Board Structure and Market Performance: Does One Solution Fit All?

Milena Petrova

Syracuse University

BAFFI CAREFIN Center, Bocconi University

This Draft: May 2023

Abstract

We investigate the relationship between internal corporate governance and market performance across multiple countries, utilizing a comprehensive dataset comprising 77,440 firm observations from 15 European Union countries over the period 2002-2018. Specifically, we examine the impact of board characteristics, including size, independence, gender diversity, CEO duality, and classified boards, on market performance. Our findings reveal that board size consistently emerges as a significant predictor of market returns. Smaller boards tend to be associated with better market performance. Additionally, CEO duality exhibits a negative relationship with market performance across countries. Interestingly, we observe a positive association between staggered boards and performance and find no significant relationship between board independence and market performance in Europe. Upon analyzing the data at the country level, we identify that the links between board structure and performance vary by country. These divergent findings indicate that there is no universally applicable corporate governance solution that can be recommended for companies throughout Europe.

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Introduction

Corporate governance encompasses a set of mechanisms, processes and practices used to align managerial and shareholders' interests. One type of governance device designed to strengthen the ability of shareholders to control management is through internal controls. Jensen and Fama (1983) posit that the board of directors is at the core of internal corporate governance and is particularly important in its monitoring role. The board of directors is the decision-making and strategy-setting body of the firm, and as such it drives its performance. Thus, researchers persistently have analyzed the determinants of board structure and their impact on decision-making, profitability, and value. The most important elements of board structure include board size, board independence, staggered election of directors, CEO-chairman duality, and board diversity.

The literature advances the theory that shareholders exercise more control when the board is small, includes a greater percentage of independent directors, does not have a staggered election structure, is not chaired by the firm CEO, and is gender diverse (see, e.g., Fama and Jensen, 1993; Yermack, 1996; Byrd and Hickman, 1992; Bebchuk and Cohen, 2003; Terjesen et al., 2015). However, the empirical evidence supporting these theories is rather mixed. For example, several studies document positive relation between outside directors and value (Rosenstein and Wyatt 1990, 1997; Shivdasani 1993; and Brickley et al. 1994). In contrast, another stream of literature argues that inside directors are more valuable due to their insider knowledge (Fama 1980; Baysinger et al. 1990; and Bhagat and Black 2002).

More recently gender diversity has received a lot of attention and there is a number of studies showing both – positive (Carter et al. 2003; Erhardt et al. 2003; and Luckerath-Rovers 2011) and negative or ambiguous effects (Rose 2007; Adams and Ferreira 2009; and Minguez-Vera and Martin 2012) of female board representation on firm value.

The lack of scientific consensus does not impede regulating institutions from creating guidelines and recommendations concerning board structure. For example, the OECD's corporate governance guidelines require boards to have at least some percentage of independent directors to create separation from management (OECD 1999). Similarly, the London Stock Exchange (LSE) has mandated since 1998 that at least one-third of board members of the listed firms on LSE has to be non-executive directors and that the majority of non-executive members must be independent. Other guidelines, such as those adopted by the Council of Institutional Investors (CII), go to more extreme measures, directing companies to employ at least two-thirds of independent directors.

Several countries across Europe have implemented quotas for female representation on publicly traded firms' boards. Israel was the first country to require at least one woman on the board of directors (BOD) of publicly traded companies in 1999. This requirement was extended to a 50-percent quota in 2007 with a compliance date of 2010. Norway was the first to implement a gender quota in 2003, which required that public limited-liability companies have 40 percent female board representation by 2009. Other countries have followed.

While most findings on the impact of internal governance structure are based on US company data, these results are used to implement best practices internationally. Meanwhile, as noted by Bhagat and Black (2002) many international (from the American perspective) studies do not find a significant impact of board composition on performance. Another challenge, in the interpretation of the results of such studies, is that they use samples based on different time periods and different methodologies. Finally, most cross-country studies are based on data at the country-level, rather than the firm-level.

We aim to fill this gap in the literature by examining the impact of board structure in Europe on firm market performance (Tobin's Q and total returns). We focus on the European Union (EU) firms, as several regulations involving corporate governance have been implemented universally for all EU countries, yet the member countries have unique culture, different law traditions and business practices. Nevertheless, no studies, to our knowledge, have examined if the effects of board composition are uniform across these countries and whether policies implemented at the EU level are effective in protecting shareholders' interests across the union countries. The analysis is performed on a rich data set including 77,440 firm observations for 15 European countries over the period of 2002-2018. First, we conduct the analysis across countries, controlling for industry and time-fixed effects. We further examine the impact of board structure by country and industry to determine if the relationships differ for certain types of industries, or certain countries.

Our analyses suggest that board size is the most consistent predictor of performance and smaller boards are significantly positively related to future total returns. CEO duality is generally negatively associated with market performance. Interestingly, staggered board is

positively related to performance, while board independence is not significantly related to performance in Europe, which is against the conventional beliefs. When performing the analysis by country, we note that the relations between board structure and performance differ by country and based on these results, no best-practice corporate governance solution could be recommended for all companies from the different countries or industries.

The rest of our paper is organized as follows. Section 2 discusses the relevant literature and develops the main hypotheses we test. Section 3 describes the sample selection process and the data used in the analyses and the models that we test. Section 4 reports the results. Section 5 discusses additional robustness checks, while Section 6 concludes.

2. Literature Review and Hypotheses Development

An important feature of independent directors is that they help alleviate agency costs that arise due to the separation of ownership and control (Jensen, 1993; Yermack, 1996). Independent directors help mitigate agency costs as they are more prudent in their decision making. Independent directors excel in monitoring since they have an objective view of the functioning of the board and management (Fama and Jensen, 1983). Their upside is limited since they own negligible equity stakes in the company, but their downside is large due to the reputation cost (Eisenberg et al. 1998). The benefits of having independent directors include improved functions, such as monitoring (Hermalin and Weisbach, 2003; Coles et al., 2007; Ferreira et al., 2010), and superior advising, due to their vast knowledge and invaluable insight (Dalton et al., 1999; Coles et al., 2007; Ferreira et al., 2010). Specific areas

where independent directors outperform inside directors are CEO replacement and compensation setting. Independent directors are more responsive to underperforming CEO's and poor company performance, by actively protecting their reputation through CEO replacement (Hermalin and Weisbach, 1988; Borokhovich et al., 1996; Lawrence and Stapledon, 1999; Bhagat and Black, 2002). In addition, boards with higher independence demonstrate more accounting transparency, which is valued by investors (Dechow et al., 1996; Peasnell et al., 1998).

In the market for corporate control, investors have more trust in defensive measures (for example poison pills) when they are implemented by independent boards (Brickley, et al. 1994). Shivdasani (1993) and Brickley et al. (1994) present evidence that independent boards make the company less likely to be acquired in a hostile takeover. In similar vein, Cotter et al. (1997) and Byrd and Hickman (1992) conclude that the results of takeovers are superior for companies with independent boards.

In summary, thanks to their impartial judgement, expertise and experience, independent directors are expected to benefit company performance and valuation.

However, many authors note that inside directors possess unique characteristics that make them valuable to the company. Fama and Jensen (1983) argue that the firm specific knowledge of inside directors makes them essential in uncertain environments. Due to their extensive knowledge of the company's operations, they enhance strategy setting (Fama, 1980; Baysinger et al. 1990, Bhagat and Black 2002). And as noted by Bhagat and Black

(2002), the presence of inside directors on boards allows other directors to better assess their abilities to potentially become the CEO.

Bhagat and Black (2002) contend that directors are generally not sufficiently independent. In addition, Lawrence and Stapledon (1999), call for more scrupulous definitions of independent directors. Thus, we examine strictly independent directors who are defined in Thomson Reuters DataStream as "*not employed by the company; not representing or employed by a majority shareholder; not served on the board for more than ten years; not a reference shareholder with more than 5% of holdings; no cross-board membership; no recent, immediate family ties to the corporation; not accepting any compensation other than compensation for board service".* If independent directors are associated with higher performance and value, we posit a stronger positive relation between strictly independent directors and performance, than when examining the impact of all independent directors.

Based on the studies above we form our first hypothesis.

Hypothesis 1: The presence of independent directors on the board positively impacts firm performance. This relationship is stronger for strictly independent directors.

The literature presents consistent evidence that smaller boards are preferred to larger boards and board size is negatively related to firm value (Lipton and Lorsch 1992; Jensen 1993; Yermack 1996; Eisenberg et al. 1998; Hermalin and Weisbach 2003). These papers document several benefits of smaller boards, including faster decision-making due to fewer coordination issues (Jensen 1993; Eisenberg et al. 1998), higher likelihood of dismissing a poorly performing CEO (Hermalin and Weisbach 1988; Lipton and Lorsch 1992;

Jensen 1993; and Yermack 1996), and increased dependence of CEO compensation on firm performance (Yermack, 1996). Similarly, Yermack (1996) shows that the reduction in board size is associated with a positive investors' reaction. However, the drawback of smaller boards is that they are less likely to include independent directors (Eisenberg et al., 1998), the assumption being here that independent directors are value-adding. Many of the benefits highlighted above are also associated with independent directors. Interestingly, board size often exceeds the required number set by regulation according to Hermalin and Weisbach (2003), which is in contrast to the received evidence that size is negatively related to value. Based on these studies, we form our second hypothesis.

Hypothesis 2: Board size negatively impacts company performance.

CEO duality, which is observed when the CEO is also the chairman of the board of directors, has been shown to have a negative impact on firm's value and performance. This is seen as giving too much power to a single individual, because it does not allow the board to perform its functions without influence. Sridharan (1996) notes that increased CEO control over the board leads to higher CEO compensation. Therefore, we expect a negative relation between CEO duality and performance.

Hypothesis 3: CEO-chairman duality negatively impacts company performance.

Staggered board is a corporate governance measure that allows the board directors of the board to be elected in staggered terms. Its purpose is to act as a defense mechanism against hostile takeovers, but it leads to board entrenchment, adversely impacting change, and flexibility in times of weak performance. It impedes monitoring through the market for

corporate control as it hinders takeovers. Bebchuk and Cohen (2005), find that staggered board has a negative impact on Tobin's Q. Therefore, we form our hypothesis regarding the impact of staggered board accordingly.

Hypothesis 4: The presence of the staggered board mechanism negatively impacts company performance.

As previously noted, the empirical evidence on the impact of gender diversity is mixed. Some papers find a significant positive relation between the fraction of women and firm value (Carter et al. 2003; Erhardt et al. 2003; Luckerath-Rovers 2011, Terjesen et al. (2015), while others find negative or insignificant results (Rose 2007; Adams and Ferreira 2009; Minguez-Vera and Martin 2012). We examine the impact of female directors and female CEOs on a firm's performance and relate it to the strategic decisions made by the firm.

Hypothesis 5: Female board representation positively impacts company performance.

3. Data and Sample

We obtain data from Thomson Reuters DataStream. We initially gather accounting, market, and governance information for 41,817 companies for 15 European countries (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and the United Kingdom). These countries were chosen as they were part of the European Union from the beginning of the sample period,

which covers a time span from 2002 to 2018.[1] We drop from the sample firms with missing values for board structure. This leaves us with 92,865 observations.

Next, we drop any firm observations with missing accounting data (Total Debt, EBIT and Total Assets). This further reduces our sample to 78,780 observations. We finally eliminate observations with extreme return values (returns greater than 500%), which leaves us with a final sample for analysis of 77,440.

Summary statistics of the variables used in the analysis are presented in Table 1. We note that on average firms are about 9 years old, with a board size of 12 directors, CEO-chairman duality and staggered boards are present in approximately 26% and 43% of the firms, respectively. While on average 53% of the board members are considered independent, 45% are strictly independent and 26% are female.

To examine the impact of independent directors, board size, CEO duality and staggered boards we use employ panel data analyses (with clustered standard errors by firm) where the dependent variable is the firm's Tobin's Q or total return (including dividends). We estimate the following models:

$$\text{Tobin's } Q_{t+1} \text{ (Total Return}_{t+1}) = \alpha + \beta 1\text{EBIT/TA} + \beta 2\text{TD/TA} + \beta 3\text{Age} + \beta 4\text{Employees} + \beta 5\text{CEO Chairman} + \beta 6\text{Board Size} + \beta 7\text{Staggered} + \beta 8\text{Independent} + \varepsilon i.$$

The dependent variables measuring performance are both market-based measures as they take into consideration investor perception, intangible factors such as governance

[1] There are 13 additional countries which entered the Union since 2002, however these countries are characterized by small capital markets and corporate governance data for firms from these countries is scarce. Therefore, we do not include these countries in the analysis due to data limitation. This could potentially have implications for our results being applicable for firms from developed European countries only.

(Morck et al., 1988) and unlike accounting measures, they are far less subject to manipulation. Total Return, as defined by Thomson Reuters DataStream, is (Market Price$_{\text{Year End}}$ + Dividends Per Share + Special Dividends) / Last Year's Market Price$_{\text{Year End}}$)*100. Tobin's Q is the (Market Value of the company + Total Debt) divided by Total Assets. We calculate clustered standard errors to account non-independence between periods within each firm. Moreover, as changes in corporate governance typically do not have an immediate impact once implemented, all control variables are lagged, which also addresses the problem of causality, i.e., whether corporate governance changes affect company performance or company performance leads to corporate governance changes. We further include time and industry fixed effects. In our robustness tests we replace *Independent* with *Strictly Independent* and add *Diversity* (% of female directors) as a control variable. Note that we do not include these variables in the main models as due to missing observations, the inclusion of these variables reduces the usable sample from 77,440 to 34,890 observations. Finally, we conduct analyses by country and by industry sector.

4. Results

Table 2 presents the pairwise correlation statistics of the variables used in the analyses. We find no significant correlation issues. The highest correlation is between board size and the number of employees, 39.14%, indicating that larger firms have larger boards. The other notable correlation is between board size and independent directors (-30.63%), suggesting that larger boards tend to have more insiders.

In Table 3 we present the regression statistics from our baseline model where the dependent variable is Total Return. Standard errors are clustered by firms. In Model 1 we

control for country and time fixed effects, in Model 2 we control for industry and country fixed effects. Finally, in Model 3 we control for industry, country, and time fixed effects. The number of usable observations is reduced to 71,551 due to using lagged control variables. The results suggest that only board size is consistently negatively related to firm performance as posited by our hypothesis 2. CEO Chairman Duality is marginally significant and with the expected sign which provides weak support to hypothesis 3. Staggered board is significant in all models but has positive effect which is in contrast with our hypothesis 4 that the presence of staggered board negatively impacts company performance. Independent directors' impact is mixed across the models, however, when controlling for industry, country, and time fixed effects the coefficient on this variable of interest becomes positive and significant. Examining the Adjusted R-squares of the three models, we note that time fixed effects have significant explanatory power. Our best model 3 has an R-square of 0.201. Based on Model 3 we conclude that CEO duality and board size are negatively related to performance, whereas staggered and independent boards are positively related to returns. These results support H1-3 and reject H4.

In Table 4 we present the regression statistics from panel models where instead of controlling for independent directors, we control for strictly independent directors as previously defined. We also include as a control variable Diversity (percentage of female directors). It is possible that non-strictly independent directors have unobserved ties with the firm and hence cloud the impact of strictly independent directors, who we posit are associated with higher performance and value. In addition, we expect a positive impact of board diversity on performance. Note that controlling for strictly independent directors and

diversity reduces the usable sample to 18,145 observations. Hence the results reported in Table 3 and 4 are not directly comparable. While board size continues to be significantly negatively associated with market returns, the coefficient on staggered board is also negative and significant (in Model 2) lending weak support to Hypothesis 4. However, CEO-chairman duality is positive and significant in Models 2 and 3, which is against our expectations. Finally, we don't find any positive significant relationship between strictly independent as well as diversity and market returns and fail to support hypotheses 1 and 5.

In Tables 5 and 6 we present the results when the dependent variable is Tobin's Q. In Table 5 we control for the main four governance variables, while in Table 6 we include control for strictly independent directors and diversity. We notice that in contrast to the results reported in Table 3, independent directors are significantly positively related to valuation as captured by Tobin's Q. Apart from this variable, no other governance variable is significantly related to value when including industry, country, and time fixed effects. Turning to the results in Table 6, Diversity is positively and significantly related to market valuation in all models. This supports the notion that investors place higher valuation on companies with higher board diversity. The coefficient on "Strictly Independent" is negative and significant in Models 2 and 3 of Table 6, which is against our expectation for a stronger positive effect of strictly outside directors. None of the other corporate governance variables are significant once we control for industry and time fixed effects.

Next we conduct the analyses by Country. Table 7 presents the regression results for the 15 different countries in our sample, with each column representing a specific country. We report only the coefficients for the corporate governance variables used in the models:

CEO Chairman, *Board Size*, *Staggered* and *Independent*. The dependent variable is Total Return. We include time and industry fixed effects in all models. Standard errors are clustered by firm. Turning to the results with respect to CEO-Chairman duality we observe a significant impact in Austria, Belgium, Finland, Germany, Greece, Netherlands, and Portugal. The direction of the impact is negative (as predicted) in Belgium, Finland, Germany, and Netherlands (suggesting that having the CEO as the chairman corresponds to a decrease in market returns) and positive in Austria, Greece, and Portugal.

When examining the impact of board size, we note that significant impacts at the 10% level or below are observed in Belgium, France, Germany, Greece, Ireland, the Netherlands, and the UK. The effect is negative in France, Germany and Greece and the UK, indicating that a larger board size correlates with a decrease in market returns. However, it is positive in Belgium, Ireland, and the Netherlands, implying that a larger board size associates with an increase in future returns.

The presence of staggard board has a significant impact in Denmark, Finland, Germany, Greece, Italy, Luxembourg, the Netherlands, Portugal, Spain, and the UK. The direction of the impact is negative only in Denmark, and Germany, suggesting that staggered board is associated with a decrease in future returns. On the other hand, the impact is positive in Finland, Greece, Italy, Luxembourg, Portugal, Spain, and the UK.

Finally, *Independent* appears to have a significant impact in Austria, Belgium, Greece, Ireland, Italy, and the Netherlands. The impact is positive in Austria, Ireland, Italy, and the Netehrland, implying that an increase in 'Independence' correlates with an increase in

market returns. In contrast, the impact is negative in Belgium, and Greece suggesting that greater 'Independence' relates to a decrease in firms returns.

In summary, based on the reported regression statistics in Table 7, we conclude that the results regarding the impact of the main corporate governance variables vary across countries, and the significance and direction of the relationships differ.

Table 9 presents the regression statistics by country where the dependent variable is Tobin's Q, with each column representing a specific country. Similarly to Table 8, we report only the coefficients for the corporate governance variables used in the models. We include time and industry fixed effects in all models. Based on the reported statistics in Table 9 the results suggest that the main governance independent variables (*CEO Chairman*, *Board Size*, *Staggered*, and *Independent*) have varying impacts on Tobin's Q across different countries. The significance and direction of these effects differ, indicating that the relationship between governance variables and Tobin's Q is country-specific. Board size is the only governance variable that remains predominantly negative and significant across several countries (Belgium, Denmark, France, Greece, Italy, and Sweden). Results remain mixed regarding the impact of CEO duality on Tobin's Q. In Greece, and the UK, CEO Chairman has a statistically significant negative effect on Tobin's Q, while its effect is positive and significant in Denmark, Finland, Netherlands, and Sweden. Staggard board is associated with a statistically significant negative effect on Tobin's Q in France and Italy and a positive effect in Denmark, Netherlands, Spain, and the UK. Finally, *Independent* has a statistically significant positive effect on Tobin's Q in Germany and Greece, while this effect is negative in France, Ireland, Spain, and the UK.

5. Robustness checks

Our results might be suffering from omitted variable bias due to unobserved heterogeneity of different firms. If the dependent variables are affected by these unobservable characteristics that systematically vary across firms in our panel, then the coefficient on any variable correlated with this variation will be biased. To address this issue, we include firm fixed effects in our models. Table 9 reports the results when the dependent variable is Total Return including firm and time fixed effects. We note that the R-squared improves significantly from 0.201 in our best model in Table 3 to 0.298 in Model 1. CEO Chairman and Board Size remain negative and significant, which supports hypotheses 2 and 3, while Staggered Board remains positive and significant contrary to our expectations and hypothesis 4. Results regarding the effect of Strictly Independent and Diversity on market returns remain unchanged when including firm fixed effects. Therefore, we are not able to support Hypotheses 1 and 5. In Table 10 we repeat the analysis in Table 9, using Tobin's Q as the dependent variable. We note that after including firm fixed effects staggered board is positively related to Tobin's Q. All other governance variables remain insignificant.

In Tables 11 and 12 we report the results by country when the dependent variable is Total Return and Tobin's Q, respectively, controlling for time and firm fixed effects. We note a significant increase in the R-squared statistics across the country models when comparing to the results reported in Tables 7 and 8. The results remain similar to those reported in Tables 7 and 8, with increased significance. When examining the impact on market returns CEO Chairman is significant and negative in five of the countries – Belgium, Denmark, Finland, Germany, and the Netherlands and significant and positive in four of the European

markets – Austria, Greece, Italy, and Portugal. Except for Austria, Greece, Italy, and Portugal rank lower on voice and accountability, regulatory quality, rule of low and control of corruption according to the Word Bank. Therefore, in such markets increased CEO power is associated positively with future returns. The effect of Board Size is mixed – the variable is significant and negative in France, Germany, Italy, and the UK, while it is positive and significant in Ireland, Netherlands, Spain, and Sweden. Contrary to our expectations Staggered Board is positive and significant in five countries, whereas it is negative and significant only in Denmark and the Netherlands. Finally, independent boards are significantly positively associated with market returns in Austria, Ireland, Italy, and Netherlands and largely insignificant in the rest of the markets. Turning to Table 12, after controlling for firm fixed effects, the results remain qualitatively unchanged. CEO Chairman has a mixed effects across countries. Board size is negative and significant in Belgium, Greece, and Portugal. Staggered board is largely insignificant except for Denmark, whereas Independent continues to have mixed effect with positive and significant coefficient in Germany and marginally negative significance in Belgium and Ireland.

We further examine whether the effect is different for larger vs smaller firms across countries but fail to observe any systematic differences.

In addition, in the cross-country models we also control for voice and accountability, government effectiveness, regulatory quality, rule of law and control of corruption scores, which we obtain from the World Bank. Including these controls does not affect the results regarding our main corporate governance variables of interest,

6. Conclusion

The question of how corporate governance decisions impact performance dates to the work by Adam Smith (1776). The literature advances the theory that smaller boards, independent directors, and gender diversity are positively related to profitability and value, whereas staggered boards and CEO-duality are negatively related to market returns and valuation. However, the empirical evidence supporting these theories is mixed and mostly based on US data.

We examine the relationship between board structure and performance for a sample of firms from 15 EU countries. We focus on the European Union firms, as several regulations involving corporate governance have been implemented universally in the EU, yet member countries have unique culture, different law traditions and business practices. Nevertheless, no studies, to our knowledge, have examined whether the effects of board composition are uniform across these countries and whether policies implemented at the EU level are effective in protecting shareholders' interests across the union countries. The analysis is performed on a rich data set including 77,440 firm observations for 15 European countries over the period of 2002-2018.

Our findings reveal that board size emerges as a significant predictor of market returns. Furthermore, we observe a negative association between CEO duality and market performance. Notably, the presence of a staggered board exhibits a positive relationship with performance, challenging conventional beliefs. Surprisingly, board independence does not show a significant correlation with performance across Europe.

Upon conducting a country-level analysis, we uncover that the associations between board structure and performance differ among countries. These variations highlight the importance of considering the specific contexts and characteristics of individual countries when designing corporate governance practices. Consequently, our results caution against recommending a one-size-fits-all corporate governance solution for companies across Europe.

Another driver influencing corporate governance decisions is investor perception (Bird, 1995; Lawrence and Stapledon, 1999). Lawrence and Stapledon (1999) note that regardless of whether independent directors add value, they should still be present in companies because investors perceive that they add value. Companies may add independent and female directors to cater to investors. For example, Coles et al. (1999) discusses TIAA-CREF that made the market publicly aware it will invest only in firms with outsider-dominated boards. Lawrence and Stapledon (1999) claim independent directors are perceived by the market as value adding, and that this can cause perception to become reality. Similarly, Ghosh et al. (2020) provide evidence that the increase of female representation in US firms in the past two decades is not associated with changing firm characteristics but rather with an increasing propensity of firms to add more female directors to cater to investors demands for increased gender diversity.

Our results show that without controlling for firm fixed effects market valuation as proxied by Tobin's Q is positively related to board independence and diversity. However, this effect disappears when controlling for unobserved firm characteristics.

In summary, our study contributes to the understanding of the intricate relationship between internal corporate governance mechanisms and market performance. By highlighting the nuanced impact of board characteristics and the country-specific nature of these associations, our research offers valuable insights for policymakers and practitioners seeking to optimize corporate governance frameworks in Europe. Our results are consistent with several works (see, e.g., Lawrence and Stapledon 1999, Hermalin and Weisbach 2003 and Ferreira et al. 2010) that conclude that different types of board composition may be appropriate for different types of companies and that optimal board structure is contingent on the characteristics of each company. However, given the scale of our study, it provides an important insight into the differences of these relationships across fairly similar countries that share similar levels of economic development and to some extent are partially centrally regulated. Our results suggest that regulations and quotas regarding governance structure should not be universally imposed, as the relationships in each country and even industry are quite different.

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Table 1. Summary Characteristics

This table presents the summary statistics for the variables used in the analyses based on a sample of 77,440 firm observations over the period 2002 – 2018.

Variable	Obs.	Mean	Stand. Dev.	Minimum	Maximum
Age	77,440	9.2163	10.2269	0	54
Board Size	77,440	12.1912	4.4720	1	38
CEO Chairman	77,440	0.2611	0.4392	0	1
Diversity (%)	44,080	25.8192	12.7089	0	85.2100
EBIT/ TA	77,440	0.0705	0.1112	-2.5065	3.1611
Employees	77,440	50549	76143	0	664,496
Independent (%)	77,440	53.3828	24.7179	0	100
Staggered Board	77,440	0.4345	0.4957	0	1
Strictly Independent (%)	34,890	45.2067	21.6001	0	100
Tobin's Q	54,151	1.6299	3.5869	0	30.0075
TD/ TA	77,440	0.2680	0.1796	0	3.8832
Total Return (%)	77,440	11.9610	40.6721	-99.6900	500.0000

Table 2. Pairwise Correlation Table

This table presents the pairwise correlation statistics of the variables used in the analyses based on a sample of 77,440 firm observations over the period 2002 – 2018.

	Total Return $_{t+1}$	Tobin's Q $_{t+1}$	EBIT/ TA	TD/ TA	Age	Employees	Board Size	CEO Chairman	Staggered Board	Independent
Total Return$_{t+1}$	1									
Tobin's Q $_{t+1}$	0.0398	1								
EBIT/ TA	0.1097	0.1334	1							
TD/ TA	-0.0714	0.0135	-0.1566	1						
Age	-0.0309	0.0114	-0.0349	-0.0289	1					
Employees	-0.0281	0.0246	-0.0577	0.0298	0.0664	1				
Board Size	-0.0427	-0.0113	-0.1036	0.0880	0.0324	0.3914	1			
CEO Chairman	-0.0132	0.0071	-0.0266	0.0205	-0.0112	0.1434	0.1916	1		
Staggered Board	-0.0061	0.0010	-0.0316	0.0501	-0.0137	0.1173	0.0605	0.1774	1	
Independent	-0.0120	0.0082	0.0014	-0.0456	0.0647	0.0046	-0.3063	-0.1275	0.0382	1

Table 3 Determinants of Market Returns

Table 3 presents the regression statistics from panel regressions based on a sample of 71,551 firm observations over the period 2002 – 2018 where the dependent variable is Total Return. All right-hand side variables are lagged by one year. Standard errors are clustered by firms. *, **, *** indicate significance at the 10, 5 and 1 percent levels, respectively.

	Model 1	Model 2	Model 3
	Total Return$_{t+1}$	Total Return$_{t+1}$	Total Return$_{t+1}$
EBIT/ TA	35.4436***	34.2048***	31.8296***
	(9.14)	(8.21)	(8.19)
TD/ TA	-11.4984***	-12.5488***	-11.8815***
	(-9.31)	(-8.48)	(-8.55)
Age	-0.0312**	-0.1103***	-0.0338***
	(-2.44)	(-8.76)	(-2.74)
Employees	0.0000	-0.0000***	-0.0000***
	(-1.51)	(-7.12)	(-5.65)
CEO Chairman	-0.5924*	-0.434	-0.5750*
	(-1.77)	(-1.23)	(-1.70)
Board Size	-0.2697***	-0.0992**	-0.1598***
	(-6.27)	(-2.21)	(-3.72)
Staggered	1.4048***	0.7219**	1.7553***
	(4.25)	(2.09)	(5.21)
Independent	0.0011	-0.0273***	0.0157**
	(0.18)	(-4.05)	(2.40)
Constant	15.0950***	16.6900***	-6.8009***
	(18.61)	(19.48)	(-6.23)
Industry Fixed Effects	NO	YES	YES
Country Fixed Effects	YES	YES	YES
Time Fixed Effects	YES	NO	YES
Observations	71,551	71,551	71,551
R-squared	0.194	0.034	0.201

Table 4 The Effect of Strictly Independent Directors and Diversity on Market Returns

Table 4 presents the regression statistics from panel regressions based on a sample of 18,145 firm observations over the period 2002 – 2018 where the dependent variable is Total Return. Standard errors are clustered by firms. *, **, *** indicate significance at the 10, 5 and 1 percent levels, respectively.

	Model 1	Model 2	Model 3
	Total Return$_{t+1}$	Total Return$_{t+1}$	Total Return$_{t+1}$
EBIT/ TA	29.5366***	27.7300***	28.3705***
	(4.40)	(4.62)	(4.20)
TD/ TA	-2.8206*	-4.9850**	-5.0522**
	(-1.71)	(-2.48)	(-2.56)
Age	-0.031	-0.0706***	-0.0288
	(-1.50)	(-3.26)	(-1.39)
Employees	-0.0000***	-0.0000***	-0.0000***
	(-4.96)	(-4.81)	(-4.91)
CEO Chairman	0.8773	3.2120***	1.9901***
	-1.4	-4.68	-3.08
Board Size	-0.3886***	-0.4224***	-0.3831***
	(-4.50)	(-4.17)	(-3.93)
Staggered	-0.0537	-2.1637***	-0.362
	(-0.08)	(-3.14)	(-0.53)
Strictly Independent	0.0091	-0.0333**	0.0147
	(0.66)	(-2.24)	(1.04)
Diversity	0.01	-0.0143	0.00
	(0.36)	(-0.50)	(0.01)
Constant	11.2728***	15.8464***	-4.269
	(6.94)	(8.73)	(-0.90)
Industry Fixed Effects	NO	YES	YES
Country Fixed Effects	YES	YES	YES
Time Fixed Effects	YES	NO	YES
Observations	18,145	18,145	18,145
R-squared	0.178	0.044	0.19

Table 5 Determinants of Tobin's Q

Table 5 presents the regression statistics from panel regressions based on a sample of 50,599 firm observations over the period 2002 – 2018 where the dependent variable is Tobin's Q. All right-hand side variables are lagged by one year. Standard errors are clustered by firms. *, **, *** indicate significance at the 10, 5 and 1 percent levels, respectively.

	Model 1	Model 2	Model 3
	Tobin's Q_{t+1}	Tobin's Q_{t+1}	Tobin's Q_{t+1}
EBIT/ TA	4.4187***	3.4447***	3.4972***
	(12.89)	(9.58)	(9.73)
TD/ TA	0.7459***	0.7883***	0.8574***
	(4.59)	(4.44)	(4.85)
Age	0.0023	0.0062**	0.0023
	(0.87)	(2.50)	(0.89)
Employees	0.0000***	0.0000***	0.0000***
	(4.20)	(2.87)	(2.91)
CEO Chairman	0.1594***	0.0703	0.0687
	(2.87)	(1.32)	(1.30)
Board Size	-0.0222***	0.0014	0.0045
	(-3.45)	(0.20)	(0.67)
Staggered	0.0384	-0.0435	0.0607
	(0.85)	(-1.05)	(1.36)
Independent	0.0030***	0.0038***	0.0030***
	(3.10)	-4.05	(3.14)
Constant	1.3849***	1.1604***	1.1277***
	(12.20)	(9.81)	(7.75)
Industry Fixed Effects	NO	YES	YES
Country Fixed Effects	YES	YES	YES
Time Fixed Effects	YES	NO	YES
Observations	50,599	50,599	50,599
R-squared	0.041	0.057	0.061

Table 6 The Effect of Strictly Independent Directors and Diversity on Tobin's Q

Table 6 presents the regression statistics from panel regressions based on a sample of 54,151 firm observations over the period 2002 – 2018 where the dependent variable is Total Return. Model 2 includes time and industry fixed effects. All right-hand side variables are lagged by one year. Standard errors are clustered by firms. *, **, *** indicate significance at the 10, 5 and 1 percent levels, respectively.

	Model 1	Model 2	Model 3
	Total Return$_{t+1}$	Total Return$_{t+1}$	Total Return$_{t+1}$
EBIT/ TA	5.5659***	4.6234***	4.6792***
	(10.18)	(8.97)	(8.97)
TD/ TA	0.6884***	0.7854**	0.8778***
	(2.65)	(2.54)	(2.83)
Age	0.0094**	0.0105***	0.0084**
	(2.20)	(2.60)	(2.06)
Employees	0.0000*	0.0000	0.0000
	(1.86)	(0.38)	(0.56)
CEO Chairman	0.1449	0.0389	0.0235
	(1.51)	(0.42)	(0.25)
Board Size	0.0059	0.0139	0.0225
	(0.44)	(1.00)	(1.63)
Staggered	0.0483	-0.0367	0.1155
	(0.47)	(-0.40)	(1.18)
Strictly Independent	-0.0016	-0.0045***	-0.0042***
	(-0.90)	(-2.84)	(-2.59)
Diversity	0.0106***	0.0090***	0.0083***
	(3.70)	(2.87)	(2.60)
Constant	1.0308***	1.3483***	0.6310*
	(5.25)	(6.53)	(1.82)
Industry Fixed Effects	NO	YES	YES
Country Fixed Effects	YES	YES	YES
Time Fixed Effects	YES	NO	YES
Observations	13,462	13,462	13,462
R-squared	0.071	0.098	0.102

Table 7 Determinants of Market Returns by Country

Table 7 presents the regression statistics from panel regressions by country based on a sample of 71,551 firm observations over the period 2002 – 2018 where the dependent variable is Total Return. All right-hand side variables are lagged by one year. We include time and industry fixed effects in all models. Standard errors are clustered by firm. *, **, *** indicate significance at the 10, 5 and 1 percent levels, respectively.

Total Return$_{t+1}$	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxemburg	Netherlands	Portugal	Spain	Sweden	UK
CEO Chairman	16.5958***	-14.9490***	-0.7754	-5.1223**	1.1751	-4.6461***	16.8788***	2.5662	0.2995	1.467	-13.4940***	8.9338**	-0.4927	-2.2819	0.185
	(5.26)	(-7.06)	(-0.23)	(-2.02)	(1.53)	(-4.41)	(5.80)	(0.53)	(0.21)	(0.17)	(-4.03)	(2.05)	(-0.66)	(-1.50)	(0.21)
Board Size	-0.0519	0.7693**	-0.9963	-0.2506	-0.3054***	-0.3492***	-0.9456*	1.1437***	-0.0142	0.7084	0.9335***	0.285	0.1107	0.0232	-0.3716***
	(-0.09)	(2.56)	(-1.59)	(-0.59)	(-2.97)	(-3.67)	(-1.77)	(3.91)	(-0.11)	(0.37)	(3.07)	(1.08)	(0.74)	(0.09)	(-3.05)
Staggered	2.2478	-0.2786	-6.1100**	16.7798**	-0.0759	-2.6164**	9.6354*	2.0293	3.9726***	13.6898**	-1.8939	28.0961*	2.8617***	-4.8076	2.4141***
	(0.91)	(-0.12)	(-2.11)	(2.02)	(-0.08)	(-2.40)	(1.86)	(0.64)	(2.89)	(2.30)	(-1.29)	(1.72)	(2.88)	(-1.65)	(2.87)
Independent	0.1632***	-0.2205***	0.01	-0.0285	-0.0103	0.0188	-0.2326***	0.3610***	0.1520***	0.2328	0.0668*	0.076	0.0098	0.0072	-0.0164
	(3.69)	(-4.94)	(0.21)	(-0.63)	(-0.56)	(1.55)	(-2.75)	(3.60)	(4.83)	(0.70)	(1.73)	(0.78)	(0.40)	(0.21)	(-0.82)
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Time FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	1,257	2,428	2,209	2,844	10,703	8,010	888	1,176	4,764	369	4,625	758	7,148	5,055	19,317
R-squared	0.376	0.323	0.254	0.301	0.292	0.306	0.409	0.337	0.316	0.398	0.323	0.325	0.265	0.265	0.152

Table 8 Determinants of Tobin's Q by Country

Table 8 presents the regression statistics from panel regressions by country based on a sample of 50,599 firm observations over the period 2002 – 2018 where the dependent variable is Tobin's Q. All right-hand side variables are lagged by one year. We include time and industry fixed effects in all models. Standard errors are clustered by firm. *, **, *** indicate significance at the 10, 5 and 1 percent levels, respectively.

Tobin's Q_{t+1}	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxemburg	Netherlands	Portugal	Spain	Sweden	UK
CEO Chairman	-0.7404	0.0101	0.3591**	0.3712*	0.0116	0.2926	-0.4743***	-0.0214	-0.0774	1.6447	1.0565*	-0.0289	0.1033	0.1543**	-0.2432**
	(-0.84)	(0.13)	(2.17)	(1.89)	(0.13)	(1.55)	(-2.84)	(-0.14)	(-0.32)	(1.26)	(1.75)	(-0.23)	(0.50)	(2.05)	(-2.31)
Board Size	-0.0114	-0.0365***	-0.0630**	0.021	-0.0206*	0.0208	-0.0942**	0.0799***	-0.0373*	-0.2634	-0.0114	-0.011	-0.0115	-0.0343***	0.0226
	(-0.88)	(-2.61)	(-2.24)	(1.43)	(-1.68)	(1.45)	(-2.13)	(2.86)	(-1.70)	(-0.63)	(-0.33)	(-1.16)	(-0.37)	(-2.61)	(1.16)
Staggered	-0.0795	-0.0932	0.5534***	0.1935	-0.1430*	0.0595	-0.045	-0.083	-0.6296***	0.5399	0.3016**	-0.4029	0.4441*	-0.0486	0.2773**
	(-0.54)	(-0.76)	(2.63)	(1.27)	(-1.89)	(0.41)	(-0.41)	(-0.38)	(-2.80)	(0.49)	(2.10)	(-0.93)	(1.72)	(-0.86)	(1.99)
Independent	-0.0021	-0.0026	-0.001	-0.0041	-0.0032*	0.0139***	0.0077*	-0.0297***	0.0051	0.0925**	0.0032	-0.001	-0.0135*	-0.0001	-0.0047**
	(-1.07)	(-0.83)	(-0.41)	(-1.30)	(-1.96)	(6.57)	(1.72)	(-3.78)	(1.19)	(2.15)	(1.13)	(-0.20)	(-1.76)	(-0.06)	(-1.98)
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Time FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	832	1,722	1,579	2,064	8,084	5,745	651	811	3,475	252	3,690	525	2,767	3,626	14,776
R-squared	0.152	0.213	0.18	0.137	0.075	0.062	0.241	0.255	0.069	0.255	0.072	0.172	0.114	0.098	0.109

Table 9 Determinants of Market Returns Controlling for Firm Fixed Effects

Table 9 presents the regression statistics from panel regressions based on a sample of 71,551 firm observations over the period 2002 – 2018 where the dependent variable is Total Return. We include in the models time and firm fixed effects. All right-hand side variables are lagged by one year. Standard errors are clustered by firms. *, **, *** indicate significance at the 10, 5 and 1 percent levels, respectively.

	Model 1	Model 2
	Total Return$_{t+1}$	Total Return$_{t+1}$
EBIT/ TA	36.7164***	36.0343***
	(10.95)	(6.18)
TD/ TA	-21.4393***	-16.8014***
	(-11.39)	(-3.09)
Age	0.1640**	-0.1456
	(2.27)	(-0.75)
Employees	-0.0001***	-0.0001***
	(-9.49)	(-4.68)
CEO Chairman	-1.2588**	3.7796***
	(-2.48)	(3.18)
Board Size	-0.1394**	-0.8128***
	(-1.97)	(-4.07)
Staggered	2.1846***	-0.577
	(5.87)	(-0.68)
Independent	0.0113	
	(1.31)	
Strictly Independent		0.014
		(0.69)
Diversity		-0.0512
		(-0.90)
Constant	-1.4664	13.7651**
	(-1.05)	(2.24)
Time and Firm Fixed Effects	YES	YES
Observations	71,551	18,145
R-squared	0.298	0.382

Table 10 Determinants of Tobin's Q Controlling for Firm Fixed Effects

Table 10 presents the regression statistics from panel regressions based on a sample of 50,599 firm observations over the period 2002 – 2018 where the dependent variable is Tobin's Q. We control in the models for firm and time fixed effects. All right-hand side variables are lagged by one year. Standard errors are clustered by firms. *, **, *** indicate significance at the 10, 5 and 1 percent levels, respectively.

	Model 1	Model 2
	Tobin's Q_{t+1}	Tobin's Q_{t+1}
EBIT/ TA	1.9642***	1.8733***
	(6.02)	(3.48)
TD/ TA	1.1956***	0.1036
	-3.59	-0.18
Age	0.006	0.0367
	(0.60)	-1.25
Employees	-0.0000*	0.0000*
	(-1.80)	-1.88
CEO Chairman	-0.0493	-0.0067
	(-0.91)	(-0.04)
Board Size	0.0066	0.0391
	-0.74	-1.31
Staggered	0.1017**	0.2022
	(2.19)	(1.63)
Independent	0.0016	
	(1.31)	
Strictly Independent		-0.0031
		(-1.10)
Diversity		-0.0003
		(-0.06)
Constant	0.9949***	1.0594*
	(5.29)	(1.92)
Time and Firm Fixed Effects	YES	YES
Observations	50,599	13,462
R-squared	0.279	0.376

Table 11 Determinants of Market Returns by Country Controlling for Firm Fixed Effects

Table 7 presents the regression statistics from panel regressions by country based on a sample of 71,551 firm observations over the period 2002 – 2018 where the dependent variable is Total Return. All right-hand side variables are lagged by one year. We include time and firm fixed effects in all models. Standard errors are clustered by firm. *, **, *** indicate significance at the 10, 5 and 1 percent levels, respectively.

Total Return$_{t+1}$	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxemburg	Netherlands	Portugal	Spain	Sweden	UK
CEO Chairman	17.0289***	-13.1887***	-2.8536	-8.8513***	-0.504	-4.0749***	15.9329***	-0.0888	4.4054***	-0.9858	-23.3268***	14.6048***	1.0665	-2.7895	-1.4447
	(3.73)	(-4.64)	(-0.87)	(-2.79)	(-0.54)	(-3.27)	(3.88)	(-0.01)	(2.80)	(-0.15)	(-4.93)	(2.63)	-0.83	(-1.14)	(-1.20)
Board Size	-0.1165	0.6111	-0.1521	-0.2932	-0.3684**	-0.3663**	-0.8136	1.4982***	-0.4888***	0.8946	0.6663**	0.7037**	1.2599***	0.9830**	-1.1824***
	(-0.17)	(1.46)	(-0.20)	(-0.89)	(-2.03)	(-1.97)	(-1.02)	(2.68)	(-3.07)	(0.42)	(2.05)	(2.00)	(6.72)	(2.42)	(-6.57)
Staggered	4.4111	2.116	-7.7288**	9.8178*	-0.743	0.3483	8.1445	1.0188	6.8491***	11.3775	-4.0426***	33.8937**	2.6553**	-5.0716	1.6120*
	(1.15)	(0.96)	(-2.16)	(1.90)	(-0.64)	(0.30)	(1.36)	(0.25)	(4.07)	(1.56)	(-3.38)	(2.10)	(2.19)	(-1.34)	(1.72)
Independent	0.2221***	-0.1091	-0.0685	-0.0073	-0.0380*	0.0019	-0.2263*	0.2717**	0.1891***	0.1309	0.0805**	0.0671	-0.0342	0.0093	-0.0327
	(4.41)	(-1.40)	(-1.47)	(-0.15)	(-1.65)	(0.13)	(-1.76)	(2.15)	(5.94)	(0.36)	(2.11)	(0.71)	(-1.12)	(0.22)	(-1.25)
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Time FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	1,257	2,428	2,209	2,844	10,703	8,010	888	1,176	4,764	369	4,625	758	7,148	5,055	19,317
R-squared	0.438	0.383	0.32	0.346	0.347	0.4	0.482	0.375	0.4	0.439	0.385	0.371	0.327	0.33	0.257

Table 12 Determinants of Tobin's Q by Country Controlling for Firm Fixed Effects

Table 8 presents the regression statistics from panel regressions by country based on a sample of 50,599 firm observations over the period 2002 – 2018 where the dependent variable is Tobin's Q. All right-hand side variables are lagged by one year. We include time and firm fixed effects in all models. Standard errors are clustered by firm. *, **, *** indicate significance at the 10, 5 and 1 percent levels, respectively.

Tobin's Q_{t+1}	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxemburg	Netherlands	Portugal	Spain	Sweden	UK
CEO Chairman	-0.8107	-0.0199	0.4132**	0.2403	0.1296	-0.2251	-0.6258*	0.0238	0.0443	0.6575	0.5386*	0.0362	0.1759	0.0194	-0.3191***
	(-0.84)	(-0.22)	(2.46)	(1.16)	(1.39)	(-0.94)	(-1.95)	(0.16)	(0.15)	(0.33)	(1.65)	(0.21)	(0.68)	(0.28)	(-2.92)
Board Size	0.0131	-0.0502***	0.0137	0.0155	0.0333	0.0087	-0.0608*	0.0469	0.0151	-0.2153	-0.0255	-0.0270*	-0.006	0.0079	-0.0147
	(0.76)	(-2.81)	(0.30)	(0.83)	(1.64)	(0.25)	(-1.78)	(1.37)	(0.55)	(-0.59)	(-0.59)	(-1.87)	(-0.14)	(0.61)	(-0.70)
Staggered	0.0224	0.0435	0.4752***	0.0177	0.0332	-0.0531	-0.5427	0.1168	-0.1115	-0.7284	0.1659	-0.6675	0.1989	0.0421	0.0825
	(0.15)	(0.47)	(2.87)	(0.11)	(0.39)	(-0.26)	(-1.46)	(0.46)	(-0.33)	(-0.47)	(1.19)	(-1.02)	(0.66)	(0.73)	(0.71)
Independent	-0.0021	-0.0046*	-0.0031	-0.0016	-0.0016	0.0058**	-0.0047	-0.0179*	-0.0005	0.0354	-0.002	-0.0003	-0.0043	-0.001	0.0012
	(-1.01)	(-1.84)	(-1.39)	(-0.49)	(-0.79)	(2.02)	(-0.57)	(-1.94)	(-0.10)	(0.61)	(-0.66)	(-0.07)	(-0.39)	(-1.26)	(0.43)
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Time FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	832	1,722	1,579	2,064	8,084	5,745	651	811	3,475	252	3,690	525	2,767	3,626	14,776
R-squared	0.319	0.446	0.343	0.268	0.217	0.215	0.532	0.355	0.284	0.419	0.204	0.261	0.229	0.443	0.334