis

	Big 4 (n = 581)	Non-Big 4 (n = 86)		
	Mean	Mean	Mean difference t-test	
BOD_IND (%)	37.81	35.62	t = -1.1596 p = 0.2466	
BOD_ SIZE (N.)	9.87	7.29	t = -7.2272 p = 0.000	
DUAL (%)	23.58	51.16	t = 5.4805 p = 0.000	
	N. (%)	N. (%)		Chi-square Test
BOD_IND <= 2Q BOD_IND > 2Q	311 (53.53) 270 (46.57)	46 (53.49) 40 (46.51)		X = 0.0000 p = 0.994
BOD_SIZE < = 2Q BOD_SIZE > 2Q	324 (55.77) 257 (44.23)	76 (88.37) 10 (11.63)		X = 33.1764 p = 0.000
DUAL	137 (23.58)	44 (51.16)		X = 28.8244 p = 0.000

Variable definitions: BOD_IND = number of independent board members over the total number of board members; BOD_SIZE = total number of board members; DUAL = indicator variable taking the value (1) if the roles of Chairman and CEO are combined and (0) otherwise; 2Q is the median value of the corresponding variable.

Table 4 – Pairwise correlation (N = 667 firm – year observations)

	BIG 4	BOD_IND	BOD_SIZE	DUAL	SIZE	LEV	VIF
BIG 4	1.000						
BOD_IND	0.0449 (0.2466)	1.000					1.10
BOD_SIZE	0.2699 (0.0000)	0.0847 (0.0288)	1.000				1.42
DUAL	-0.2079 (0.0000)	-0.0879 (0.0232)	-0.2707 (0.0000)	1.000			1.11
SIZE	0.2845 (0.0000)	0.2940 (0.0000)	0.5075 (0.0000)	-0.2681 (0.0000)	1.000		1.55
LEV	-0.0647 (0.0952)	0.0674 (0.0819)	-0.0618 (0.1109)	0.0220 (0.5706)	0.1216 (0.0017)	1.000	1.04

Variable definitions: BOD_IND = number of independent board members over the total number of board members; BOD_SIZE = total number of board members; SIZE = natural log of total assets at end of year; LEV = total liabilities over total assets; BIG4 = company auditor variable, taking the value (1) for a Big 4 audit firm and (0) for a non-Big 4 auditor; DUAL = indicator variable taking the value (1) if the roles of Chairman and CEO are combined and (0) otherwise.

Table 5 – Logistic regression

BIG4 = a + b1 BOD_IND + b2 DUAL + b3 BOD_SIZE + b4 SIZE + b5 LEV + e

	Predict	Coeff	SE	z-stat	p
BOD_IND (b1)	?	-.607	.829	-0.73	0.464
DUAL (b2)	-	-.721	.254	-2.83	0.005
BOD_SIZE (b3)	+	.226	.065	3.48	0.001
SIZE (b4)	+	.542	.118	4.59	0.000
LEV (b5)	?	-.592	.589	-1.01	0.314
Constant (b0)	?	-9.61	2.10	-4.57	0.000

Number of observations = 667; LR chi-square (5) = 99.17; Prob > chi-square = 0.0000; Pseudo R-squared = 0.1934

Variable definitions: BOD_IND = number of independent board members over the total number of board members; BOD_SIZE = total number of board members; SIZE = natural log of total asset at end of year; LEV = total liabilities over total assets; BIG4 = company auditor variable, taking the value (1) for Big 4 audit firm, or (0) for non-Big 4 auditor; DUAL = indicator variable taking the value (1) if the role of Chairman and CEO are combined or (0) otherwise.