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Article

The Effect of Monitoring Committees on the Relationship between Board Structure and Firm Performance

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Abstract: The purpose of this study is to investigate the impact of board structure on the performance of French firms in the presence of several monitoring committees. We studied 80 publicly listed French firms spanning from 2001 to 2013. We concluded that large board size has a negative effect on market performance. While large board size in combination with the existence of at least three committees enhances accounting performance and does not have any impact on market performance, the existence of a board dominated by independent directors with the presence of at least three committees seems to have only a negative impact on accounting performance. Our findings indicate that monitoring committees are beneficial for shareholders only for corporations with a large board size.

Keywords: board composition; monitoring committees; firm performance; France

1. Introduction

One of the most important internal governance mechanisms is the board of directors having the status of the firm's backbone of oversight. Not only is it representative of shareholders' interests, but it is also a means of control to ensure the convergence of interests between shareholders and managers and inhibits managerial opportunism (see e.g., [1,2]). However, Eisenhardt confirms that the leading role of the board depends greatly on its committees and its characteristics to restrict managerial opportunism [3]. Nevertheless, empirical studies regarding the relationship between board structure and firm performance are mixed. Several studies have focused on the importance of independent directors in boards appearing in controlling the CEO's opportunistic actions (see e.g., [4]). Bhagat and Black found a negative association between firm performance and independent directors on the board [5]. A plausible explanation is that increasing the number of independent directors on the board without a proportional increase of their ownership can curb firm performance. Jensen pointed out that the independent directors can discipline managers [2]. Previous studies have focused on the way that board independence increases the co-ordination, communication, and asymmetric information of the board (see e.g., [6]).

Others have underlined board size importance and its relationship with performance. Nguyen et al. posit that board size is one of the key factors affecting board effectiveness [7]. Several studies examined the impact of board size on performance in several countries: Bennedsen et al. in the Danish context [8], Guest in the United Kingdom [9], and Nakano and Nguyen

in Japan [10]. These sources suggested that the impact of the board size on the firm's value is detrimental. In addition, board size is negatively associated with firm performance: Furest and Kang, and Yermack in America [11,12], Eisenberg et al. in Finland [13], and Mak and Kusnadir in Malaysia and Singapore [14]. Thus, board size enhances firm performance. If the board size is large, the managerial opportunism is more significant. This is explained by the fact that large boards are characterized by low control mechanisms [1]. On the other hand, some studies have reported a positive correlation between board size and firm performance (see e.g., [15]). Actually, boards of large sizes enable the assembly of more benefits from the administrator skills and qualities which tend to make more secure investments according to Cheng [16].

Another specification of the board is its composition which enables pinpointing of the relationship between the board and firm's performance effectively. Upathyay et al. have examined whether internal board arrangement impacted the relationship between board size and composition on performance [6]. Indeed, when corporate boards have more than three supervisory committees, Yermack confirms that this negative association between board size and performance disappears [12]. These authors have confirmed a positive relationship between board size and firm performance when there are more than three monitoring committees. Klein finds that the number of board committees is an essential variable in the analysis of the correlation between board structure and firm performance [17].

The association between board structure and firm performance has been heavily discussed, but few studies have focused on the role of committees. To some extent, studies that examine the relationship between board structure and firm performance should also consider board committees. Indeed, the latter have the potential impact of reducing some costs associated with independent and large boards.

The spread of the committee's practice is a relatively new method of organization of French administrative boards. It is part of a broader trend in the professionalization of the administrative function illustrated by the recent creation of a Director Training Institute (IFA). The creation of specialized committees within the board of directors is one of the ways to improve the functioning of this body, and more broadly of corporate governance advocated by codes of conduct, in France as in most developed countries. Such organization allows administrators to focus on a particular dimension of their mission and provide the company with the opportunity to use the specific skills of the administrators.

Restoring good governance happens through a strengthening of the control of the administrators on managerial decisions. In this perspective, the committees provide administrators with a means and structure that permits them to exercise effective control over a number of issues deemed crucial to defending the interests of investors [18]. "The Principles of Corporate Governance", written in the United States at the initiative of the American Law Institute (ALI) in the early 1980s, contain in this respect recommendations to companies on the composition and role of the three supervisory committees. In France, this is the first Vienot report (1995) which introduces a recommendation for listed companies to create an audit committee for selection and compensation.

Charreaux and Pitol-Belin note that the establishment of committees in French companies was rare in the 1980s [19]. However, since the first Viénot report (1995), the pressure on the listed companies to comply with the standards of good governance has increased and the requirements strengthened, especially regarding the composition of committees.

The recommendations for the establishment of specialized committees were largely followed by the listed companies since 90% of companies with the CAC 40 index had established committees within their boards of administrators in 1998–1999 (compared to 87% in 1997–1998, 82% in 1996–1997, and only 37% in 1995–1996) according to Korn/Ferry International [20]. With regard to the SBF 120 companies apart from CAC 40, 56% of them possess at least one of three committees in 2000 against 51% in 1999, KPMG [21].

More recently and according to The Journal Les Echos (2003), 94.74% of the CAC 40 had one committee, 94.9% had a compensation committee, and 48.7% had a nomination committee.

However, since 2008, Ordinance No. 2008-1278 of 8 December 2008 transposing Directive 2006/43/EC of 17 May 2006 on statutory auditors (www.legifrance.gouv.fr) according to the Article No. 14, companies listed on a regulated market require the establishment of an audit committee. Since 2009, we recognize in France two categories of specialized committees: mandatory committees and volunteer committees. More specifically, the establishment of three committees was recommended: audit, remuneration, and nomination.

The practice of board organization into specialized committees has become extremely popular in France among the listed companies.

The establishment of these committees, however, does it have similar significance in large corporate French boards as in the USA?

It is doubtful to consider the differences that affect both corporate legal systems. In fact, the law provides a social hierarchy in France, considered by jurisprudence as intangible. The board of directors has collegial rights and responsibilities. This means that administrators, either individually or in small groups, do not somehow have power in a board. Therefore, committees may only have an advisory power. We are far from the American conception of the operative of the committees according to which the latter engage their responsibility vis-a-vis the shareholders. Moreover, insofar as they can only be custodians of a delegation of authority by the board of directors, committees do not meet, in French law, the independence requirement conveyed by the Anglo-Saxon concept. Under these conditions, some authors have suggested that the establishment of specialized committees in France was of a purely formal nature, designed to meet the requirements of Anglo-Saxon investors, without bringing a reality of operation that meets the expectations of the market, especially in terms of independence vis-à-vis the CEO, Berlioz [22].

Our objective is to examine the effectiveness of board structure with several specialized committees in improving corporate performance. Similar to [23–30] we focus on the existence of several control committees which are made obligatory by law to improve firm performance. To achieve this aim, we use a sample of 80 listed French firms over the period from 2001 to 2013.

Our studies contribute to the existing literature in several ways. First, we consider a specific context which is the French context. The specificity of this context comes especially from the characteristics of its ownership structure. Indeed, France is a country with a concentrated ownership and with dominance of pyramidal structures. All these considerations make France's market an interesting example of the expropriation. Secondly, this work is the extension of work dealing with the relationship between the characteristics of board structure and firm performance by emphasizing the existence of several monitoring committees. More specifically, it incorporates new variables, newfound in the literature, to identify the link between the structure of the board and firm performance. Previous studies have not adequately addressed the preponderant role of the committees (see e.g., [31]). Thirdly, we focus on the large French companies composing the SBF 120 index for several reasons. Indeed, these firms implement board structure with various committees which is feasible only in large companies that can assume significant costs. Then, the majority of these companies are listed and therefore, we can follow their market performance.

This paper is organized as follows: in Section 2, we review relevant literature and develop hypotheses. In Section 3, we present the research design which details data collection, variables measurement, and model specification. Findings will be discussed and summarized in Section 4. Finally, a conclusion and discussion are provided in Section 5.

2. Literature Review and Hypotheses

2.1. Board Size and Several Committees

Jensen and Meckling indicated that governance mechanisms are needed to protect shareholders from managers' opportunistic behavior to maximize their self-interest [1]. From this vantage point, the main function of board structure is, therefore, to reduce the principal-agent conflict between

managers and shareholders. Several studies have examined the link between board size and firm performance and its effectiveness in supervision, but results still remain inconclusive (see e.g., [32]). Previous studies have suggested that generally large boards are less effective than small boards due to communication problems among members of the board of directors [6,19,20,29]. Thus, Jensen stated that the smaller boards are more effective than large ones and when board size is more than six or seven members, it becomes easier for managers to control its members [2]. Yermack found a positive association between small boards and the performance of U.S. companies as measured by Tobin's Q [12]. Jaskiewicz and Klein examined whether the alignment of the interests of managers with those of owners influences the structure of the board [32]. They found that in firms with small boards, the interests between managers and owners overlapped.

However, other studies suggest that companies can reduce costs associated with large boards by appointing executives to the important committees (see e.g., [33,34]). Companies with complex structures must have a large board [8]. Anderson et al. reported that large board and audit committee companies have a low cost of debt [35]. However, it should be noted that the results are mixed regarding the relationship between board size and firm performance. Typically, in the French context, Mandzila et al. indicated that, in order to enable the French corporate board to effectively play its role, it recommended the establishment of three committees: an audit committee, a nominating committee, and a remuneration committee [36]. These committees would increase the effectiveness of the board, since they could closely examine specific problems. The establishment of certain committees constitutes a response to the requirements of institutional investors and good governance practices. Hence, we state our hypotheses in the alternative form as follows:

Hypothesis 1. *There is a positive relationship between Board size and firm performance in the presence of several committees of the Board.*

2.2. Independence of the Board and Several Committees

The independence of administrator is a critical issue of opportunistic manager behavior. However, the independent administrator role is limited by many specific factors such as information availability and costs related to specific information (see e.g., [37]). Hadani et al. indicated that the effectiveness of the board improves when the majority of the directors are independently sat on its committees [29]. However, they also found that this improvement requires a substantial cost. Klein [17] and Reeb and Upadhyay [31] have noticed that the committee number differs between companies. This number varies between one to nine committees. Harrison suggests that small committees with fewer members may help in solving some problems associated with the low participation of administrators since each administrator will have his specific duty and responsibility [38]. Lipton and Lorsch have postulated that if board size increases, the free-riding increases, which can reduce their effectiveness [39]. When committees are small and their reference terms are clearly defined, they are more likely to foster the empowerment of specific administrators, thereby reducing free rider problems. Although we support that a board committee structure helps to reduce communication costs. Harrison suggested that managers can select from large boards and create numerous committees to legitimize their efforts of corporate governance [38]. Previous studies reported the effective control role of the committees [35]. These committees derive their power of supervision from the authority delegated to their provision by the board. The effectiveness of these committees is greater when they are composed typically of external directors [33]. The presence of these committees is also likely to impact the relationship between the board independence and firm performance. These committees improve the effectiveness of the board, since they avoid power concentrated in the hands of the managers and restrict their managerial discretion. Then:

Hypothesis 2. *Board independence is positively related to firm performance in the presence of several committees of the board.*

In the next section, we design empirical models, and describe data collection and variable measurement.

3. Research Design

3.1. Sample Selection and Data Sources

Our sample includes 80 French firms belonging to the SBF 120 index. The financial data are hand collected using annual reports, Paris Market Exchange and websites of selected firms. Our data covers the 2001–2013 period. Overall, we have 80 firms over a period of 13 years (1040 observations). In the use of panel data stand to benefit from the both individual and temporal dimensions of the available information.

3.2. Model Used and Variables Measurement

To see how the presence of various monitoring committees impacts the relationship between board size, board independence, and firm performance, we introduce two interaction terms: board size with a monitoring committee indicator and board independence with a monitoring committee indicator. The monitoring committee indicator takes a value of one if there are more than three monitoring committees, zero otherwise. If by using committees, firms are able to mitigate costs associated with larger boards, then we expect to find a positive coefficient on these interactions.

Various financial ratios have been used as a proxy for firms' performance, the dependent variable that we are examining. However, in this study we used Return On Assets (ROA) as an accounting measure and Tobin's Q as a market measure of firm performance to investigate the relation between board structure, monitoring committees, and firm performance. These proxies are more effective and attentive to firms' performance used in the existing literature. Chakravarthy stated that higher return on assets and higher return on equity indicate the firm's effectiveness [40]. In this study, the ROA is measured by profit to total assets. However, Tobin's Q is approximated by the ratio of the sum of equity and debt market value to the assets' ledger value.

In the finance literature, board structure is very probably endogenous to firm performance. The *Hausman*-test can be used to check for the endogeneity of a variable by comparing instrumental variable (IV) estimates to ordinary least squares (OLS) estimates. Under the null hypothesis of exogeneity, the chi-squared distribution is statically significant. One way to correct the endogeneity problem would be by expressing dependent variables in lags. Doing so, there is evidence that board structure characteristics are exogenous (p -value = 0.1749 and 0.1019 respectively for ROA and Tobin's Q).

To investigate the effect of monitoring committees on the board composition-firm performance relationship, we used the following panel model:

$$\text{PERF}_{i,t-1} = \delta_{it} + \alpha_1 \text{BoardSize}_{i,t} + \alpha_2 \text{BoardInd}_{i,t} + \alpha_3 \text{DN CB}_{i,t} + \alpha_4 \text{BoardSize} * \text{DN CB}_{i,t} + \alpha_5 \text{BoardInd} * \text{DN CB}_{i,t} + \alpha_{6-8} \text{Controls}_{i,t} + \varepsilon_{i,t} \quad (1)$$

It is noteworthy that the explanatory variables are: board size (BoardSize), board independence (BoardInd), and board committees (DN CB). BoardSize is measured by the natural log of the number of administrators of the firm i in the year t . Prior work has found that both the number of insiders and outsiders relate to financial performance [2,10], which suggests that the total number of directors influences performance. Large board size reflects an organization's ability to secure needed resources, which enhances organizational performance. Nguyen et al. studied the effect of board size on firm value in Australia [7]. Using a large sample of Australian firms over the period 2001–2011, they found evidence of a negative relationship. Joseph et al. found that board size is negatively associated with firm performance, suggesting that boards with more seats to fill are more likely to keep other insiders on the board [33]. BoardInd is calculated as the number of independent directors scaled by the size of

the board. Bouaine et al., using a panel data of 271 U.S. firms, examined the relationship between the departure of a firm's CEO and firm's performance [41]. They demonstrated that board size and the presence of independent administrators moderates the relationship between CEO departure type and firm performance. Swan and Forsberg showed that firm performance declines significantly as affected outside directors depart the firm to make way for "independents" [42]. Monitoring committees (DNCR) is a dummy variable having the value 1 if there are at least three monitoring committees in board of the firm i in the year t , and 0 otherwise. This is because the median number of monitoring committees in our sample is three. Eminent and Guedri argued that independent nominating committees are likely to reduce the influence of CEOs over the process of a director's appointment, and therefore improve firm performance [43]. Upadhyay et al. found that board size is positively associated with firm performance when firms use more than three monitoring committees and that the previously documented negative association between board size and Tobin's Q disappears when a firm uses more than three monitoring committees [6]. BoardSize*DNCR is an interaction term for the combined effect of board size and its interaction term with committee's indicator. Also, BoardInd*DNCR is an interaction term for the combined effect of board independence and its interaction term with committee's indicator.

To strengthen confidence in the analysis, we have included several control variables. Controls are those variables that might offer an alternative explanation when left out of a regression model. The first variable is firm size (FirmSize). In general, the firm size in corporate board literature is used as one of the following variables: logarithm of the market value of the firm (LMktval), defined as closed price for the fiscal year multiplied by the common shares outstanding; logarithm of net annual sales as reported by the firm (LSales), and this proxy is used by many authors such as Elston and Goldberg [44], and Aggarwal and Samwick [45]; logarithm of the total assets as reported by the firm (LAssets), and this proxy is used by many authors such as Anderson and Bizjak [46], and Grinstein and Hribar [47].

One of the problems in all these findings is that the researchers use one of these variables at the expense of other variables. They assume to have better results by using one variable and pay no attention to the others, but there is no sound reason for ignoring one variable and picking another. For the reason that these variables are highly correlated and cannot be presented at the same time to explain dependent variables, we use Principal Component Analysis (PCA) to extract a factor that contains optimal information from the three variables. The final component is:

$$\text{FirmSize component} = 0.579 \text{ LSales} + 0.613 \text{ LAssets} + 0.536 \text{ LMktval} \quad (2)$$

PCA was conducted from three variables in order to reduce their number. Only components with eigenvalues above 1 were selected for a total of three components. Then we focus on the factor which accounts for 76% of the total variance. PCA results are presented in Table 1.

Additionally, we control for firm age (FirmAge) defined as the natural log of firm age in years. Like firm size, firm age is also an indicator of organizational inertia because mostly older firms are more bound by their past and have recognized practices to be followed in decision-making. Also, older firms in general depend more on their practice [21], and these may have more fixed communication configurations. Therefore, these firms have greater internal inertia, which will limit managerial discretion in decision-making. Hence, the greater inertia created by older firms may reduce managerial discretion and improve firm performance.

The third variable is debt ratio (DebtRatio) measured by total liabilities divided by total assets. This ratio can, on one hand, improve performance by limiting managerial misbehavior and by serving as a signal of high quality, but, on the other hand, a high leverage may lead to asset substitution and underinvestment [24].

Table 1. Diagnostic tests in PCA.

Panel A: Correlation Matrix of Firm Size Components			
	LSales	LAssets	LMktval
LSales	1.000		
LAssets	0.7910	1.000	
LMktval	0.5280	0.6608	1.000
Panel B: Eigen Analysis of the Correlation Matrix			
Eigenvalue	2.325	0.488	0.185
Proportion	0.775	0.136	0.061
Cumulative	0.775	0.938	1.000
Panel C: Factorial Coordinates			
	PC1	PC2	PC3
LSales	0.579	−0.561	0.591
LAssets	0.613	−0.177	−0.769
LMktval	0.536	0.808	0.241

Variables included are: LSales is the logarithm of net annual sales as reported by the firm; LAssets is the logarithm of the total assets as reported by the firm; LMktval is the logarithm of the market value of the firm defined as closed price for the fiscal year multiplied by the common shares outstanding.

4. Results

We start the empirical results with descriptive statistics. Then, we focus on the correlation matrix. Finally, we present the results of regression.

4.1. Descriptive Statistics and Correlation

Table 2 provides an indication about the performance of our sample, board structure, and firm intrinsic characteristics. First, the ROA is around 3.76% with a wide gap between the two extremities. It seems that the firms composing our sample are performing modestly. Furthermore, we find that the average Tobin's Q in our sample is 1.23. This value seems to be comparable to that found by Boubaker in the French context which is 1.99 [48].

Table 2. Sample descriptive statistics. This table presents summary descriptive statistics of variables used in the current study.

Variables	Mean	S.D.	P25	P50	P75	Minimum	Maximum
ROA	0.0376	0.0403	0.0147	0.0343	0.0599	−0.0988	0.1770
Tobin's Q	1.2380	0.5849	0.8857	1.0775	1.4613	0.0430	3.2752
NA	11.0546	3.1153	9	11	13	4	24
ID	5.8951	2.1543	4	6	7	0	13
DNCB	0.5878	0.4925	0	1	1	0	1
Sales	4332.8	4096.6	1334.8	2872	6773.9	128	19,520.1
Assets	6875.3	6165.8	1922	4877	9977.9	318.9	29,901.9
Mktval	4130.8	3942.6	1422	2990	5577	54.1	21,365.9
Age	56.1285	51.2177	15	40	81	1	190
DebtRatio	0.5821	0.1307	0.4981	0.6123	0.6798	0.1429	0.7904

$N = 677$. Variables included are: ROA is measured by profit to total assets; Tobin's Q is approximated by the ratio of the sum of equity and debt market value to the assets' ledger value; NA is the number of administrators of the firm i in the year t ; ID is the number of independent directors of the board; DNCB is a dummy variable having the value 1 if there are at least three monitoring committees for the board of the firm i in the year t , and 0 otherwise; Sales is the net annual sales as reported by the firm; Assets is the total assets as reported by the firm; Mktval is the market value of the firm defined as closed price for the fiscal year multiplied by the common shares outstanding; Age is defined as the number of years since the firm was founded; DebtRatio is measured by total liabilities divided by total assets.

As regards to the corporate governance characteristics, we found that, on average, board of directors is composed of 11 members with a maximum of 24 and a minimum of 4, which reveals the diversity and heterogeneity of the selected firms. However, this board of directors is considered with middling size compared to that in other countries. In this regard, Chinese board size is, on average, around nine members. The same result was found by Firth et al. [49] and Conyon and He [50]. This finding leads us to conclude that board size depends on the actual firm size, its specificities, its industry, and its policy. In addition, we found that on average, 58.78% of our sample is composed of firms that have at least three committees in their boards. This finding is not unexpected because the firms in our sample have a large size, requiring implementation of certain committees to avoid conflicts of interests and to ensure transparency and integrity in the market.

However, the average of independent directors is 6 with a minimum of 0 and a maximum of 13 which shows that the board of firms of our sample is dominated by inside members, which is consistent with the recommendations of the best practices. Finally, our sample has an average debt ratio of 58.21% and an average age of 56 years.

Confirming to Kervin, the presence of multicollinearity can produce a large predicting error and make it difficult to assess the relative importance of individual variables in the model [51]. Taking into account the multicollinearity which can lead to imprecise regression estimation, this study performs the pairwise correlations among regressors in the models which can be found in Table 3.

Table 3. Correlation matrix. This table presents the pairwise correlations between independents variables.

	BoardSize	BoardInd	DNCB	FirmSize	FirmAge	DebtRatio
BoardSize	1.0000					
BoardInd	−0.3674 *	1.0000				
DNCB	0.2176 *	−0.0041	1.0000			
FirmSize	0.5217 *	−0.0673	0.0490	1.0000		
FirmAge	0.3509 *	0.1462 *	0.0098	0.3429 *	1.0000	
DebtRatio	−0.0243	0.1073 *	0.0555	−0.0563	−0.0742	1.0000

* Significance at the 10% level. Variables included are: BoardSize is measured by the natural log of the number of administrators of the firm i in the year t ; BoardInd is calculated as the number of independent directors scaled by the size of the board; DNCB is a dummy variable having the value 1 if there are at least three monitoring committees for the board of the firm i in the year t , and 0 otherwise; FirmSize is the final component of the PCA; FirmAge is defined as the natural log of firm age in years; DebtRatio is measured by total liabilities divided by total assets.

We consider 0.8 as the limit value of the correlation coefficient, which corresponds to the limit set by Kennedy, to confirm the null hypothesis [52]. Hence, if correlation between two variables exceeds 0.8, we have to reject the null hypothesis and we start having serious problems of multicollinearity. Overall, all the pairwise correlation coefficients between the explanatory variables are low. The largest pairwise correlation is 0.5217, indicating no problem with multicollinearity among independent variables.

4.2. Model Estimation Results

To validate the model specification, it is often useful to identify the effects associated with each individual. This effect can be fixed or random. The critical difference between fixed effects and random effects is that the fixed effect allows a correlation between the unobserved effect and the explanatory variables. However, the random effect requires the absence of correlation. If the unobserved effect is uncorrelated with the explanatory variables, then the random effects estimator is more operational than the fixed effects estimator. The Hausman test selects the best estimator between the random effects estimator and the fixed effects estimator.

In addition, the question of correlation and heteroscedasticity in the context of panel data is raised.

The first step is to check the existence of individual effects in our data. We seek, therefore, to test the null hypothesis: there is no individual effect. The result is an F -statistic. If we accept the null

hypothesis of homogeneity, we obtain a completely homogeneous model pool. If we reject the null hypothesis, then we must include the individual effects in the model and move to the second step.

Indeed, in the two dependent variables, *F*-statistics are significant at the 1% level. The result allows us to accept the panel, and we conclude that there are individual effects. The Hausman test identifies the nature of these effects (fixed or random). It is a specification test which determines whether two estimations' coefficients are statistically different. The idea of this test is that, under the null hypothesis of independence between errors and explanatory variables, both estimators are unbiased, so the estimated coefficients should differ slightly. Results reveal that random effects models fit better with our specifications when using Tobin's *Q*, and reveal that the fixed effects model is accepted when using ROA.

Heteroscedasticity refers to data that does not have a constant variance. It does not bias the estimation of the coefficients, but the usual inference is no longer valid since the standard deviations found are not accurate. Heteroscedasticity is a situation frequently encountered in the panel data, so it is important to detect and correct it. In statistics, the Breusch-Pagan test is used to test for heteroscedasticity in a linear regression model. It tests whether the estimated variance of the residuals from a regression are dependent on the values of the independent variables.

In the context of a heteroscedasticity test, the null hypothesis is that all coefficients of the regression of squared residuals are equal to zero. In other words, the variance of each individual error is constant, so there is homoscedasticity. The alternative hypothesis is the assumption of heteroscedasticity. Thus, if we reject the null hypothesis, we can conclude the presence of heteroscedasticity. In our study, each probability is less than 1%. So, distributions are heteroscedastic.

It is also important to check the presence of correlation between errors and individuals. The Wooldridge test for autocorrelation in panel data checks that the sum of the squares of correlation coefficients between errors is approximately zero. The null hypothesis of this test is the independence of residues between individuals. The results have led us to reject the null hypothesis of no autocorrelation at the level of 1%.

Table 4 provides the regression results. The addition of the interaction terms explains significantly more variance (Δ Wald-statistic = 7.18 for ROA and 6.5 for Tobin's *Q*).

The results found from our model first reveal that the board size negatively affects market performance. Specifically, any increase in board size reduces the profitability. Indeed, in the French context, when the number of directors increases, coordination between them will be hampered and the board cannot make appropriate decisions which negatively impacts firm performance. This observation contradicts Godard's statements that there is no difference in performance between firms with small boards and those with large boards [53]. The explanation for this phenomenon is that board size alone cannot explain the differences in performance between French companies. Lipton and Lorsch suggested that large boards represent a disadvantage because they are associated with weaker monitoring and slow decision making [39]. Nguyen et al. studied the effect of board size on firm value in Australia [7]. Using a large sample of Australian firms over the period 2001–2011, they find strong evidence of a negative relationship.

Our results also show that independent directors have a negative influence on market performance only. There has been varied discussion for several decades as to whether board independence adds any value to the firm, with no definitive conclusion reached thus far. Although board independence is considered to be a very crucial corporate governance mechanism with regard to the ability to monitor shareholders' interests effectively, our findings confirm that board independence in isolation does not necessarily enable good monitoring roles by the board; it also requires a skilled and knowledgeable board.

The coefficients on boards holding at least three committees are statistically insignificant, which suggest that the implementation of committees for a board did not influence firm performance. This latter finding contradicts results found by [34] confirming that the implementation of committees is an appropriate control mechanism which reduces agency costs of French firms. A probable clarification

is that the board of directors in France has collegial rights and responsibilities. This indicates that administrators, either individually or in small groups, somehow do not have authority over the board. Consequently, committees may only have a consultative power. We are far from the American conception of the operative of the committees according to which the latter engage their responsibility vis-a-vis the shareholders. Moreover, insofar as they can only be custodians of a delegation of authority by the board of directors, committees do not meet the independence requirement conveyed by the Anglo-Saxon concept in French law. Under these conditions, some authors have suggested that the establishment of specialized committees in France was of a purely formal nature, designed to meet the requirements of Anglo-Saxon investors, without bringing a reality of operation that meets the expectations of the market, especially in terms of independence vis-à-vis the CEO, [22].

Table 4. Regressions results. This table reports the results of our regressions; z-statistics are reported in parentheses.

Variables	Lagged ROA		Lagged Tobin's Q	
BoardSize	0.0423 (1.80) **	0.0090 (0.33)	−0.2978 (−2.66) ***	−0.3140 (−2.45) ***
BoardInd	−0.0283 (−0.85)	0.0258 (0.57)	−0.3754 (−2.46) ***	−0.6093 (−2.39) **
DNCB	−0.0045 (−0.34)	−0.1223 (−1.50)	−0.0801 (−1.24)	−0.3853 (−1.28)
FirmSize	0.0013 (0.34)	0.0006 (0.08)	0.0362 (1.52)	0.0312 (1.34)
FirmAge	−0.0170 (−2.61) ***	−0.0191 (−2.96) ***	0.0541 (0.59)	0.0599 (0.64)
DebtRatio	−0.0526 (−1.16)	−0.0550 (−1.22)	−0.2488 (−1.20)	−0.2445 (−1.17)
BoardSize*DNCB		0.0675 (2.08) **		0.0376 (0.23)
BoardInd*DNCB		−0.0782 (−1.50)		0.4119 (1.52)
Intercept	0.0327 (0.49)	0.0971 (1.28)	1.7584 (3.78) ***	1.9653 (4.08) ***
Wald-statistic	13.23 **	20.41 ***	13.74 **	20.24 ***
Firms	80	80	80	80
observations	960	960	960	960

** Significance at the 5% level; *** Significance at the 1% level. Variables included are: BoardSize is measured by the natural log of the number of administrators of the firm i in the year t ; BoardInd is calculated as the number of independent directors scaled by the size of the board; DNCB is a dummy variable having the value 1 if there are at least three monitoring committees for the board of the firm i in the year t , and 0 otherwise; FirmSize is the final component of the PCA; FirmAge is defined as the natural log of firm age in years; DebtRatio is measured by total liabilities divided by total assets.

It is noteworthy that when we have included an interactive variable, board size with the existence of at least three committees, the impact of the interaction becomes positive on the accounting performance. Thus, a large board should have several committees that have the primary function resolving problems of coordination and asymmetric information between its different members, in order to properly fulfill its mission. Mandzila et al. argued that committees represent a mechanism for companies to arrange their boards such that they make effective use of directors' time [36]. Authors also indicate that, in order to enable the French corporate board to effectively play its role, the establishment of three committees—audit, remuneration, and nomination—was recommended.

Unlike our predictions, we have also found that the interactive variable between board independence and the existence of at least three committees negatively, but not significantly, affect accounting performance. Such a finding may only be clarified by the high costs incurred by the firm in the case of several committees adding to the independent directors' costs. These costs negatively impact the accounting performance. In addition, the reinforcement of the control inside any company is able to limit opportunistic behavior. Thus, the accounting performance is reduced.

A number of associated control variables, according to previous work, were included in the analysis models. The firm size does not affect firm performance. This result counters the assumption that large firm size is a sign of growth and expansion. Additionally, analysis models also control for firm age. The coefficient on firm age is negatively correlated with the accounting performance in this study. One possible explanation is that firm age may increase managerial discretion because older firms have more knowledge in their business, which may help decision-makers to generate more strategic options, and thus increase managerial discretion. Finally, we also detected that debt does not affect firm performance, which is inconsistent with our predictions.

On the whole, the results reinforce in part the interpretation of the establishment of committees in terms of safety device to reduce agency costs in large corporate boards. When the size of the board increases, the establishment of committees is both more feasible and useful to the extent that it increases the effective functioning of this body.

The lack of clear influence of the interaction between committees and the proportion of independent directors, for its part, is consistent with the interpretation of the creation of committees in the French context as the establishment of a purely cosmetic device to formally satisfy the requirements of good governance practices. This result is consistent with Menon and Williams that have set up an audit committee [54]. Suspecting that the mere creation of such committee does not mean that it actually operates efficiently, the authors studied the activity of these committees by trying to connect to the intensity of control needs in the company. They show an almost total absence of connection between the two categories of variables.

5. Conclusions

The aim of this study is to examine the moderating effect of monitoring committees on board composition—firm performance relationship using data for 80 publicly listed French firms from 2004 to 2013. The use of monitoring committees to mitigate the costs associated with large boards has a statistically and economically significant effect in moderating these costs. Overall, we have found that large board size negatively affects market performance but large board size with the existence of at least three committees has a positive impact on the accounting performance. Moreover, a large number of independent directors with the existence of at least three committees negatively affect accounting performance. These findings also have broader inferences for progress requirements for improvements in boardrooms. As a small support, these results cast doubt on the standard view that, as applicable disciplinarians, smaller boards are better than larger boards.

Our study results may largely explain the conflicting results of previous studies. Indeed, the relationship between performance and governance characteristics is complicated and difficult to define. It depends of the specifications of each company and the possible interactions between the governance characteristics. In fact, our study reveals a possible interaction between board independence and the existence of a number of committees. Thus, the board independence seems to depend heavily on the independence of the decisions taken by the various committees including investment decisions, the appointment of directors, certification and ratification of accounts, etc. Our study also shows that the choice of one performance measure instead of another may also explain the conflicting findings of previous results. In this regard, certain governance characteristics can impact a stock market measure rather than an accounting measure and vice versa.

Finally, our research can be a guide for regulators seeking to strengthen the independence of the board.

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