The Role of the Board of Directors in Hiring the Audit Firm: Empirical Evidence from Brazil

Abstract

The purpose of this article is to investigate if there is a relationship between the characteristics of the board of directors and the type of independent audit firm engaged by companies listed on the São Paulo Stock Exchange (BM&FBovespa). We considered three board characteristics: independence, CEO/chair separation and size. In turn, for the audit firms we considered two characteristics: size and level of specialization in the client company's segment, based on two measures (market strategy and market share). The data were obtained from the websites of the companies, the Brazilian Securities Commission (CVM) and Economática, covering the period from 1998 to 2006. The results indicate that CEO/chair separation is associated with larger audit firms (Big N) and specialist firms. These results contribute to the discussion on how the corporate governance structure influences the engagement of the auditor, improving the understanding of the role of the board of directors in monitoring listed Brazilian companies.

Keywords: Corporate governance, auditing, board of directors.

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1. Introduction

The objective of this study is to investigate if the characteristics of the board of directors are related to the type of independent audit firm chosen by listed Brazilian companies.

Agency theory suggests that the board of directors plays a key role in monitoring the actions of managers (agents) in favor of the stockholders (principals) (Jensen & Meckling, 1976). Besides this, the board generally has a major influence on the choice of the independent auditor.

Fama & Jensen (1983) stated that the characteristics of the board influence the form of monitoring. Therefore, it is reasonable to expect that these characteristics can have a direct influence on the type of external auditor hired.

The main role of independent auditors is to narrow the margin for managers to make accounting choices in their own benefit (Watts & Zimmerman, 1986). According to DeFond (1992), the quality of external auditing can be measured by the probability of detecting irregularities and distortions in the financial statements. In this respect, other authors, such as Solomon, Shields & Whittington (1999), state that specialized auditors, due to their better knowledge and experience in the client's sector, are able to perform more precise audits.

Beasley & Petroni (2001) and Lin & Liu (2009) studied the relationship between the board makeup and the engagement of specialized audit firms and found evidence that board traits (independence, separation of position and size) are related to the choice of auditors with particular expertise in the company's sector.

Brazil has different institutional characteristics than the countries where previous studies of this relationship have been carried out. In 1999 the Brazilian Securities Commission (*Comissão de Valores Mobiliários - CVM*) established mandatory auditor rotation every five years by means of CVM Instruction 308, so that the first change of auditor was required as of 2004. However, this obligation was applied in 2002 in the case of companies audited by Arthur Andersen. Therefore, the specific features of the Brazilian context can lead to different results than those found for other countries.

We analyzed the data by means of binary and multinomial logistic regression. The results indicate that only CEO/chair separation, where the CEO and chairperson of the board are different persons, has an influence on the choice of the independent audit firm, tending to cause the hiring of larger firms – one of the Big N (during the period analyzed, the "Big 5" shrank to the "Big 4", prompting our use of "Big N") – and firms more specialized in the client's sector. Therefore, only one of the three board characteristics appears to influence the process of contracting the auditor in Brazil.

2. Theoretical Framework

2.1. Conflicts of Interest

In a corporate setting, conflicts of interest arise from the misalignment of incentives between the principal and agent (Jensen & Meckling, 1976), leading suppliers of capital to seek *ex-ante* protection through the establishment of contractual obligations. However, because these contracts are imperfect and incomplete, contingencies and unexpected events cannot all be covered by their clauses (Zingales, 1998). As a consequence, managers continue having a good deal of flexibility, which can lead to expropriation of the principal (Shleifer & Vihny, 1997).

The information asymmetry between managers and owners, allied to incomplete contracts, can lead to opportunistic behavior by the former (Tirole, 2001). In this respect, the principal tries to assure alignment of interests by implementing corporate governance mechanisms that assure transparency (Shleifer & Vishny, 1997).

Protection of investors is relevant because in many countries, the expropriation of minority shareholders and creditors by controlling shareholders is common (La Porta, Lopes-de-Silanez, Sheifer & Vish-

ny, 2000). According to DeFond (1992) and Beasley & Petroni (2001), policies on shareholding control powers, board composition and external auditor choice are the corporate governance mechanisms most often used to align interests.

The shareholding control structure can lead to agency conflicts, both in situations of high concentration and high dispersion. Anderson (1999) presented evidence of high ownership concentration in Brazil: on average, the three largest shareholders owned 74% of the common shares and 49% of all the shares (although shareholding has become more dispersed in Brazil since then, it is still more concentrated than in many other countries). In companies that have concentrated shareholding, the owner-manager has better knowledge of the corporate affairs, making it easier to expropriate the minority shareholders (Fama & Jensen, 1983). On the other hand, highly dispersed ownership, because of the greater control placed in the hands of managers, allows more space for them to manipulate the results and divert resources from the stockholders (Dey, 2008).

Another common corporate governance mechanism is the structure of the board of directors: independence, CEO/chair duality (when the chief executive officer is also the chairperson of the board) and size (Becht, Bolton & Roell, 2002). According to Fama & Jensen (1983), the board's main duties are to approve the company's projects and monitor their execution. For Becht et al. (2002), the board has the mission of hiring the CEO, monitoring him or her and voting on important decisions, such as mergers and acquisitions and changes in the company's compensation policy and capital structure.

There are three main ways of guaranteeing the integrity of the board of directors according to most researchers of the subject. The first is the presence of independent directors, defined as those free of any connection with management and the majority shareholder, because they have less propensity of being manipulated, and also reduce the freedom of action of managers (Beasley & Petroni, 2001; Becht et al., 2002).

The second form is separation of the position of CEO and chairperson, to diminish the CEO's power and increase the board's capacity to monitor the company (Fama & Jensen, 1983). The third way is the size of the board, because it influences the trust in and agility of the decisions made. While having few members increases the chance of collusion, having many directors can make it harder to reach decisions (Bhuiyan, Roudaki & Clark, 2010).

The association between corporate governance practices and the contracting of specialized auditors has been studied by authors such as Watts & Zimmerman (1986), DeFond (1992), Craswell, Francis & Taylor (1995), Beasley & Petroni (2001) and Lin & Liu (2009). They have concluded that the union of these mechanisms reduces agency conflicts, resulting in better performance and higher probability that the auditor will detect misuse of the company's accounting system.

2.2. Choice of the Audit Firm

Jensen & Meckling (1976) suggest that the demand for auditing originates from the desire to reduce the manipulation of the information provided to suppliers of capital. Therefore, auditing is one of the mechanisms for reducing information asymmetry between providers of funds and the managers responsible for administering these resources, allowing the former to monitor the latter better (Watts & Zimmerman, 1986). According to DeFond (1992), external auditing is a way to signal a higher level of governance to investors, resulting in greater security in the capital market.

Since audit firms can also have conflicts of interest (Antle, 1982), the managers and majority shareholders of companies that do not have an adequate governance structure can more easily expropriate minority shareholders by hiring audit firms that are less independent and/or less competent (Beasley & Petroni, 2001; Lin & Liu, 2009). This governance inadequacy is reflected in the makeup of the board, which is generally responsible for choosing the auditor.

The quality of the services rendered by auditors depends on their skill in detecting distortions and willingness to report any distortions found to the interested parties (De Angelo, 1981). Therefore, the re-

sult of auditing should depend on the interaction between the level of independence between the auditor and client and the competence in carrying out the work (DeFond, 1982).

There are various types of knowledge that determine an auditor's overall expertise. The first is knowledge of accounting, gained by education and professional experience. The second is knowledge of business in general, also acquired by the same two routes. The third is related to specialization in a determined sector and the knowledge acquired by working for specific clients or companies in a given sector. Besides these aspects, an effective auditor must have the ability to resolve problems, including recognizing relationships, interpreting data and applying good sense (Bonner & Lewis, 1990).

Empirical results indicate that certain characteristics of auditors are positively related with better quality of their services, such as propensity to issue opinions with reservations or to detect earnings management (see, e.g., Gramling & Stone, 2001). The level of specialization and size of the audit firm are commonly indicated as characteristics linked to the independence and professional competence of auditors (DeFond, 1992; Craswell, Francis & Taylor, 1995; Francis, 2004).

Contracting a specialized external audit firm can be an important mechanism to reduce agency conflicts. Specialized auditors have greater experience in the client's sector, making them better at finding irregularities and distortions in the financial statements (Defonf, 1992; Beasley & Petroni, 2001). Craswell et al. (1995) used two metrics to identify auditors with specialization in determined sectors: market share and market strategy. In turn, Solomon, Shields & Whittington (1999) concluded that specialized auditors are more precise in their analyses than are auditors without specialization.

Another way of measuring the quality of external audit firms is their size. According to Francis (2004), audit firms that are considered "big", such as the so-called Big N, on average provide better quality to their clients because of their greater independence and concern with maintaining a good brand reputation (De Angelo, 1981; Lennox, 1999). Most empirical evidence indicates that companies audited by one of the Big N firms have lower levels of discretionary accruals (Dechow, Ge & Schrand, 2010).

2.3. Development of the Hypotheses

The independence of the board of directors is related to the presence of external directors. Fama (1980) and Fama & Jensen (1983) believe that the presence of independent board members is an important mechanism to enhance monitoring. In turn, according to Beasley & Petroni (2001) and Carcello, Hermanson, Neal & Riley (2002), the presence of independent directors helps protect investors. Given that audit firms that are more specialized and larger are able to provide better services, our first hypothesis is as follows:

- H1 – Companies with more independent boards of directors have a higher probability of contracting more specialized and larger audit firms (members of the Big N).

The second characteristic is unity of command, where the same person acts as CEO and chairperson of the board. In this case, monitoring power is reduced, because the chairperson's strong influence can cause the board to approve projects that maximize his or her own utility in detriment to that of the stockholders (Beasley, 1996; Imhoff, 2003). The relationship between CEO/chair unification and choice of auditor was studied by Lin & Liu (2009), who presented empirical evidence that when this exists, there is lower probability of hiring a specialized audit firm and a larger one. In this sense, our second hypothesis is as follows:

- H2 – Companies that have CEO/chair separation have higher probability of contracting more specialized and larger audit firms (Big N).

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The third characteristic is size of the board of directors, because this can affect the agility and capacity for making decisions. Although Hermalin & Weisbach (1991) suggest that the board size and composition are endogenous to the company, it is unlikely there is an ideal size or composition that is applicable to all markets, Bhuiyan et al. (2010) argue that small boards can have a better overall view of the business, while having many members can make it hard to reach important decisions.

Fama & Jensen (1983) suggest that the ideal number of board members is seven or eight. For Brazil, the Brazilian Corporate Governance Institute (IBGC, 2009) suggests having between five and nine members. Lin & Liu (2009), in a study of Chinese companies, concluded that companies with larger boards are more likely to hire specialized audit firms, resulting in better monitoring and supervision of management actions. Therefore, our third hypothesis is the following:

- H3 – Companies with five to nine of directors have higher probability of contracting more specialized and larger audit firms (Big N).

The joint analysis of these three hypotheses will allow evaluation of whether the characteristics of the board of directors are associated with the choice of more specialized and larger audit firms, the central theme of this study.

3. Methodology

The data were obtained by consulting the websites of the companies in the sample and the Brazilian Securities Commission (CVM) as well as the Economática database. The information on corporate governance was obtained from the same base used by Lopes & Walker (2012) to construct the Brazilian Corporate Governance Index (BCGI). Finally, the base for audit firms was that employed by Pereira (2011). The Economática software was also used to capture the accounting variables.

The data on companies listed on the BM&FBovespa were gathered for the years 1998, 2000, 2002, 2004 and 2006. The reason for using these staggered years was the availability of BCGI data for these years. The sample was composed of 1,393 observations, 273 for 1998, 302 for 2000, 301 for 2002, 334 for 2004 and 183 for 2006. Granted, the reliance on variables from every other year can interfere in the results and must be taken into consideration in the analyses and generalizations. However, governance structures tend not to change significantly in short intervals.

We used binary and multinomial logistic regression to analyze the data. Binary logistic regression is interpreted by the odds ratio (OR), which considers the chance of obtaining a negative result (between 0 and 1) and a positive result (between 1 and ∞). The odds in favor of an event is the probability that the event will happen divided by the probability the event will not happen.

The interpretation of multinomial logistic regression is similar, but uses the relative risk ratio (RRR), which considers the probability that an event will happen in a control group versus other groups analyzed. The RRR indicates, for a change of category of a dependent variable (with the others kept constant), a greater or lesser probability of an association of one category of the independent variable in comparison with the control group (also known as the comparison group).

3.1. Empirical Proxies

In this section we describe the two proxies to measure the type of audit firm.

3.1.1. Proxy for Audit Firm Size

The audit firms known as the Big N are considered to be more specialized by various researchers (Beasley & Petroni, 2001; Fan & Wong, 2005; Francis, 2004), because of their broader knowledge of various market sectors and for having more concern over their reputation. For this reason, the first proxy is audit firm size.

In 1998, 2000 and 2002 there were five audit firms classified as "Big": Arthur Andersen, Deloitte Touche Tohmatsu, Ernst & Young, KPMG and Pricewaterhousecoopers. In 2004 and 2006, after the failure of Arthur Andersen, there were only four Big firms.

3.1.2. Proxy for Level of Specialization

Simunic (1980) and Solomon et al. (1999) suggest that training and specialization in a specific industry increase the efficiency of external auditing. There are two metrics commonly used to measure the level of specialization: market strategy and market share (Gramling & Stone, 2001). Market strategy is the evaluation of how much a determined sector represents in the total revenue of the audit firm. It is calculated by the ratio between the revenue from clients in a particular sector and the overall revenue from all clients. In turn, market share is the representation of the auditor in a determined sector. It is calculated by the ratio between the auditor's revenue from a particular sector and the revenue of all audit firms in that sector

Craswell et al. (1995) classify an audit firm as specialized if the result of at least one of the two yardsticks (market strategy and market share) is greater than 20%. In this study, to evaluate whether the results were sensitive to the 20% level, we also considered the figure of 10%.

3.2. Identification of the Variables

Table 1 presents the variables used and their descriptions. We consider two types of external auditors, first by size, defined as being one of the Big N, and the second by specialization (market share and market strategy). Due to the sensitivity analysis and union of the two ways of measuring specialization, Table 1 presents five dependent variables.

It can be seen in Table 1 that 40% of the companies analyzed chose one of the Big N auditors. With respect to specialization, according to the combination of the market strategy/market share proxies, the percentage of companies engaging a specialized auditor in the years studied was 54%.

Table 1

Description of the variables

Dependent variables	Description	Response	Frequency	Percent	Total
BIG	External auditor considered Big N	0	557	40%	1,393
		1	836	60%	
ESP20%	External auditor considered specialized based on one of the proxies: market share and market strategy (20%)	0	749	54%	1,393
		1	644	46%	
ESP10%	External auditor considered specialized based on one of the proxies: market share and market strategy (10%)	0	419	30%	1,393
		1	974	70%	
BIGESP20%	External auditor considered Big N and specialized based on one of the proxies: market share and market strategy (20%)	0	419	30%	1,393
		1	138	10%	
		2	330	24%	
		3	506	36%	
BIGESP10%	External auditor considered Big N and specialized based on one of the proxies: market share and market strategy (10%)	0	294	21%	1,393
		1	263	19%	
		2	125	9%	
		3	711	51%	
Independent variables					
INDEP	Board independence	0	86	6%	1,393
		1	1,307	94%	
DC	CEO/chair separation	0	495	36%	1,393
		1	898	64%	
TOT	Board size	0	612	44%	1,393
		1	781	56%	
Control variables					
CA	Shareholding concentration	0	975	70%	1,393
		1	418	30%	
EA	Shareholding structure	0	1,051	25%	1,393
		1	342	75%	
ENDIV	Leverage	continuous			1,393
LNAT	Natural log of total assets	continuous			1,393

The variable BIGSP is an extension of the model and combines the proxies for large and specialized firms. Of the companies studied, 21% contracted "non-Big" and non-specialized audit firms, the same percentage that engaged Big and specialized auditors. When the 10% parameter was used to define a specialized auditor, the percentage of such firms increased, as expected.

In relation to the board characteristics, the first independent variable is INDEP, indicating that only 6% of the boards were not considered independent, a figure that can limit the results of the logistic regressions. The second independent variable, regarding the absence of CEO/chair unification (CEO/chair separation, or CCS) indicates that most of the companies had different people occupying the positions of CEO and chairperson. The third independent variable, representing the size of the board (BSIZE), shows a relative balance between companies with between five and nine board members (56%) and those with smaller or larger boards (46%).

3.3. Regression Model

We used equation 1 below to verify the association between the characteristics of the board and the choice of the type of audit firm:

$$Y_{i,t} = \beta_0 + \beta_1 INDEP_{i,t} + \beta_2 DC_i + \beta_3 TOT_{i,t} + \beta_4 CA_{i,t} + \beta_5 EA_{i,t} + \beta_6 ALA_{i,t} + \beta_7 AT_{i,t} + \varepsilon_{i,t} \qquad (1)$$

Where:
- Y_{it} = Dependent variables:
- BIG = Measure of audit firm size, assuming the value of 1 for auditors among the Big N and 0 otherwise.
- SP = Measure of specialized audit firm based on the market strategy and market share proxies, assuming a value of 1 for firms considered to be specialized and 0 otherwise.
- BIGSP = Measure of specialized audit firm based on a combination of the BIG and SP variables, assuming the value of 0 for non-Big N and non-specialized firms, 1 for non-Big N and specialized, 2 for Big N and non-specialized, and 3 for Big N and specialized.
- Independent variables:
- INDEP = Independent board, assuming the value of 1 when the presence of insiders is less than 60% and 0 otherwise;
- CCS = CEO/chair separation, assuming the value of 1 when this separation exists and 0 when the CEO is also the chairperson;
- BSIZE = Board size, assuming the value of 1 for companies with boards having between 5 and 9 members and 0 otherwise;
- CONC = Shareholding concentration, assuming the value of 1 when the controlling shareholder owns under 50% of the common stock and 0 otherwise;
- STR = Shareholding structure, assuming the value of 1 when the percentage of common shares in the total shares is greater than 80%, and 0 otherwise;
- LEV = Leverage, the level of indebtedness;
- LNTA = Natural logarithm of total assets;
- ε = Error terms of the regression.

4. Results and Discussion

In this section we describe and comment on the results of the binary and multinomial logistic regressions. The binary regression was used when the dependent variable consisted of the classification of the audit firms based on size (BIG) or specialization (SP). In turn, we used multinomial regression when taking into consideration the combination of these characteristics (BIGSP).

Table 2 presents the results for the association of the board characteristics and the choice of large audit firms. Tables 3 and 4 report the results for the association between board traits and engaging a specialized audit firm (SP). Finally, Tables 5 and 6 present the results for the association between board characteristics and audit firm choice based on a combination of size and specialization (BIGSP).

The first analysis carried out investigated the board characteristics and the engagement of one of the Big N audit firms. Table 2 below shows the results of the binary logistic regression:

Table 2

Binary logistic regression for board characteristics versus contracting a Big N audit firm

BIG	Expected sign	OR	P >|z|
INDEP	+	0.940	0.813
DC	+	1.401	0.012***
TOT	+	0.753	0.033**
CA	-	0.812	0.135
EA	-	0.591	0.000***
ALA	+	0.877	0.397
AT	+	1.867	0.000***
Prob > chi2 = 0.000	Pseudo R2 = 0.219	Number of observations = 1,393	

** Statistically significant at 5%; *** Statistically significant at 1%.

The results of the odds ratio (OR > 1) for separation of position (β_2) are positive at the 1% level. This suggests that companies that separate the CEO and chairperson positions are more likely to engage a Big N audit firm.

In turn, the board size (β_3) is negatively related (OR<1), suggesting that firms with between five and nine directors are less likely to hire a Big N auditor. This result is not in line with the expectation based on the literature review. A possible explanation is the use of a dummy variable instead of the exact number of board members.

Finally, board independence (β_1) is not statistically significant.

The control variables "shareholding structure" (β_5) and "total assets" (β_7) are significant, indicating a negative relationship in the first case and a positive one in the second. In other words, the larger the company size in terms of total assets, the greater the probability of choosing a Big N audit firm, which is coherent with the literature (e.g., Lennox, 1999). In turn, companies with the majority of the capital represented by common shares have a lower probability of contracting a Big N auditor. The other control variables, such as shareholding concentration (β_4) and leverage (β_6), are not statistically significant.

In summary, there is an association between each of the two board characteristics and the choice of a Big N audit firm, but in one case contrary to that expected. It is only possible to affirm that H1 is corroborated in relation to CEO/chair separation, not in relation to size and independence. This result diverges from the main findings of Lin & Liu (2009), according to which the characteristics of the board of directors interfere in the engagement of large audit firms.

In the second analysis, we defined audit firm specialization in terms of the union of the market strategy and market share proxies, with the threshold parameter of 20%. The results are presented in Table 3.

Table 3

Binary logistic regression for board characteristics and contracting a specialized external audit firm at 20%

ESP	Expected sign	OR	P >|z|
INDEP	+	0.668	0.113
DC	+	1.373	0.014***
TOT	+	1.132	0.315
CA	-	1.014	0.912
EA	-	0.825	0.176
ALA	+	0.932	0.607
AT	+	1.645	0.000***
Prob > chi2 = 0.000	Pseudo R2 = 0.161	Number of observations = 1,393	

** Statistically significant at 5%; *** Statistically significant at 1%.

The results demonstrate that the separation of positions continues being statistically significant at 1%. The OR > 1 indicates that companies where the CEO and chairperson are different people are more likely to choose specialized audit firms based on market share and market strategy. However, the other board traits are not significant.

As discussed previously, according to Craswell et al. (1995), since the percentage used to define a specialized auditor (20%) can be arbitrary, it is necessary to perform a sensitivity analysis. For this purpose, we ran the same regression as above, except with the parameter set at 10%. The results are shown in Table 4.

Table 4

Binary logistic regression for board characteristics versus contracting a specialized audit firm at 10%

ESP	Expected sign	OR	P >|z|
INDEP	+	0.834	0.502
DC	+	1.216	0.162
TOT	+	1.010	0.938
CA	-	1.044	0.768
EA	-	0.624	0.002***
ALA	+	0.979	0.734
AT	+	1.848	0.000***
Prob > chi2 = 0.000	**Pseudo R2 = 0.210**	**Number of observations = 1,393**	

** Statistically significant at 5%; *** Statistically significant at 1%.

The results in Table 4 confirm the forecast that the parameter chosen defines the results of the regression. In this analysis, none of the board characteristics are significant. In this respect, we recommend caution in interpreting the results, because it is not possible to state that H2 was accepted, given that it depends on the level used for classifying audit firms as specialized.

Table 5 presents the results of the multinomial logistic regression for the combination of auditors considered to be large and specialized (BIGSP), with the 20% parameter. Here we created four combinations: (0) non-Big and non-specialized; (1) non-Big and specialized; (2) Big and non-specialized; and (3) Big and specialized. The comparison group adopted in this comparison is the group of companies that engaged a Big N and non-specialized auditor (0). The results are reported in Table 5.

Table 5

Multinomial logistic regression for board characteristics versus contracting a Big N and specialized audit firm, at 20%

Comparison group = NBIGNESP – Group 0										
NBIGESP – Group 1				BIGNESP – Group 2				BIGESP – Group 3		
	Sinal	RRR	P >|z|		Sinal	RRR	P >|z|		Sinal	RRR	P >|z|
INDEP	+	0.705	0.366	INDEP	+	1.058	0.867	INDEP	+	0.662	0.219
DC	+	1.140	0.538	DC	+	1.229	0.217	DC	+	1.783	0.001***
TOT	+	1.518	0.055**	TOT	+	0.835	0.279	TOT	+	0.862	0.380
CA	-	1.309	0.210	CA	-	0.919	0.634	CA	-	0.851	0.370
EA	-	0.866	0.531	EA	-	0.590	0.005***	EA	-	0.531	0.001***
ALA	+	1.001	0.982	ALA	+	0.963	0.735	ALA	+	0.515	0.240
AT	+	1.650	0.000***	AT	+	1.826	0.000***	AT	+	2.668	0.000***
Prob > chi2 = 0.000				**Pseudo R2 = 0.163**				**Number of observations = 1,393**		

** Statistically significant at 5%; *** Statistically significant at 1%.

The results for group 1 indicate that companies with boards composed of between five and nine members are more likely to hire non-Big N and specialized audit firms. The other board characteristics are not significant. In turn, for group 2, none of the three board characteristics are statistically significant. Finally, for group 3, the results indicate that companies with separation of CEO and chair position (CCS) have a higher probability of contracting Big N and specialized audit firms.

Table 6 below presents the results considering the same groups, but with the parameter for definition of specialized auditor set at 10%.

Table 6

Multinomial logistic regression for board characteristics versus contracting a Big N and specialized audit firm, at 10%

Comparison group = NBIGNESP – Group 0										
NBIGESP – Group 1			BIGNESP – Group 2				BIGESP – Group 3			
	Sinal	RRR	P >|z|		Sinal	RRR	P >|z|		Sinal	RRR	P >|z|
INDEP	+	1.136	0.715	INDEP	+	1.749	0.282	INDEP	+	0.852	0.632
DC	+	0.849	0.384	DC	+	0.870	0.548	DC	+	1.463	0.036**
TOT	+	1.324	0.137	TOT	+	1.020	0.930	TOT	+	0.830	0.300
CA	-	1.106	0.604	CA	-	0.814	0.409	CA	-	0.861	0.426
EA	-	0.696	0.075	EA	-	0.645	0.087	EA	-	0.435	0.000***
ALA	+	0.975	0.737	ALA	+	0.525	0.246	ALA	+	0.927	0.609
AT	+	1.719	0.000***	AT	+	1.826	0.000***	AT	+	2.817	0.000***
Prob > chi2 = 0.000				Pseudo R2 = 0.181				Number of observations = 1,393			

** Statistically significant at 5%; *** Statistically significant at 1%.

The results indicate that none of the three board characteristics are significant for groups 1 and 2, while for group 3, the result is similar to that for the 20% parameter, indicating that CEO/chair separation is relevant for the choice of Big N and specialized audit firms. Together, the results corroborate hypothesis H3.

Table 7 below summarizes the results found in the regressions. The signs "+" and "–" indicate the direction of the relationship (positive or negative). The statistical significance appears to the right.

Table 7

Summary of the results

	BIG		ESP 20%		ESP 10%		BIGESP 20%						BIGESP 10%					
							Group						Group					
	Sign	%	Sign	%	Sign	%	1	%	2	%	3	%	1	%	2	%	3	%
INDEP																		
DC	+	1%	+	1%							+	1%					+	5%
TOT	-	5%					+	5%										
CA																		
EA	-	1%			-	1%			-	1%	-	1%					-	1%
ALA																		
AT	+	1%	+	1%	+	1%	+	1%	+	1%	+	1%	+	1%	+	1%	+	1%

It can be seen that board Independence was not significant, a finding that differs from the results of Beasley & Petroni (2001). However, this can be explained by the fact that nearly all the companies in the sample were classified as having independent boards (96%), as presented in the descriptive statistics table.

CEO/chair separation has a positive association with hiring a Big N auditor and also for engaging a specialized audit firm. The same results occurs with the combination of Big N and specialized, suggesting that companies with separation of the CEO from the chairperson are more likely to contract auditors that are at the same time larger and that have more specific knowledge of the sector. This result corroborates the findings of Lin & Liu (2009), suggesting that companies that separate the two leadership positions tend to have more intense monitoring of managers.

The shareholding structure control variable has a negative association, in line with the findings of DeFond (1992). Another control variable is the company size measured by total assets, in which case our results are in line with those of DeFond (1992), Beasley & Petroni (2001) and Lin & Liu (2009). In turn, the control variables shareholding concentration and leverage are not significant, not corroborating the previous results of DeFond (1992) and Petronni & Beasley (1996). The peculiar characteristics of the Brazilian capital market can explain this discrepancy of results, particularly the high shareholding concentration.

Finally, as predicted by Craswell et al. (1995), the results are sensitive to the parameter used to classify specialized audit firms.

To sum up, the evidence indicates that only one board characteristic, CEO/chair separation, is consistently related to the hiring of specific types of audit firms ((Big N and specialized).

5. Final Considerations

This study investigated the association between the characteristics of the board of directors and the type of audit firm contracted by companies listed on the BM&FBovespa. We studied three board traits: independence, size and CEO/chair separation.

The results indicate there is an association between separation of the CEO and chairperson positions and the type of auditor contracted, both in the segregated analyses (Big N and specialized) and when combining the two metrics. Therefore, studies of corporate governance that involve the type of auditor should pay attention to the CCS variable.

The results contribute to the assessment of which corporate governance mechanisms are relevant for making decisions in specific contexts. CEO/chair separation appears to motivate the engagement of larger and more specialized auditors in the Brazilian case. For future research, we can suggest triangulation of the board characteristics, type of auditor and quality of the accounting information disclosed.

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