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The impact of board composition on the financial performance of FTSE100 constituents

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Abstract

The financial performance of entities is of utmost importance to stakeholders in general and shareholders in particular as, on one hand it is a key source for financing the current economic activities, thus helping to maintain a going concern and to increase the value of the business, and on the other hand it is the basis for distributing dividends, which in turn may attract investors (and their funds). Thus, identifying and analyzing those factors that influence financial performance of entities is of great relevance both to practice and academia. While it is logical (but not undisputed) to suppose that the managerial abilities of the board of directors would have a significant impact on the entity's financial performance, it is however not clear-cut whether the board's composition would significantly influence the entity's performance. Within this study we investigated using econometric regression models the impact of 9 corporate governance characteristics regarding board composition on the contemporaneous and next year's performance (measured as ROA) using a sample comprised of the constituents of FTSE100 between 2010 and 2011. Through this research we intend to contribute to the academic literature on the unsettled issue concerning the relationship between corporate governance and corporate performance. As hypothesized and in accordance with some previous researches we found that board independence and the proportion of foreign directors in the total number of directors (as characteristics of corporate board composition) have a significant strong positive impact on firm performance (both contemporaneous and subsequent).

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1. Introduction

The financial performance of entities is of utmost importance to stakeholders in general and shareholders in particular as, on one hand it is a key source for financing the current economic activities, thus helping to maintain a going concern and to increase the value of the business, and on the other hand it is the basis for distributing dividends, which in turn may attract investors (and their funds). Thus, it should appear as straightforward that identifying and analyzing those factors (determinants) that influence financial performance is of great relevance both to practice and academia. Companies are governed by the boards of directors, both executive and non-executive. It is logical (however not undisputed) to suppose that the managerial abilities of the board of directors would have a significant impact on the entity's financial performance. It is however not clear-cut whether certain board characteristics regarding its composition would significantly influence the company's performance. Several previous

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studies have investigated the impact of different corporate governance characteristics on firm performance (Lipton & Lorsch, 1992, Hermalin & Weisbach, 2003, Vafeas & Theodorou, 1998, Bhagat & Black, 2002, Brickley et al., 1997, Wintoki et al., 2007, Adams et al., 2008, Guest, 2009, Bhagat & Bolton, 2008); however the results and conclusions are mixed.

Within this study we investigated using econometric regression models the impact of 9 board related corporate governance characteristics regarding board composition on companies' contemporaneous and future (next year's) performance using a sample of large groups listed on the largest European capital market (namely London Stock Exchange) between 2010 and 2011. Through this research we intend to contribute to the academic literature on the unsettled issue concerning the relationship between corporate governance and corporate performance.

2. Literature Review

As mentioned in the introduction, there are several academic papers which investigated the relationship between corporate governance characteristics and corporate performance. Gompers et al. (2003) study in their often cited paper the impact of corporate governance on firm performance during the 1990's. Using 24 governance rules, the authors construct a Governance index to proxy for the level of shareholder rights. The results the authors arrive at, indicate that companies with stronger shareholder rights had higher firm value, higher performance and higher sales growth than companies with weak shareholder rights. However in a subsequent paper, Core et al. (2006) showed that in the first decade of this century, firms with strong shareholder rights do not outperform firms with weak shareholder rights.

Another seminal paper concerning the relation between corporate governance and firm performance is that of Bhagat and Bolton (2008). Taking into consideration the endogeneity of the relationship between corporate governance, group performance, corporate structure and ownership structure, the authors found that better corporate governance is significantly positively correlated with both better contemporaneous and better subsequent operating performance (but not with stock market performance).

In her paper, Bauwhede (2009) re-examines the relationship between corporate governance and corporate performance, triggered by a prior European study (Bauer et al., 2004) which reported evidence of a negative relationship between these constructs. However, Bauwhede reports evidence of a positive relationship between the extent of compliance with international corporate governance best practices (regarding board structure and functioning) and operating performance measured by the return on assets (ROA). According to the author, it is especially the structure and functioning of the corporate board that can directly impact on the operating efficiency and operating performance of a company.

Relevant to our research is also the study of Guest (2009) who examines the influence of board size on company performance for a large sample of UK listed firms during 1981-2002. The results indicate that board size has a strong negative impact on performance (profitability), Tobin's Q and share returns.

3. Research Design and Descriptive Statistics

In this empirical research we investigated the link between company performance and board composition characteristics for companies listed on the largest European stock market (London Stock exchange) in the period 2010-2011. The criteria for selection is the belonging to the main index (FTSE 100) which includes the first 100 of the largest and most traded companies on the stock exchange.

We relied in our research on an accounting measure of company performance (and not on stock market based measures), thus using return on assets as dependent variable as a proxy for company performance. According to the literature, stock market based measures of performance are susceptible to investor anticipation (Bhagat & Bolton, 2008: 264). Thus if investors anticipate the effect of corporate governance characteristics on firm performance, then long-term stock returns will not be correlated with corporate governance, even if such a significant correlation between performance and governance would exist (Bhagat & Bolton, 2008: 264).

Regarding the financial information on operating performance, total assets, shareholders equity, total sales as well as information concerning the industry in which the constituents of FTSE 100 operate, it has been manually collected from the London Stock Exchange website. The data on characteristics regarding corporate board composition have been obtained from the SpencerStuart 2011 UK Board Index. We constructed the different dependent and independent variables, including control variables (for size respectively for industry). Regarding the elimination of outliers, we truncated the observations for which the dependent variable (ROA) were below the 5th respectively above the 95th percentile.

The central hypothesis on which the research is build upon, and which is based on prior findings in academic research is the following:

Hypothesis 1: There are corporate board composition characteristics (such as board size, board independence, percentage of foreign directors, percentage of women directors, average service, tenure, age) which may significantly influence the current year operating performance of companies.

In order to empirically test this research hypothesis regarding the impact of board related corporate governance characteristics on the contemporaneous operating performance, the following econometric model (whose parameters are to be estimated using ordinary least square OLS) has been developed:

$$ROAn_i = \alpha_0 + \alpha_1 * NumDir_i + \alpha_2 * IndNEx_i + \alpha_3 * ForDir_i + \alpha_4 * WomDir_i + \alpha_5 * AvServNEx_i + \alpha_6 * ChairTenure_i + \alpha_7 * CEOTenure_i + \alpha_8 * AvAgeNEx_i + \alpha_9 * AvAgeExec_i + \alpha_{10} * TA_i + \sum(\alpha_i * Ind_i) + \epsilon_i \quad (1)$$

Where:

ROAn _i	=	Operating Return on Assets of company i in year n
NumDir _i	=	Total Number of Board Directors for company i
IndNEx _i	=	Independent non-executive directors divided by total number of directors for comp. i
ForDir _i	=	Foreign directors divided by total number of directors for company i
WomDir _i	=	Women directors divided by total number of directors for company i
AvServNEx _i	=	Average service of non-executive directors for company i
ChairTenure _i	=	Chairman tenure for company i
CEOTenure _i	=	CEO tenure for company i
AvAgeNEx _i	=	Average age of non-executive directors for company i
AvAgeExec _i	=	Average age of executive directors for company i
TA _i	=	Natural logarithm of total assets for company i
Ind _i	=	Industry dummy variable for the following industries: Basic Materials, Industrials, Consumer Goods, Consumer Services, Utilities, Financials, Other

Furthermore we designed our research also for the investigation of the impact of board composition characteristics on the subsequent (i.e. next year) operating performance, thus following a research idea explored by Bhagat & Bolton (2008). Thus a second hypothesis based on the initial one has been formulated:

Hypothesis 2: There are corporate board composition characteristics (such as board size, board independence, percentage of foreign directors, percentage of women directors, average service, tenure, age) which may significantly influence the next year's operating performance of companies.

For empirically testing this research hypothesis regarding the impact of board related corporate governance characteristics on the next year's operating performance, a second similar econometric model (whose parameters are to be estimated using ordinary least square OLS) has been developed:

$$ROAn+1_i = \alpha_0 + \alpha_1 * NumDir_i + \alpha_2 * IndNEx_i + \alpha_3 * ForDir_i + \alpha_4 * WomDir_i + \alpha_5 * AvServNEx_i + \alpha_6 * ChairTenure_i + \alpha_7 * CEOTenure_i + \alpha_8 * AvAgeNEx_i + \alpha_9 * AvAgeExec_i + \alpha_{10} * TA_i + \sum(\alpha_i * Ind_i) + \epsilon_i \quad (2)$$

Where:

ROAn+1 _i	=	Operating Return on Assets of company i in year n + 1
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As in other previous studies (see Vafeas & Theodorou, 1998, Guest, 2009) the regression models include a control variable for the company size (natural logarithm of total assets) and dummy variables which control for the industry family the company primarily operates in (Basic Materials, Industrials, Consumer Goods, Consumer Services, Utilities, Financials, Other). These control variables are used to capture the influence of size and sector on company’s performance, thus improving the explanatory power of the elaborated regression models.

In order to confirm a research hypothesis, the coefficient of at least one variable concerning the specific corporate board characteristic has to be statistically significant at the 0,1 level and has to record a Variance Inflation Factor (which tests the degree to which the independent variable is correlated with other independent variables) below 5. Otherwise the respective hypothesis is considered to be infirmed.

Regarding the existent associations between the variables employed in the econometric models (see Pearson correlation matrix in table 1), there is one significant (at least at the 5% level) correlation between the dependent variable (ROA) and the independent variables NumDir (Number of directors).

Table 1. Pearson Correlation Matrix

Variable	ROA n	ROE n	ROA n+1	ROE n+1	Num Dir	IndNEx/ NrDir	ForDir/ NrDir	WoDir/ NrDir	AvServ NonEx	Chair Tenure	CEO Tenure	AvAge NonEx
ROAn+1	0,878**	0,599**										
NumDir	-0,378**	-0,222*	-0,313**	-0,159								
IndNEx/NrDir	-0,164	-0,108	-0,088	-0,043	0,229*							
ForDir/NrDir	0,112	-0,132	0,206*	-0,059	0,094	0,324**						
WomDir/NrDir	0,001	0,111	-0,039	0,057	0,163	0,266**	-0,048					
AvServNonEx	0,058	-0,009	0,049	-0,01	0,007	-0,045	0,121	-0,045				
ChairTenure	0,016	-0,057	0,005	-0,022	0,104	-0,099	-0,081	-0,058	0,299**			
CEOTenure	-0,007	0	0,03	0,028	0,131	-0,251*	-0,135	-0,018	0,173	0,281**		
AvAgeNonEx	-0,142	-0,17	-0,11	-0,107	0,022	0,14	0,364**	-0,285**	0,223*	0	-0,099	
AveAgeExec	-0,004	-0,084	0,015	-0,007	0,124	0,021	0,185	-0,126	-0,026	0,141	0,089	0,329**

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

It must be mentioned, as well, the existence of significant correlations between some independent variables used in the same econometric models. We are referring to the correlation between IndNEx/NrDir and ForDir/NrDir respectively WomDir/NrDir, the correlations between ForDir/NrDir and AvAgeNonEx, the correlations between AvServNonEx and ChairTenure, the correlations between ChairTenure and CEOTenure, and the correlations between AvAgeExec and AvAgeNonEx. These correlations are relatively small and indicate the existence of a certain multicollinearity between variables. To examine if multicollinearity generates instability of empirical results, we computed, for each coefficient of the independent variables from the econometric models, the variance inflation factor (VIF), which quantifies to what extent the variance for a coefficient is increased due to collinearity (Andrei & Bourbonnais, 2008: 274). When variables are not correlated, the variance inflation factor is 1. VIF values of more than 5 (see Jermakowicz et al., 2007) or even 10 (see Kutner et al., 2004) are regarded in the specialty literature as indication of (serious) autocorrelation problems between independent variables.

4. Results

Table 2 summarizes our main results for the relationship between the operating performance measured as return on assets (for the current period) and the board composition characteristics. These results are consistent with a statistically significant relationship (at least at 0,1 level) between the contemporaneous operating performance

(measured as ROA) and some of the corporate governance characteristics regarding board composition, namely number of directors, board independence, proportion of foreign directors, proportion of women directors, average service of non-executive directors and CEO Tenure.

Table 2. Empirical results for regression model 1

Variable	Coefficients (α)	t	Sig.	VIF
(Constant)	0,238**	2,147	0,036	
NumDir	0,005**	1,998	0,050	2,448
IndNEx/NrDir	0,091*	1,749	0,086	1,703
ForDir/NrDir	0,088***	3,069	0,003	2,898
WomDir/NrDir	0,127*	1,715	0,092	2,464
AvServNonEx	0,007**	2,54	0,014	1,669
ChairTenure	-0,001	-1,104	0,274	1,598
CEOTenure	-0,002**	-2,222	0,030	1,92
AvAgeNonEx	-0,002	-1,258	0,214	1,682
AveAgeExec	0,000	-0,437	0,663	1,526
TAn	-0,033***	-5,628	0,000	4,943
IndBasMat	0,045	2,596	0,012	2,814
IndInd	-0,048	-2,770	0,008	2,796
IndConsGoods	-0,008	-0,428	0,67	2,004
IndConsServ	0,000	-0,032	0,975	2,21
IndUtilities	0,028	1,349	0,183	2,012
IndFinancials	0,012	0,648	0,519	3,353
IndOther	0,020	0,973	0,334	1,684
Model Summary ROAn	AdjR² 0,561	F 4,879	Durbin-Watson 1,972	

The relatively strongest (and statistically significant) impact on ROA can be observed for board independence, proportion of foreign directors and proportion of women directors. Noticeable are also other two relationships involving the total number of directors and the average service of non-executives. Worthwhile to remark is also the negative significant relationship between ROA and the CEO Tenure (0,002).

As concerns the potential problem of multicollinearity between independent variables included in the two models, which generates instability of empirical results, we computed, for each coefficient of the independent variables from the econometric models, the variance inflation factor. As the VIF values are less than 5, there is no indication of (serious) autocorrelation problems between independent variables.

Based on this statistical results for the first regression model, one can clearly confirm *hypothesis 1*, regarding a significant relationship between corporate board composition and contemporaneous company performance.

As mentioned in the research design, we also investigated the impact of board related corporate governance characteristics on the subsequent (i.e. next year) operating performance, thus following a research idea explored by Bhagat & Bolton (2008). The existence of statistically significant coefficients for the board related independent variables in regression models based on subsequent ROA would definitely strengthen a presumable conclusion regarding the existence of an impact which corporate board characteristics might have on company performance. The empirical results obtained from this regression model are synthesized in table 3.

These results indicate a statistically significant relationship (at least at 0,1 level) between next year's operating performance (measured as ROA) and the corporate governance characteristics regarding board independence and the proportion of foreign directors. It should be noticed that the coefficient for board independence has even a higher

statistical significance (and a higher positive value) as compared to model 1 (based on contemporaneous ROA), which might indicate that board independence has a stronger influence on the performance on the longer term.

Concerning the potential problem of multicollinearity between independent variables included in the second model (which generates instability of empirical results), the computed variance inflation factor (VIF) values are less than 5, thus not indicating (serious) autocorrelation problems between independent variables.

Table 3. Empirical results for regression model 2

Variable	Coefficients (α)	t	Sig.	VIF
(Constant)	0,327***	2,837	0,006	0
NumDir	0,004	1,386	0,171	2,842
IndNEx/NrDir	0,146**	2,531	0,014	1,812
ForDir/NrDir	0,049*	1,513	0,136	3,282
WomDir/NrDir	0,053	0,685	0,496	2,441
AvServNonEx	0,003	1,144	0,258	1,619
ChairTenure	0,000	-0,674	0,503	1,536
CEOTen	-0,001	-1,058	0,294	2,052
AvAgeNonEx	-0,002	-0,954	0,344	1,815
AveAgeExec	-0,002	-1,251	0,216	1,513
TAn	-0,028***	-4,299	0,000	5,857
IndBasMat	0,050	2,965	0,020	2,814
IndIndustrials	-0,048	-2,77	0,008	2,796
IndConsGoods	-0,037	-1,759	0,084	2,616
IndConsServ	-0,049	-2,683	0,01	2,805
IndUtilities	-0,055	-2,57	0,013	2,219
IndFinancials	-0,079	-3,765	0	3,505
IndOther	0,005	0,215	0,83	2,272
<i>Model SummaryROAn+1</i>	<i>AdjR² 0,561</i>	<i>F 4,887</i>	<i>Durbin-Watson</i>	<i>1,983</i>

Taking into account the empirical results obtained from the second regression model which contains statistically relevant coefficients we incline to confirm the *hypotheses 2*, regarding a significant link between corporate board composition and subsequent operating performance.

5. Summary and Conclusions

Within this study we used econometric regression models in order to investigate the impact of 9 board composition characteristics on contemporaneous and subsequent (next year's) performance using a sample of large groups listed on the largest European capital market (namely London Stock Exchange) between 2010 and 2011. The selected companies are the constituents of FTSE 100.

The study has used an accounting measure of operating performance, namely the operating return on assets (ROA). In order to investigate the profoundness of a potential impact of corporate board characteristics on company performance, we explored the influence of these characteristics both on contemporaneous and on subsequent (next year's) operating performance.

As hypothesized and in accordance with some previous researches (for example Vafeas & Theodorou, 1998, Gompers et al, 2003, Guest, 2009, Bhagat & Bolton, 2008) we found a statistically significant relationship between corporate governance characteristics and firm performance (both contemporaneous and subsequent). Our results have shown especially that board independence (independent directors/total number of directors) and the proportion

of foreign directors in the total number of directors (as characteristics of corporate board composition) have a significant strong positive impact on both contemporaneous and on subsequent operating performance.

In the end, some aspects regarding the limitations of this study should be mentioned. At least two limitations are worth mentioning. First, it is possible to raise the problem of sample representativeness (and implicitly of the results obtained) for the large European capital markets and respectively for the whole European capital market. In this respect, future research could extend the analysis (and the sample) to other capital markets in Europe, as well as to companies that are not included in the main index of the stock market they are listed on. Second, the obtained results do not take into account the possible endogeneity of the relationships among corporate governance, operating performance, corporate structure and ownership structure.

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