Board Committee Diversity and Its Effects on Financial Performance: A Study of Russian Firms

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Abstract

As one of the key elements of corporate financial architecture, corporate governance significantly affects corporate performance. However, academic papers focusing on board characteristics rarely analyze the composition of board committees, while a specific Russian regulatory and corporate environment limit an applicability of results obtained for foreign samples. This study aims to bridge these gaps by analyzing the effects of composition of key board committees on market-based indicators of financial performance of the 100 largest Russian public non-financial companies over an 8-year period from 2014 to 2021. The results of panel data analysis indicate that the professional experience diversity of members of audit, strategy and sustainability committees significantly affects Tobin's Q and total shareholder return (TSR); moreover, the effects of experience diversity are stronger than the effects of board committee size, independence, and educational diversity. I also find that powerful CEOs can weaken the positive effects of board committee composition on corporate performance or, vice versa, mitigate some negative effects, which is in line with some previous findings. In addition to academic contribution, this study offers valuable insights for practical application while analyzing changes in corporate governance structure of Russian companies, which is especially important in the context of the massive transformations taking place since February 2022.

Keywords: corporate governance, board of directors, board committees, CEO power, corporate financial performance, resource-based theory

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Introduction

Corporate governance, being one of three elements of corporate financial architecture [1], significantly affects mechanisms of making key decisions about business models and investing and financing activities and, as a result, determines corporate financial performance and company value. The board of directors, as the supreme body in the corporate governance structure, performs a *monitoring* function by controlling the activity of the senior management team and the CEO and ensuring disclosure quality and an *advisory* function by analyzing corporate performance and position in the industry and offering shareholders ideas for further company development. While performing these functions, the board needs to balance the interests of shareholders, management and other internal and external stakeholders [2]. As a result, board characteristics significantly affect corporate performance in both developed and emerging markets, including Russia [3–8].

Although many papers have contributed to the investigation of the impact of different board characteristics on corporate financial performance, there are several gaps in the academic literature. Firstly, most papers focus on overall board composition characteristics, while only a limited number of authors investigate the effects of board committee characteristics on corporate performance. Secondly, while different aspects of corporate governance are widely studied for the US, UK, Canada and EU countries, there is only a limited number of publications devoted to emerging markets (except China). At the same time, emerging economies have not only increased their share in the global GDP during the last decades but also feature specific institutional environments, limiting the applicability of results obtained for developed markets. For example, board size, independence, gender diversity and multiple directorship are significantly lower in Russia than in developed countries and some emerging ones, while the presence of foreign board members and board activity are relatively high [6]. Additionally, due to such features of the corporate sector in Russia as ownership concentration, controlling shareholders' and managers' power, and relatively poor protection of minority shareholders' rights, boards tend to play an *advisory* than a *monitoring* (controlling) role [4]. Thirdly, while many existing papers consider CEO power as a significant determinant of corporate performance, some of the most widely applied indicators of CEO power are not applicable to the Russian case (CEO duality) or can be hardly applied due to the lack of relevant information (CEO remuneration structure).

This paper aims to fill these gaps by analyzing the impact of various characteristics of the composition and diversity of audit, strategy, and sustainability board committees. It contributes to the existing literature by providing comprehensive evidence based on an analysis of the 100 largest Russian corporations listed on the Moscow Stock Exchange from 2014 to 2021. The results demonstrate that the professional expertise diversity of audit, strategy, and sustainability board committees affects corporate financial performance more significantly than board committee composition and educational diversity, which is in line with recent findings for emerging markets [9–11]. Secondly, I demonstrate that CEO power negatively moderates these effects with the help of an integrated indicator based on several CEO characteristics, which can be used for further research in the Russian context. The negative effects of CEO power due to the board's limited ability to perform *monitoring* and *advisory* roles has been demonstrated in previous papers focusing on the impact of corporate governance on corporate performance [8; 12; 13]. In addition to their academic relevance, these findings can be applied in practice by shareholders and consulting agencies looking for candidates for corporate boards and by market analysts studying Russian public companies.

To contextualize the study within the broader field, I first examine the existing body of research devoted to the impact of board characteristics, board committees and CEO power on corporate financial performance. In subsequent sections, I formulate the hypotheses and present the methodology and results of my empirical research, interpreting them on the basis of the literature review. In the final section, I summarize the applicability of the obtained results for business practitioners and policy makers and identify perspective directions for further research.

Literature Review

Most of the papers studying the impact of corporate governance characteristics on corporate performance focus on the board of directors (board) as the supreme governing body and the chief executive officer (CEO) as the supreme executive. Researchers highlight two key roles played by boards that affect corporate performance: their *monitoring* (or *supervisory*) and *advisory* functions.

Many existing papers focus on the board's ability to perform a *monitoring* (or *supervisory*) function, controlling and evaluating executives' activities and preventing or mitigating *agency conflicts* appearing due to the opportunistic behavior of top managers. This approach is in line with agency theory formulated by Jensen and Meckling [14]. Researchers who analyze the effects of board composition on corporate performance from this perspective claim that board independence improves corporate governance quality by enhancing the board's ability to perform its monitoring function, allowing it to protect shareholder rights more efficiently [10; 15–18]. Mitigating the agency conflict, independent board members contribute to overall a company's performance by increasing its investment attractiveness [19; 20], reducing the cost of capital [21] and enhancing the quality of corporate financial and non-financial disclosure [11]. However, these positive effects may be weakened by the higher busyness of independent directors and, as a result, their lack of time to consider all issues efficiently [22].

Another point of view is presented by *stakeholder theory*. According to this approach formulated by Robert Edward Freeman [23], a company should not only meet the interests of financial stakeholders (shareholders and debt hold-

ers), but also identify and balance the interests of a broader range of stakeholders (such as employees, suppliers, consumers, local communities, etc.). Along with the board's *monitoring* role, researchers consider its *advisory* roles [24] in the development of firm strategy, defining priorities, addressing strategic issues, etc. A number of authors claim that the board's capability to perform these functions improves company financial performance and value creation [25–31]. Researchers consider board members' independence [31–32], gender diversity [33–35] and national diversity [16] as positive factors, which allow them to take the interests of a broader range of stakeholders into account when making decisions. A more diversified board represents a broader range of points of view [36–37], leading to more efficient information processing and decision making. However, these effects may be diluted in the case of a low level of representation of female directors on the board [38]. Moreover, many authors argue that it is more important to evaluate unique resources – expertise, social ties, reputation – provided by board members [28; 30; 39–40] and their participation in board committees [41].

As boards need to address a broad range of issues from day-to-day business to strategic planning, board members need a wide range of knowledge and competencies to perform both monitoring and advisory roles. Thus, in recent decades a growing number of researchers have considered board characteristics from the perspective of *resource-based theory* (or a *resource-based view*). According to this approach, a company's resilience, performance and value depend on its access to unique resources such as technologies, knowledge, skills, information, etc. [42]. Following this concept, Hillman and Dalziel [25] coined the term *board capital*, which includes the human capital (knowledge, professional skills and experience) and the social capital (professional ties and reputation) of board members. Boards with diversified human capital mitigate the negative effects of board dependency (higher share of executives, CEO duality) [27] and contribute to company innovativeness [43]. Such boards also determine company strategy, actively consulting CEOs [44] and controlling managers' performance more effectively [45]. In line with this point of view, some researchers have underlined that higher board independence contributes to better monitoring quality only in the case of sufficient specialized knowledge and skills [46–47]. Foreign board members also contribute to the higher efficiency of monitoring and decision-making processes by bringing new knowledge and practices of corporate governance [48–49] as well as professional ties and reputation among foreign stakeholders [48; 50], which is especially important for emerging markets. Additionally, domestic board members with an experience of studying or working abroad also bring new knowledge and values affecting decisions made by the board [30]. However, it is noteworthy that the contribution of foreign directors to corporate performance is more significant in the case of sufficient firm-specific knowledge and experience [16; 30; 40]. Additionally, the positive effects of human and social capital provided by foreign board members

may be undermined due to the latter's greater busyness and lack of communication and coordination [51–52].

Several papers have evaluated the effects of board members' human capital by analyzing their educational background [16; 53–54] and professional experience [11; 53; 55–57]. Educated directors contribute to better board monitoring performance [33; 58]; moreover, directors' educational background significantly affects their values and, as a result, their approach to the company's strategic development [30; 54; 59]. However, a possible drawback of board members' educational diversity is the segmentation among directors and the difficulty of communication, lowering board efficiency [16]. Some authors such as Fedaseyeu et al. [55] claim that professional skills and knowledge are the most significant determinants of the director's role in the board. Specialized professional experience of board members in finance and audit enhances monitoring quality [60] and the efficiency of investing activity [53]. Wang [57], considering board expertise diversity in S&P 1500 companies, claims that the level of expertise diversity has a non-linear positive impact on the implementation of new approaches, practices and technologies (innovations): on the one hand, boards with expertise diversity aggregate a wide range of unique knowledge and skills yet, on the other hand, internal conflicts and communication problems appear.

Another dimension of board members' expertise is firm-specific and industry-specific experience. Many researchers use board tenure as a proxy for these factors [10; 54; 61]. However, the effects of board members' tenure are non-linear: on the one hand, new board members provide the company with new skills, as they are less biased and give their colleagues a new perspective on the company; on the other hand, longer-tenured directors are better informed about firm-specific issues [62]. As a result, there is evidence that board members' tenure diversity and industry-specific experience contribute to corporate performance by improving monitoring quality [63], investing efficiency [64] and overall financial performance [10].

Although most authors focus on overall board composition characteristics, some papers study the effects of board committee characteristics on corporate performance. The audit committee is the most widely studied as its members monitor the quality of financial and non-financial reporting and provide the necessary financial expertise for efficiently monitoring the company's financial results. Researchers have found that a higher level of audit committee independence and activity (i.e., a higher frequency of committee meetings) enhances monitoring quality and, as a result, the company's transparency and performance [11; 37; 65–67]. Additionally, the professional experience of audit committee members in finance and audit contributes to both corporate accounting-based and market-based financial performance [60; 65]. As for other board committees, many researchers have focused in recent years on the effects of the sustainability committee. However, they have mostly considered the impact of sustainability committee composition on corporate non-financial performance

and disclosure [35; 68–70]. At the same time, members of the sustainability committee also provide the company with unique knowledge and experience, which may affect its financial performance. Additionally, according to results obtained by Eberhardt-Toth [68] for the sustainability committee, such characteristics as committee size and independence also significantly affect its effectiveness. Supporting these findings, Jarboui et al. [70] show that the effectiveness of board sustainability committee is significantly affected by its members' academic background and professional experience.

While the board of directors is widely investigated as the supervisory governing body, many authors analyze the characteristics of the CEO as the top executive implementing strategies offered by the board and determining corporate performance. According to the *upper echelons theory* formulated by Hambrick and Mason [71], the CEO's personal values, cognitive style, knowledge and experience significantly affect strategic decisions and, as a result, corporate performance [72–74]. At the same time, most researchers include CEO power in their models as a factor affecting the board's ability to perform its monitoring function and moderating the effects of the board advisory function. For example, Baldenius et al. [24] distinguish two models: centralization, with decisions made mostly by the board, and delegation, with greater CEO power yet with a strong board monitoring function. They demonstrate that a powerful CEO can implement investment decisions more quickly and effectively than the board in the centralization model yet that the CEO's biases can harm company performance. This is in line with results obtained for several emerging countries [34; 75–76].

Most researchers consider the effects of CEO power on corporate governance quality and corporate performance from the *agency theory* perspective, claiming that greater CEO power is a negative factor which broadens the CEO's ability to deter the board's monitoring function [8; 64; 77–79]. For instance, Merendino and Melville [22], finding a negative impact of CEO duality on the accounting-based financial performance (ROA) of Italian public companies, assume that powerful CEOs mitigate the positive effects of board composition and determine board composition in line with their personal interests. A similar effect of the increase in the power of the CEO over the board has been found in the Russian case [8].

To assess CEO power, most authors include CEO duality (i.e., a single person combining CEO and board chairperson roles) in their models [10; 11; 64; 66; 76; 80]. However, this parameter is not relevant to the Russian case, as the Russian Corporate Governance Code does not allow CEO duality. Another way to measure CEO power is to consider CEO compensation and ownership. For example, Park et al. [81] find that a higher level of CEO ownership strengthens the negative effects of CEO hubris on the corporate performance of Korean public companies, arguing that powerful and arrogant CEOs may invest corporate resources into promoting their personal brand, decreasing the overall quality of corporate governance. Muravyev et

al. [82] do not find a significant impact of CEO ownership and tenure on corporate financial performance as measured by ROA, ROE, Tobin's Q, and PBC (private benefits of control). At the same time, they show that companies governed by CEOs only (without a board of directors) demonstrate poorer performance, which may indicate the need for curbing CEO power.

Finally, some authors use complex CEO power indices, including the CEO's role on the board (CEO duality and/or participation in board committees) as well as CEO remuneration, ownership and tenure. A case in point is the study by Velte [83] that analyzes the moderating effect of CEO power on the relation between the corporate ESG (Environmental, Social, and Governance) rating and financial performance. Using an integrated CEO power index including CEO pay slice, CEO ownership and CEO tenure for a sample of German public companies, the author demonstrates that powerful CEOs enhance the positive impact of a higher ESG rating on both corporate accounting-based (ROA, ROE) and market-based (Tobin's Q) performance indicators. However, it is noteworthy that, in Germany, the board monitoring function is strictly determined by legislation. Additionally, operating in the regulatory environment of the civil law system, German companies have to be more stakeholder-focused than companies operating in common law countries, such as the US and the UK. These findings demonstrate that powerful CEOs can contribute to corporate performance by implementing board decisions more effectively thanks to effective control. However, Zavertiaeva and Ershova [8] and Nurgozhaeva [84] have shown that this is not the case in Russia.

To sum up, despite the plethora of studies devoted to the effects of board characteristics and CEO power on financial performance, there exist several considerable research gaps. Firstly, most researchers focus on widespread board parameters such as board independence, gender, national diversity and generational diversity, paying less attention to board members' education and professional experience. Secondly, even when researchers include such parameters, they largely consider only certain types of education (members with MBA or postgraduate degrees or majors in particular fields) and professional experience (industry-specific experience, experience related to corporate sustainability, etc.), rarely examining human capital diversity. Thirdly, as mentioned above, existing literature tends to treat board committees as homogenous entities, neglecting the differences in the roles of various committees and, as a result, the different effects of their members' characteristics. Moreover, few studies have made an in-depth analysis of the composition of board committees. Some papers study the composition of audit committees [11; 37; 65] yet only consider a limited number of characteristics, such as members' independence and financial expertise and the number of meetings. Finally, although many papers investigate the effects of CEO power on corporate performance, few of them analyze its moderating role on the impact of board characteristics. I aim to bridge these gaps by examining a broad range of characteristics of board committees

in the largest Russian public non-financial companies and their correlation with corporate financial performance, along with the moderating effect of CEO power on this correlation.

Hypotheses

The review of existing literature highlights gaps in our understanding of the impact of board committee characteristics in emerging markets, including Russia. Based on these insights, I propose the following hypotheses to guide our investigation.

H1. A higher board committee independence level, ceteris paribus, enhances corporate financial performance.

In line with *agency theory*, independent directors strengthen the board's monitoring role, while, according to *resource-based theory*, independent directors bring unique experience, knowledge and social ties [9; 66]. Some papers also demonstrate the positive impact of the independence of board audit and sustainability committees on corporate performance [37; 68].

H2. Greater board committee tenure diversity, ceteris paribus, enhances corporate financial performance.

According to previous results [63], it is necessary to reach a "trade-off" between the new views and expertise provided by newly appointed board members [62] and the firm-specific knowledge and skills of tenured directors [57]. As a result, boards that are more diversified in terms of tenure perform both advisory and monitoring functions more efficiently.

H3. A higher share of foreign directors in board committees, ceteris paribus, enhances corporate financial performance.

I consider the role of foreign board members from the *resource-based theory* perspective [16; 49] by assuming that they provide the company with unique knowledge, skills and best practices of corporate governance. As a result, I assume that foreign directors contribute to the overall human capital of board committees.

H4. A higher level of board committee education diversity, ceteris paribus, enhances corporate financial performance.

In accordance with previous studies [33; 54; 58], I assume that board members' diversity in terms of education attainment (undergraduate, graduate, MBA, academic degrees) and major (economics, finance, technical fields, law, humanities) contributes to financial performance.

H5. The diverse professional expertise of board committees, ceteris paribus, enhances corporate financial performance.

Based on the results of existing studies [5, 44, 57, 85–86], I assume that the presence of members with diversified expertise (finance and audit, technical services, public service, CEO-level expertise) in board committees enhances corporate financial performance.

H6. A higher level of CEO power, ceteris paribus, moderates the positive effects of board committee human capital on financial performance.

I assume that a higher level of CEO power has a negative impact due to a weaker board monitoring function [12, 22] and a higher CEO ability to negatively affect decision-making processes in the board in order to pursue short-term goals [13], in line with *agency conflict theory*. Following the results of Hayness and Hillman [44], I assume that a powerful CEO moderates the effects of board committee characteristics.

The next section describes the empirical approach used to test these hypotheses.

Sample and Methodology

In order to test the hypotheses formulated above, I analyze a sample of the 100 largest Russian public non-financial companies listed on the Moscow Stock Exchange over the 8-year period from 2014 to 2021. Despite the limited sample, all these companies are among the Top-100 Russian companies in terms of market capitalization. Focusing on the largest companies ensures that the findings are reflective of organizations that have a significant impact on the Russian economy. Additionally, these companies maintain a relatively high level of disclosure related to corporate governance issues, providing information about board and committee composition and characteristics of members required for rigorous analysis. I analyze the period before 2022 due to the drastic changes of financial indicators and market-based indicators of the largest Russian companies in 2022 caused by massive sanctions, which would reduce the explanatory power of regressions.

Regarding the analytical techniques, this study employs a combination of approaches to panel data analysis. Descriptive statistics provide an initial overview of the data, enabling the identification of patterns and trends within the sample. I use GLS (generalized least-square) random-effect and OLS (ordinary least-square) fixed-effect estimators at the first stage of econometric modelling. Then I apply two-step GMM (Generalized Method of Moments) Arellano-Bond dynamic panel-data estimators in order to address potential endogeneity issues and provide robust estimates of the impact of board committee characteristics on corporate financial performance. This method is particularly suited to the panel data structure of the study, allowing for dynamic analysis over the eight-year period. As this method is widely applied in corporate governance research, the methodology is both rigorous and aligned with current academic standards [18; 22; 87].

I use two market-based indicators of corporate performance. Firstly, Tobin's Q calculated as

$$TobinsQ_{it} = (MarketCap_{it} + TotalDebt_{it}) / TotalAssets_{it}$$

This indicator evaluates the efficiency of the usage of company assets to create value for both shareholders and debtholders. According to previous research, both board composition and human and social capital significantly affect Tobin's Q [9; 11; 34; 77; 88], and I assume that board committee characteristics also significantly affect this indicator.

Secondly, I use Total Shareholder Return (TSR) indicators calculated as

$$TSR_{it} = (PriceEnd_{it} - PriceBeg_{it} + Dividends_{it}) / PriceBeg_{it}.$$

This indicator helps to evaluate corporate performance for shareholders in year t.

I analyze the sample by building regressions using the following specifications:

(M1) $Fin\_Perf_{it} = \beta_0 + \Sigma \beta_k \times BoardComCharacteristics_{it} +$
$+ \Sigma \beta_j \times Firm\_Parameters_{it} + IndustryEffects +$
$+ YearEffects + \varepsilon_{it}$,

k from 1 to 11, j from 12 to 23;

(M2) $Fin\_Perf_{it} = \beta_0 + \Sigma \beta_k \times BoardComCharacteristics_{it} \times$
$\times (1 - CEO\_Power_{it}) + \Sigma \beta_j \times Firm\_Parameters_{it} +$

$+ IndustryEffects + YearEffects + \varepsilon_{it}$,

k from 1 to 11, j from 12 to 23.

The variables' descriptions are given in Appendix 1.

Results

Descriptive statistics

Table 1 presents the descriptive statistics of the sample in terms of corporate governance – CEO power and board committee characteristics.
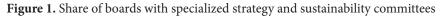
Table 1. Descriptive statistics: corporate governance

Variable	Obs	Mean	Std. dev.	Min	Max
CEO power					
CEO_Power_{it}	703	0.3043	0.2203	0	0.889
Board committee					
$Audit\_dummy_{it}$	703	0.8919	0.3107	0	1
$Strat\_dummy_{it}$	703	0.6145	0.4870	0	1
$Sust\_dummy_{it}$	703	0.1835	0.3873	0	1
Audit committee characteristics					
$AuditComSize_{it}$	627	3.3716	1.2373	1	5
$AuditComIndep_{it}$	627	0.6104	0.3694	0	1
$AuditComNatDiv_{it}$	627	0.2792	0.3490	0	1
$AuditComTenureDiv_{it}$	627	0.3023	0.2520	0	0.75
$AuditComEduLevDiv_{it}$	627	0.4121	0.2529	0	0.875
$AuditComEduMajorDiv_{it}$	627	0.5030	0.2353	0	0.9
$AuditComFinExp_{it}$	627	0.4795	0.3596	0	1
$AuditComTechExp_{it}$	627	0.2817	0.3073	0	1
$AuditComIndExp_{it}$	627	0.6588	0.3774	0	1
$AuditComCEOExp_{it}$	627	0.4870	0.3636	0	1
$AuditComStateExp_{it}$	627	0.2031	0.2724	0	1
Strategy committee characteristics					
$StratComSize_{it}$	432	4.3680	1.9757	2	6
$StratComIndep_{it}$	432	0.3198	0.2952	0	1
$StratComNatDiv_{it}$	432	0.1860	0.2647	0	1
$StratComTenureDiv_{it}$	432	0.3677	0.2425	0	0.775
$StratComEduLevDiv_{it}$	432	0.4344	0.2470	0	0.83
$StratComEduMajorDiv_{it}$	432	0.5225	0.2352	0	0.94
$StratComFinExp_{it}$	432	0.3722	0.3253	0	1
$StratComTechExp_{it}$	432	0.2876	0.2948	0	1
$StratComIndExp_{it}$	432	0.6917	0.3614	0	1
$StratComCEOExp_{it}$	432	0.5429	0.3449	0	1
$StratComStateExp_{it}$	432	0.2222	0.2980	0	1
Sustainability committee characteristics					
$SustComSize_{it}$	129	3.3256	1.5060	2	4
$SustComIndep_{it}$	129	0.4567	0.3074	0	1
$SustComNatDiv_{it}$	129	0.3198	0.3226	0	1

Variable	Obs	Mean	Std. dev.	Min	Max
SustComTenureDiv$_{it}$	129	0.3383	0.2652	0	0.72
SustComEduLevDiv$_{it}$	129	0.3845	0.2662	0	0.875
SustComEduMajorDiv$_{it}$	129	0.4836	0.2830	0	0.88
SustComFinExp$_{it}$	129	0.3940	0.3866	0	1
SustComTechExp$_{it}$	129	0.3167	0.3151	0	1
SustComIndExp$_{it}$	129	0.7384	0.3340	0	1
SustComCEOExp$_{it}$	129	0.7058	0.2974	0	1
SustComStateExp$_{it}$	129	0.1810	0.2953	0	1

Source: created by the author.

The average board in the sample had 10 members, from 27.8 to 31.8% of whom were independent. However, the average share of women among board members increased from 6.8% in 2014 to 12.5% in 2021. One more considerable change occurred in terms of board committees: while the percentage of boards with audit committees stayed constant (90%) during the whole period of time, the share of boards with strategy and sustainability committees increased (Figure 1).

Figure 1. Share of boards with specialized strategy and sustainability committees

Source: created by the author.

The chart shows that there was a significant shift in 2021 towards the creation of specialized sustainability committees. In previous periods sustainable development issues had frequently been considered by strategy committees [89].

The largest committees in Russian company boards tend to be strategy committees (more than four members on average), while audit and sustainability committees include about three members on average. At the same time, audit committees are the most independent ones (61%), followed by sustainability committees (45.7%). The highest share of foreign directors was in sustainability committees (32%), while the lowest was in strategy committees (18.6%). The average tenure diversity and education diversity in different committees do not differ significantly. As for experience, audit committees accumulate more members with specialized experience in economics & finance (47.9% of committee members on average). The share of members with technical experience does not differ considerably, being at the level of 28-32% (with a higher proportion in sustainability committees). Finally, as expected, the highest share of members with experience in public service is in strategy committees (22.2%).

Table 2 presents the descriptive statistics of company-specific variables, including dependent variables indicating financial performance, and control variables.

Table 2. Descriptive statistics: company financial characteristics

Variable	Obs	Mean	Std. dev.	Min	Max
Financial performance					
$TobinsQ_{it}$	703	0.9789	0.8836	0.1024	10.1802
TSR_{it}	703	0.2655	0.9928	-0.8096	4.0426
Company-specific characteristics					
$Firm\_Size_{it}$	703	12.1823	1.7482	8.0645	17.1131
$FirmAge_{it}$	703	3.3265	0.7403	1.0986	5.5683
$RevGrowth_{it}$	703	0.1867	1.2706	-0.7000	3.8086
$Debt\_Level_{it}$	703	0.3317	0.2293	0.0349	1.6355
$CAPEX\_Level_{it}$	703	0.1219	0.3270	-0.1119	0.9780
ROA_{it}	703	0.0579	0.1249	-1.1642	0.6535
$Oper\_Perf_{it}$	703	0.2559	0.4299	-5.1936	5.1920
$CashHold_{it}$	703	0.1361	1.1822	0	1.3843
$FinSlack_{it}$	703	-0.3427	0.7328	-1.4319	0.8390
$OwnConcentr_{it}$	703	1.4434	1.8891	0.097	9.99
$StateOwn_{it}$	703	0.1863	0.2872	0	1
$Big4_{it}$	703	0.6856	0.4645	0	1

Source: created by the author.

Econometric analysis

At the first stage I conduct panel-data analysis with GLS random-effect (RE) and OLS fixed-effect (FE) regressions, using the White test to check for heteroscedasticity and VIF to identify multicollinearity. In order to make a choice between pooled OLS, RE and FE regressions, I use the Breusch-Pagan, Wooldridge, and Hausman tests.

At the second stage, in order to address issues of endogeneity and heteroscedasticity, I use two-step GMM models with Arellano-Bond dynamic panel-data estimators. For the post-estimation of two-step GMM regressions, I use the Sargan test of overidentifying restrictions and the Arellano-Bond test for first- and second-order autocorrelation in the first-difference errors.

Stage 1. Random-effect and fixed-effect models

To start with, I analyze the impact of board committee characteristics on Tobin's Q, using the specifications of Model 1. Taking into account the sample's limitations, I build three regressions for each committee to evaluate the following effects:

- Committee composition characteristics: size, independence, national diversity, tenure diversity (Model 1a);
- Committee members' education diversity (Model 1b);
- Committee members' professional experience (Model 1c).

The Breusch-Pagan and Hausman tests demonstrate that fixed-effect regressions describe the data better than pooled OLS and GLS random-effect regressions. The results of these regressions are presented in Tables 3–5.

Table 3. Results of fixed-effect OLS regressions for the impact of board committee composition characteristics on Tobin's Q

	Model 1a_Tobin's Q		
Committee:	**Sustainability** $(SustCom_{it})$	**Strategy** $(StratCom_{it})$	**Audit** $(AuditCom_{it})$
ComSize	0.0216 (0.027)	-0.0031 (0.012)	-0.0105 (0.023)
$ComIndep_{it}$	0.0812 (0.143)	0.0578 (0.130)	0.0657 (0.131)
$ComNatDiv_{it}$	-0.1378 (0.145)	-0.1091 (0.193)	-0.1766 (0.155)
$ComTenureDiv_{it}$	0.3431 (0.218)	0.1842 (0.134)	0.0812 (0.120)
ROA_{it}	0.1853 (0.215)	0.2119 (0.233)	0.2371 (0.235)
ROA_{it-1}	0.5032** (0.233)	0.5246** (0.224)	0.5085** (0.250)

Committee:	Model 1a_Tobin's Q		
	Sustainability (SustCom$_{it}$)	Strategy (StratCom$_{it}$)	Audit (AuditCom$_{it}$)
Firm_Size$_{it}$	-0.4229*** (0.114)	-0.3539*** (0.102)	-0.3869*** (0.112)
RevGrowth$_{it}$	0.0140 (0.074)	0.0166 (0.076)	0.0247 (0.073)
Debt_Level$_{it}$	0.6370** (0.219)	0.6441** (0.219)	0.6715** (0.225)
CAPEX_Level$_{it}$	0.0127 (0.015)	0.0053 (0.016)	0.0058 (0.017)
Oper_Perf$_{it}$	0.0560** (0.026)	0.0665** (0.024)	0.0618** (0.026)
CashHold$_{it}$	-0.7663** (0.367)	-0.6996** (0.349)	-0.7274* (0.369)
FinSlack$_{it}$	0.0458 (0.030)	0.0395 (0.030)	0.0390 (0.030)
OwnConcentr$_{it}$	-0.0052 (0.020)	-0.0073 (0.023)	-0.0118 (0.020)
StateOwn$_{it}$	-0.0575 (0.324)	-0.0119 (0.377)	-0.0667 (0.318)
Big4$_{it}$	0.0235 (0.063)	0.0377 (0.065)	0.0351 (0.065)
CONST	6.0109*** (1.411)	5.0870*** (1.243)	5.6044*** (1.386)
R²	0.2326	0.2252	0.2173
Robust standard errors	Yes	Yes	Yes
Observations	574	574	574
Regression type	OLS FE	OLS FE	OLS FE
Hausman test p-value	0.0000	0.0000	0.0000

Note: standard errors in parenthesis; statistical significance: *p<0.1 **p<0.05 ***p<0.01.
Source: created by the author.

Table 4. Results of fixed-effect OLS regressions for the impact of the education diversity of board committee members on Tobin's Q

Committee:	Model 1b_Tobin's Q		
	SustCom$_{it}$	StratCom$_{it}$	AuditCom$_{it}$
ComEduLevDiv$_{it}$	0.1405 (0.221)	0.3108** (0.116)	-0.0043 (0.150)
ComEduLevDiv$_{it-1}$	0.3329** (0.138)	0.1170 (0.123)	0.1225 (0.121)
ComEduMajorDiv$_{it}$	0.1687 (0.166)	-0.1073 (0.098)	0.1188 (0.163)
ComEduMajorDiv$_{it-1}$	-0.0727 (0.221)	-0.2916** (0.121)	-0.0187 (0.129)
ROA$_{it}$	0.1714 (0.219)	0.1461 (0.219)	0.2152 (0.223)
ROA$_{it-1}$	0.4736** (0.236)	0.5261** (0.222)	0.5133** (0.250)
Firm_Size$_{it}$	-0.4001*** (0.112)	-0.3533*** (0.098)	-0.3617*** (0.102)
RevGrowth$_{it}$	0.0109 (0.072)	0.0069 (0.071)	0.0190 (0.074)
Debt_Level$_{it}$	0.6154** (0.215)	0.5654** (0.223)	0.6413** (0.223)
CAPEX_Level$_{it}$	0.0097 (0.015)	0.0114 (0.014)	0.0059 (0.015)
Oper_Perf$_{it}$	0.0554** (0.025)	0.0631** (0.022)	0.0620** (0.024)
CashHold$_{it}$	-0.7588** (0.366)	-0.6805* (0.361)	-0.6841* (0.368)
FinSlack$_{it}$	0.0445 (0.030)	0.0506 (0.032)	0.0474 (0.033)
OwnConcentr$_{it}$	-0.0027 (0.021)	-0.0102 (0.023)	-0.0070 (0.021)
StateOwn$_{it}$	-0.0574 (0.320)	-0.2135 (0.304)	-0.1142 (0.343)
Big4$_{it}$	0.0254 (0.063)	0.0397 (0.067)	0.0304 (0.067)

Committee:	Model 1b_Tobin's Q		
	SustCom$_{it}$	StratCom$_{it}$	AuditCom$_{it}$
CONST	5.7320*** (1.395)	5.2403*** (1.224)	5.2035*** (1.282)
R^2	0.2288	0.2385	0.2159
Robust standard errors	Yes	Yes	Yes
Observations	574	574	574
Regression type	OLS FE	OLS FE	OLS FE
Hausman test p-value	0.0000	0.0000	0.0000

Note: standard errors in parenthesis; statistical significance: *p<0.1 **p<0.05 ***p<0.01.

Source: created by the author.

Table 5. Results of fixed-effect OLS regressions for the impact of the professional experience diversity of board committee members on Tobin's Q

Committee:	Model 1c_Tobin's Q		
	SustCom$_{it}$	StratCom$_{it}$	AuditCom$_{it}$
ComFinExp$_{it}$	0.2493** (0.115)	0.1126 (0.098)	0.0656 (0.128)
ComFinExp$_{it-1}$	0.5316*** (0.169)	0.1397 (0.096)	-0.1496* (0.077)
ComTechExp$_{it}$	0.0095 (0.188)	0.1670* (0.092)	-0.0546 (0.119)
ComTechExp$_{it-1}$	0.1186 (0.164)	-0.0904 (0.104)	-0.0368 (0.099)
ComIndExp$_{it}$	0.1509 (0.011)	-0.1951* (0.100)	-0.0851 (0.084)
ComIndExp$_{it-1}$	-0.1810* (0.096)	0.0493 (0.077)	-0.1194 (0.098)
ComCEOExp$_{it}$	-0.0981 (0.120)	-0.0058 (0.078)	0.0650 (0.094)
ComCEOExp$_{it-1}$	0.0132 (0.110)	-0.0273 (0.093)	-0.0333 (0.083)
ComStateExp$_{it}$	-0.2562 (0.171)	0.1446 (0.122)	0.2141** (0.106)
ComStateExp$_{it-1}$	0.3015** (0.119)	-0.1297 (0.117)	0.2295** (0.108)
ROA$_{it}$	0.2342 (0.214)	0.1923 (0.216)	0.1890 (0.229)
ROA$_{it-1}$	0.5891** (0.248)	0.5391** (0.236)	0.5406** (0.237)
Firm_Size$_{it}$	-0.4123*** (0.113)	-0.3953*** (0.108)	-0.3819*** (0.107)
RevGrowth$_{it}$	0.0029 (0.072)	0.0238 (0.068)	0.0208 (0.067)
Debt_Level$_{it}$	0.6198** (0.226)	0.5989** (0.215)	0.5461** (0.211)
CAPEX_Level$_{it}$	0.0069 (0.015)	0.0090 (0.015)	0.0140 (0.019)
Oper_Perf$_{it}$	0.0639** (0.027)	0.0621** (0.024)	0.0546* (0.031)
CashHold$_{it}$	-0.7251* (0.376)	-0.6789* (0.394)	-0.7300* (0.389)
FinSlack$_{it}$	0.0456 (0.031)	0.0450 (0.034)	0.0371 (0.034)
OwnConcentr$_{it}$	0.0126 (0.018)	-0.0098 (0.021)	-0.0176 (0.019)
StateOwn$_{it}$	-0.1698 (0.328)	0.0473 (0.355)	-0.1152 (0.264)
Big4$_{it}$	0.0293 (0.065)	0.0541 (0.061)	0.0748 (0.062)
CONST	5.8583*** (1.395)	5.6754*** (1.341)	5.6450*** (1.332)
R^2	0.2575	0.2332	0.2432
Robust standard errors	Yes	Yes	Yes
Observations	574	574	574
Regression type	OLS FE	OLS FE	OLS FE
Hausman test p-value	0.0000	0.0000	0.0000

Note: standard errors in parenthesis; statistical significance: *p<0.1 **p<0.05 ***p<0.01.

Source: created by the author.

The explanatory power of the regressions presented in Tables 3–5 is relatively low, varying from 0.2159 to 0.2575. Nevertheless, these regressions are significant at all levels. According to the obtained results, board committee size, independence, national diversity and tenure diversity have statistically insignificant coefficients in relation with Tobin's Q. According to the results presented in Table 4, a more diversified educational attainment of the sustainability committee (with a 1-year lag) and the strategy committee (without a 1-year lag) contributes to higher Tobin's Q at the 5% significance level. At the same time, a strategy committee with more diversified educational majors (with a 1-year lag) decrease corporate Tobin's Q, with the coefficient being significant at the 5% level.

I also found that the professional background of board committee members significantly affects Tobin's Q; additionally, regressions including this variable for sustainability and audit committee have higher explanatory power compared to regressions including composition and education variables. According to the results presented in Table 5, a higher share of sustainability committee members with professional experience has a significant positive impact on Tobin's Q, and this effect is stronger with a 1-year lag (the coefficients 0.2493 and 0.5316 are significant at the 5% and 1% levels, respectively). On the other hand, the results demonstrate that a higher proportion of audit committee members with financial expertise may negatively affect Tobin's Q with a 1-year lag; however, this effect is weaker (-0.1496 at the 10% level). I also found that a higher share of sustainability and strategy committee members with industry-specific experience leads to a decrease in Tobin's Q (these effects are significant at the 10% level). Interestingly, a higher proportion of directors with public service work experience in sustainability and audit committees significantly contributes to Tobin's Q (coefficients are significant at the 5% level); for audit committees, this effect is stronger.

Further, using the specifications of Models 1a, 1b and 1c, I analyze the impact of board committee characteristics on Total Shareholder Return (TSR). Interestingly, despite the limited sample, the Breusch-Pagan and Hausman tests for these models demonstrate that GLS random-effect regressions describe the data better than pooled OLS and OLS fixed-effect regressions. The results of these regressions are presented in Tables 6–8.

Table 6. Results of random-effect GLS regressions for the impact of board committee composition characteristics on TSR

Committee:	Model 1a_TSR		
	$SustCom_{it}$	$StratCom_{it}$	$AuditCom_{it}$
$ComSize_{it}$	-0.0242 (0.059)	-0.0308 (0.023)	0.0417 (0.033)
$ComIndep_{it}$	0.1332 (0.312)	0.3183** (0.130)	-0.0228 (0.132)
$ComNatDiv_{it}$	-0.0212 (0.288)	0.0248 (0.176)	0.1780 (0.147)
$ComTenureDiv_{it}$	0.3169 (0.284)	-0.0245 (0.113)	0.1484 (0.154)
ROA_{it}	1.0841** (0.513)	1.1410** (0.518)	1.0645** (0.503)
ROA_{it-1}	-0.3508 (0.529)	-0.3131 (0.557)	-0.3579 (0.555)
$Firm\_Size_{it}$	-0.0174 (0.024)	-0.0096 (0.025)	-0.0214 (0.027)
$RevGrowth_{it}$	0.2425** (0.103)	0.2506** (0.101)	0.2386** (0.103)
$Debt\_Level_{it}$	0.3295 (0.258)	0.3814 (0.273)	0.2922 (0.247)
$CAPEX\_Level_{it}$	-0.0123 (0.023)	-0.0501* (0.027)	-0.0071 (0.025)
$Oper\_Perf_{it}$	-0.0543 (0.052)	-0.0448 (0.055)	-0.0564 (0.052)
$CashHold_{it}$	0.0371 (0.205)	0.0434 (0.201)	0.0945 (0.214)
$FinSlack_{it}$	0.0287 (0.042)	0.0245 (0.041)	0.0390 (0.041)
$OwnConcentr_{it}$	-0.0362 (0.024)	-0.0397 (0.025)	-0.0254 (0.021)
$StateOwn_{it}$	-0.0959 (0.173)	-0.0651 (0.128)	-0.1396 (0.172)
$Big4_{it}$	-0.0640 (0.092)	-0.0585 (0.085)	-0.0854 (0.086)
CONST	0.4406 (0.304)	0.3611 (0.312)	0.3285 (0.310)
R^2	*0.0552*	*0.0582*	*0.0561*
Robust standard errors	*Yes*	*Yes*	*Yes*
Observations	*574*	*574*	*574*
Regression type	*GLS RE*	*GLS RE*	*GLS RE*
Hausman test p-value	*0.8624*	*0.9898*	*0.8823*

Note: standard errors in parenthesis; statistical significance: *p<0.1 **p<0.05 ***p<0.01.

Source: created by the author.

Table 7. Results of random-effect GLS regressions for the impact of the education diversity of board committee members on TSR

| Committee: | Model 1b_TSR | | |
	SustCom$_{it}$	StratCom$_{it}$	AuditCom$_{it}$
ComEduLevDiv$_{it}$	-0.0448 (0.309)	0.0507 (0.144)	0.0998 (0.169)
ComEduLevDiv$_{it-1}$	0.3295 (0.395)	-	0.0337 (0.198)
ComEduMajorDiv$_{it}$	0.1013 (0.248)	-0.1160 (0.139)	-0.0790 (0.168)
ComEduMajorDiv$_{it-1}$	-0.4139 (0.326)	-	-0.0869 (0.170)
ROA$_{it}$	1.1056** (0.520)	1.1199** (0.504)	1.1108** (0.509)
ROA$_{it-1}$	-0.3376 (0.560)	-0.3382 (0.542)	-0.3394 (0.542)
Firm_Size$_{it}$	-0.0064 (0.024)	-0.0076 (0.027)	-0.0108 (0.029)
RevGrowth$_{it}$	0.2394** (0.102)	0.2458** (0.102)	0.2440** (0.102)
Debt_Level$_{it}$	0.3396 (0.267)	0.3510 (0.264)	0.3560 (0.269)
CAPEX_Level$_{it}$	-0.0161 (0.021)	-0.0195 (0.022)	-0.0161 (0.021)
Oper_Perf$_{it}$	-0.0512 (0.053)	-0.0501 (0.052)	-0.0536 (0.053)
CashHold$_{it}$	0.0807 (0.206)	0.0764 (0.208)	0.1006 (0.211)
FinSlack$_{it}$	0.0266 (0.041)	0.0267 (0.042)	0.0298 (0.042)
OwnConcentr$_{it}$	-0.0357 (0.025)	-0.0376 (0.024)	-0.0366 (0.023)
StateOwn$_{it}$	-0.1406 (0.175)	-0.1371 (0.166)	-0.1290 (0.174)
Big4$_{it}$	-0.0545 (0.092)	-0.0572 (0.088)	-0.0634 (0.087)
CONST	0.3168 (0.302)	0.3611 (0.312)	0.3898 (0.325)
R^2	0.0520	0.0531	0.0533
Robust standard errors	Yes	Yes	Yes
Observations	574	574	574
Regression type	GLS RE	GLS RE	GLS RE
Hausman test p-value	0.9381	0.9530	0.9820

Note: standard errors in parenthesis; statistical significance: *p<0.1 **p<0.05 ***p<0.01.

Source: created by the author.

Table 8. Results of random-effect GLS regressions for the impact of the professional experience diversity of board committee members on TSR

| Committee: | Model 1c_TSR | | |
	SustCom$_{it}$	StratCom$_{it}$	AuditCom$_{it}$
ComFinExp$_{it}$	0.1272 (0.174)	0.1177 (0.170)	0.3682*** (0.118)
ComFinExp$_{it-1}$	0.8869* (0.481)	-0.0946 (0.219)	-0.1509 (0.176)
ComTechExp$_{it}$	0.3192 (0.265)	0.2393 (0.212)	0.1063 (0.182)
ComTechExp$_{it-1}$	0.2254 (0.355)	0.0641 (0.252)	-0.2610* (0.146)
ComIndExp$_{it}$	-0.1516 (0.201)	-0.1357 (0.131)	-0.1336 (0.094)
ComIndExp$_{it-1}$	-0.3284 (0.229)	-0.0944 (0.120)	0.1565 (0.099)
ComCEOExp$_{it}$	-0.1466 (0.175)	0.1558 (0.136)	0.0224 (0.104)
ComCEOExp$_{it-1}$	-0.0639 (0.207)	-0.0669 (0.177)	0.0964 (0.144)
ComStateExp$_{it}$	0.1557 (0.276)	-0.0755 (0.246)	-0.1019 (0.146)
ComStateExp$_{it-1}$	0.0922 (0.201)	-0.1852 (0.205)	0.2580 (0.179)
ROA$_{it}$	1.1126** (0.524)	1.0424** (0.518)	1.0581** (0.505)
ROA$_{it}$	-0.2751 (0.520)	-0.3479 (0.551)	-0.3457 (0.537)
Firm_Size$_{it}$	-0.0167 (0.023)	-0.0074 (0.025)	-0.0221 (0.027)
RevGrowth$_{it}$	0.2270** (0.099)	0.2419** (0.099)	0.2688** (0.097)
Debt_Level$_{it}$	0.3018 (0.247)	0.3083 (0.254)	0.3380 (0.275)

Committee:	Model 1c_TSR		
	SustCom$_{it}$	StratCom$_{it}$	AuditCom$_{it}$
CAPEX_Level$_{it}$	-0.0264 (0.020)	-0.0003 (0.023)	-0.0134 (0.018)
Oper_Perf$_{it}$	-0.0485 (0.054)	-0.0546 (0.052)	-0.0495 (0.052)
CashHold$_{it}$	0.0598 (0.209)	0.0779 (0.201)	0.0457 (0.195)
FinSlack$_{it}$	0.0279 (0.042)	0.0319 (0.040)	0.0230 (0.041)
OwnConcentr$_{it}$	-0.0235 (0.025)	-0.0432 (0.026)	-0.0282 (0.020)
StateOwn$_{it}$	-0.1235 (0.188)	-0.0888 (0.160)	-0.1252 (0.150)
Big4$_{it}$	-0.0701 (0.088)	-0.0330 (0.078)	-0.0613 (0.085)
CONST	0.4282 (0.300)	0.3660 (0.344)	0.3564 (0.298)
R^2	0.0890	0.0626	0.0699
Robust standard errors	Yes	Yes	Yes
Observations	574	574	574
Regression type	GLS RE	GLS RE	GLS RE
Hausman test p-value	0.7741	0.9972	0.9774

Note: standard errors in parenthesis; statistical significance: *$p<0.1$ **$p<0.05$ ***$p<0.01$.

Source: created by the author.

The explanatory power of regressions presented in Tables 6-8 is low. Nevertheless, these regressions are significant at all levels. According to the obtained results, the education diversity of board committee members does not have a significant impact on TSR. The higher independence of the strategy committee has a significant positive impact on TSR (the coefficient 0.3183 is significant at the 5% level).

TSR is also affected by the professional experience of board committee members. According to the results presented in Table 8, a higher proportion of sustainability committee members (with a 1-year lag) and audit committee members (without a 1-year lag) with professional experience in finance significantly improves TSR, and this effect is stronger for sustainability committee members. However, a higher proportion of audit committee members with experience in technical fields negatively affects TSR, which is an unexpected result. Other types of professional experience of board committee members do not affect TSR significantly.

There are several limitations of the usage of random-effect and fixed-effect models. Firstly, in some regressions I had to drop certain variables due to multicollinearity issues. Secondly, I found some heteroscedasticity issues for regressions with Tobin's Q as a dependent variable. Thirdly, although I have not found any endogeneity of board committee characteristics due to company characteristics (size, age, etc.), corporate governance may be affected by its characteristics in previous periods [90–91]. Additionally, corporate financial performance also may be affected by its performance in previous periods. Taking into account these circumstances, at the second stage of my econometric analysis I use a two-step generalized method of moments (GMM). According to Wintoki et al. [91], two-step GMM is one of the most widely used approaches to address the problem of endogeneity in models considering corporate governance, as it measures the endogeneity of explanatory variables. In my research, I use Arellano-Bond dynamic panel data estimation with a one-year lag in the dependent variable and a one- or two-year lag in the independent variables to track the effects of previous periods for these variables. This estimation can also be used to identify heteroscedasticity issues.

Stage 2. Two-step GMM models

As in Stage 1, I build regressions to evaluate the following effects:

- Committee composition characteristics: size, independence, national diversity, tenure diversity (Model 1a);
- Committee members' education diversity (Model 1b);
- Committee members' professional experience (Model 1c).

Additionally, I build regressions taking into account the moderating effect of the CEO power index on the following:

- Committee composition characteristics multiplied by (1 – CEO power index): size, independence, national diversity, tenure diversity (Model 2a);
- Committee members' education diversity multiplied by (1 – CEO power index) (Model 2b);
- Committee members' professional experience multiplied by (1 – CEO power index) (Model 2c).

Table 9 presents the results of Model 1a and Model 2a regressions, reflecting the impact of board committee composition on Tobin's Q. Table 10 shows the results of Model 1b and Model 2b regressions, reflecting the impact of the education diversity of board committee members on Tobin's Q. Finally, Table 11 presents the results of Model 1c and Model 2c regressions, reflecting the impact of board committee members' professional experience diversity on Tobin's Q.

Table 9. Two-step GMM Arellano-Bond dynamic panel data estimations for the impact of board committee composition characteristics on Tobin's Q

	$SustCom_{it}$	$SustCom_{it} \times (1 - CEO\_Power_{it})$	$StratCom_{it}$	$StratCom_{it} \times (1 - CEO\_Power_{it})$	$AuditCom_{it}$	$AuditCom_{it} \times (1 - CEO\_Power_{it})$
$TobinsQ_{it-1}$	0.1979** (0.0643)	0.1979** (0.0643)	0.1970** (0.066)	0.1978** (0.071)	0.2039*** (0.058)	0.1995** (0.067)
$ComSize_{it}$	-0.0172 (0.021)	-0.0231 (0.025)	-0.0121 (0.011)	-0.0066 (0.011)	0.0080 (0.020)	0.0166 (0.019)
$ComSize_{it-1}$	0.0143 (0.052)	0.0107 (0.056)	0.0012 (0.013)	-0.0071 (0.013)	-0.0092 (0.025)	-0.0075 (0.027)
$ComIndep_{it}$	0.0109 (0.131)	0.0358 (0.143)	-0.0199 (0.101)	-0.0579 (0.141)	-0.0466 (0.076)	-0.1080 (0.112)
$ComIndep_{it-1}$	0.0088 (0.180)	-0.0113 (0.190)	-0.0845 (0.072)	-0.0753 (0.106)	-0.0230 (0.056)	-0.0550 (0.075)
$ComNatDiv_{it}$	-0.0497 (0.166)	-0.0014 (0.154)	-0.0807 (0.138)	-0.0226 (0.165)	0.0157 (0.097)	0.1252 (0.146)
$ComNatDiv_{it-1}$	-0.1178 (0.166)	-0.0971 (0.228)	-0.0152 (0.097)	-0.0161 (0.154)	-0.0724 (0.082)	-0.0427 (0.117)
$ComTenureDiv_{it}$	0.2591 (0.180)	0.2748* (0.159)	-0.0236 (0.095)	-0.0079 (0.096)	-0.0418 (0.071)	-0.0597 (0.118)
$ComTenureDiv_{it-1}$	0.1036 (0.163)	0.1573 (0.152)	-0.0370 (0.081)	-0.0131 (0.091)	0.0667 (0.077)	0.0573 (0.118)
ROA_{it}	-0.0104 (0.174)	-0.0111 (0.169)	-0.0192 (0.177)	-0.0259 (0.173)	-0.0309 (0.161)	-0.0301 (0.170)
ROA_{it-1}	0.2055 (0.241)	0.2140 (0.236)	0.2424 (0.278)	0.2804 (0.254)	0.1558 (0.237)	0.1978 (0.223)
$Firm\_Size_{it}$	-0.5938*** (0.144)	-0.6001*** (0.141)	-0.5699*** (0.155)	-0.5729*** (0.156)	-0.5305*** (0.140)	-0.5612*** (0.141)
$FirmAge_{it}$	0.8722** (0.415)	0.9455** (0.402)	0.9550** (0.435)	1.0007** (0.433)	0.8399** (0.416)	0.9743** (0.402)
$RevGrowth_{it}$	0.1518* (0.091)	0.1590* (0.086)	0.1820* (0.095)	0.1855* (0.097)	0.1418* (0.083)	0.1491* (0.087)
$Debt\_Level_{it}$	0.6105** (0.246)	0.6163** (0.235)	0.5667** (0.233)	0.5978** (0.223)	0.5413** (0.224)	0.5747** (0.227)
$CAPEX\_Level_{it}$	0.0164 (0.026)	0.0156 (0.026)	0.0136 (0.030)	0.0131 (0.027)	0.0163 (0.032)	0.0174 (0.026)
$Oper\_Perf_{it}$	0.0343* (0.018)	0.0341* (0.017)	0.0352* (0.020)	0.0372** (0.018)	0.0311** (0.015)	0.0319** (0.015)
$CashHold_{it}$	-0.0538 (0.184)	-0.0721 (0.181)	-0.0499 (0.169)	-0.0537 (0.169)	-0.0628 (0.180)	-0.0389 (0.175)
$FinSlack_{it}$	0.0089 (0.043)	0.0058 (0.041)	0.0040 (0.045)	0.0032 (0.047)	0.0172 (0.040)	0.0133 (0.042)
$OwnConcentr_{it}$	0.0148 (0.021)	0.0205 (0.020)	0.0147 (0.018)	0.0221 (0.020)	0.0263 (0.018)	0.0308 (0.020)
$StateOwn_{it}$	-1.2640** (0.534)	-1.2473** (0.512)	-1.2403** (0.581)	-1.2490** (0.587)	-1.1603** (0.450)	-1.1377** (0.471)
$Big4_{it}$	0.0151 (0.060)	0.0216 (0.059)	0.0360 (0.063)	0.0218 (0.064)	0.0011 (0.062)	0.0135 (0.062)
$CONST$	5.1165*** (1.263)	4.9419*** (1.256)	4.6298*** (1.348)	4.4597*** (1.338)	4.4937** (1.392)	4.3719** (1.385)
$Sargan\ test\ (p\text{-}value)$	21.7589 (0.3537)	19.7307 (0.4749)	21.4126 (0.3732)	20.2833 (0.4403)	20.7151 (0.4141)	19.2656 (0.5046)
$AR(2)\ (p\text{-}value)$	-1.5769 (0.1148)	-1.5435 (0.1227)	-1.6209 (0.1150)	-1.5977 (0.1101)	-1.6091 (0.1176)	-1.5937 (0.1110)
Robust SE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	486	486	486	486	486	486

Note: standard errors in parenthesis; statistical significance: *p<0.1 **p<0.05 ***p<0.01.

Source: created by the author.

Table 10. Two-step GMM Arellano-Bond dynamic panel data estimations for the impact of the education diversity of board committee members on Tobin's Q

	$SustCom_{it}$	$SustCom_{it} \times (1 - CEO\_Power_{it})$	$StratCom_{it}$	$StratCom_{it} \times (1 - CEO\_Power_{it})$	$AuditCom_{it}$	$AuditCom_{it} \times (1 - CEO\_Power_{it})$
$TobinsQ_{it-1}$	0.1974** (0.062)	0.1939** (0.063)	0.1938** (0.067)	0.1925** (0.067)	0.2033** (0.063)	0.1934** (0.065)
$ComEduLevDiv_{it}$	0.0227 (0.180)	0.1101 (0.228)	0.0557 (0.095)	0.0136 (0.120)	-0.0056 (0.074)	-0.0709 (0.099)
$ComEduLevDiv_{it-1}$	0.2393** (0.111)	0.4083** (0.124)	-0.0054 (0.081)	-0.0026 (0.099)	0.0553 (0.075)	0.0005 (0.101)
$ComEduMajorDiv_{it}$	0.0582 (0.165)	-0.0199 (0.167)	-0.0461 (0.075)	-0.0294 (0.077)	0.0086 (0.078)	0.0492 (0.093)
$ComEduMajorDiv_{it-1}$	-0.1182 (0.336)	-0.4186 (0.374)	-0.1195 (0.083)	-0.1311 (0.093)	-0.0270 (0.098)	-0.1031 (0.125)
ROA_{it}	-0.0168 (0.165)	-0.0092 (0.162)	-0.0249 (0.166)	0.0006 (0.167)	-0.0448 (0.169)	-0.0256 (0.172)
ROA_{it-1}	0.2255 (0.232)	0.2258 (0.236)	0.2572 (0.264)	0.2870 (0.244)	0.1722 (0.241)	0.1978 (0.243)
$Firm\_Size_{it}$	-0.5966*** (0.146)	-0.5673*** (0.147)	-0.5382*** (0.143)	-0.5557*** (0.139)	-0.5182*** (0.141)	-0.5474*** (0.140)
$FirmAge_{it}$	0.9349** (0.403)	0.9244** (0.411)	0.7870* (0.422)	0.8876** (0.395)	0.8560** (0.413)	0.9274** (0.386)
$RevGrowth_{it}$	0.1624* (0.072)	0.1470* (0.085)	0.1667* (0.088)	0.1669* (0.086)	0.1341* (0.082)	0.1338* (0.081)
$Debt\_Level_{it}$	0.6080** (0.227)	0.6048** (0.225)	0.6172** (0.233)	0.6178** (0.224)	0.6271** (0.231)	0.6401** (0.221)
$CAPEX\_Level_{it}$	0.0169 (0.027)	0.0164 (0.028)	0.0157 (0.026)	0.0147 (0.025)	0.0148 (0.031)	0.0168 (0.027)
$Oper\_Perf_{it}$	0.0328* (0.017)	0.0335* (0.017)	0.0345* (0.018)	0.0357** (0.017)	0.0313* (0.017)	0.0302* (0.016)
$CashHold_{it}$	-0.0342 (0.166)	-0.0530 (0.165)	-0.0664 (0.171)	-0.0519 (0.170)	-0.0731 (0.041)	-0.0768 (0.188)
$FinSlack_{it}$	0.0056 (0.043)	0.0108 (0.042)	0.0051 (0.041)	0.0027 (0.041)	0.0252 (0.041)	0.0203 (0.042)
$OwnConcentr_{it}$	0.0219 (0.018)	0.0206 (0.017)	0.0163 (0.018)	0.0245 (0.019)	0.0206 (0.021)	0.0264 (0.021)
$StateOwn_{it}$	-1.1772** (0.504)	-1.1502** (0.506)	-1.2890** (0.497)	-1.2637** (0.500)	-1.1365** (0.538)	-1.1575** (0.503)
$Big4_{it}$	0.0205 (0.058)	0.0189 (0.058)	0.0130 (0.061)	0.0039 (0.064)	-0.0035 (0.059)	-0.0043 (0.060)
$CONST$	4.8947*** (1.350)	4.5892** (1.352)	4.7862*** (1.299)	4.6221*** (1.327)	4.2441*** (1.279)	4.3949** (1.299)
Sargan test (p-value)	19.7558 (0.4733)	20.2210 (0.4442)	20.9744 (0.3986)	20.2322 (0.4435)	19.9600 (0.4604)	19.2063 (0.5085)
AR(2) (p-value)	-1.5186 (0.1289)	-1.5567 (0.1195)	-1.5986 (0.1199)	-1.6063 (0.1182)	-1.6245 (0.1143)	-1.5434 (0.1227)
Robust SE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	486	486	486	486	486	486

Note: standard errors in parenthesis; statistical significance: *p<0.1 **p<0.05 ***p<0.01.

Source: created by the author.

Table 11. Two-step GMM Arellano-Bond dynamic panel data estimations for the impact of board committee members' experience on Tobin's Q

	$SustCom_{it}$	$SustCom_{it} \times (1 - CEO\_Power_{it})$	$StratCom_{it}$	$StratCom_{it} \times (1 - CEO\_Power_{it})$	$AuditCom_{it}$	$AuditCom_{it} \times (1 - CEO\_Power_{it})$
$TobinsQ_{it-1}$	0.2212** (0.064)	0.2063** (0.064)	0.1945** (0.063)	0.1962** (0.065)	0.1830** (0.075)	0.1817** (0.076)
$ComFinExp_{it}$	0.0412 (0.080)	0.0995 (0.075)	0.0086 (0.070)	0.0261 (0.091)	0.0770 (0.090)	0.1056 (0.126)
$ComFinExp_{it-1}$	0.3155 (0.229)	0.5877* (0.327)	0.1247 (0.118)	0.0888 (0.122)	-0.0003 (0.100)	-0.0010 (0.106)
$ComTechExp_{it}$	0.1154 (0.133)	0.1248 (0.156)	0.1253* (0.073)	0.1333 (0.104)	-0.0495 (0.086)	-0.1090 (0.127)
$ComTechExp_{it-1}$	0.2484 (0.170)	0.2700 (0.200)	-0.1981* (0.108)	-0.2147 (0.133)	-0.1125 (0.084)	-0.2280 (0.154)
$ComIndExp_{it}$	0.0819 (0.124)	0.1171 (0.173)	-0.0311 (0.073)	0.0096 (0.085)	-0.0068 (0.076)	-0.0075 (0.083)
$ComIndExp_{it-1}$	-0.2897** (0.113)	-0.4289** (0.186)	-0.2155 (0.077)	-0.1209 (0.096)	-0.0330 (0.063)	-0.0865 (0.105)
$ComCEOExp_{it}$	-0.1564 (0.120)	-0.2503* (0.144)	-0.0770 (0.072)	-0.1028 (0.108)	-0.0333 (0.069)	-0.0296 (0.087)
$ComCEOExp_{it-1}$	0.0579 (0.130)	0.1289 (0.236)	0.1272 (0.109)	0.1487 (0.131)	0.0261 (0.074)	0.0344 (0.118)
$ComStateExp_{it}$	-0.0782 (0.217)	-0.0195 (0.199)	-0.0048 (0.114)	0.0225 (0.165)	0.1204* (0.072)	0.1302 (0.134)
$ComStateExp_{it-1}$	0.3478* (0.180)	0.5447** (0.231)	0.1210 (0.087)	0.2015 (0.150)	0.1440 (0.108)	0.2713* (0.157)
ROA_{it}	-0.0744 (0.150)	-0.0522 (0.147)	0.0382 (0.172)	0.0320 (0.173)	0.0207 (0.150)	0.0239 (0.152)
ROA_{it-1}	0.1607 (0.200)	0.2154 (0.199)	0.2947 (0.221)	0.2693 (0.217)	0.3399 (0.266)	0.3696 (0.261)
$Firm\_Size_{it}$	-0.5107** (0.159)	-0.5397*** (0.157)	-0.5907*** (0.143)	-0.5564*** (0.145)	-0.5560*** (0.163)	-0.5516*** (0.169)
$FirmAge_{it}$	0.8908** (0.428)	0.9307** (0.424)	0.8499** (0.387)	0.7934** (0.399)	1.0001** (0.456)	1.0099** (0.462)
$RevGrowth_{it}$	0.1440* (0.086)	0.1422* (0.082)	0.1911* (0.114)	0.1740* (0.106)	0.1596* (0.083)	0.1576* (0.081)
$Debt\_Level_{it}$	0.6920*** (0.196)	0.6997*** (0.184)	0.6696** (0.227)	0.6588** (0.224)	0.6974** (0.234)	0.7269** (0.235)
$CAPEX\_Level_{it}$	0.0207 (0.027)	0.0185 (0.026)	0.0116 (0.026)	0.0159 (0.024)	0.0149 (0.019)	0.0182 (0.017)
$Oper\_Perf_{it}$	0.0277* (0.016)	0.0307** (0.015)	0.0422** (0.020)	0.0357** (0.018)	0.0367** (0.017)	0.0333** (0.017)
$CashHold_{it}$	-0.0611 (0.165)	-0.0648 (0.161)	-0.0484 (0.164)	-0.0916 (0.170)	-0.1451 (0.186)	-0.1723 (0.187)
$FinSlack_{it}$	0.0262 (0.038)	0.0196 (0.039)	-0.0085 (0.048)	0.0061 (0.047)	0.0001 (0.042)	0.0037 (0.038)
$OwnConcentr_{it}$	0.0153 (0.020)	0.0135 (0.018)	0.0150 (0.017)	0.0171 (0.018)	0.0185 (0.019)	0.0160 (0.023)
$StateOwn_{it}$	-1.2139** (0.501)	-1.1372** (0.499)	-1.0761** (0.516)	-1.1053** (0.513)	-0.8884** (0.424)	-0.7806** (0.350)
$Big4_{it}$	0.0124 (0.059)	0.0090 (0.056)	0.0241 (0.060)	0.0154 (0.061)	-0.0034 (0.059)	0.0026 (0.064)
CONST	3.9790** (1.378)	4.1890** (1.372)	5.0608*** (1.399)	4.8724** (1.409)	4.1749*** (1.210)	4.1215** (1.309)
Sargan test (p-value)	22.1181 (0.3341)	20.5916 (0.4215)	20.6543 (0.4177)	20.4637 (0.4293)	20.7725 (0.4106)	24.8173 (0.2085)
AR(2) (p-value)	-1.5771 (0.1148)	-1.5604 (0.1187)	-1.5676 (0.1170)	-1.5774 (0.1147)	-1.5793 (0.1143)	-1.5995 (0.1107)
Robust SE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	486	486	486	486	486	486

Note: standard errors in parenthesis; statistical significance: *p<0.1 **p<0.05 ***p<0.01.

Source: created by the author.

The results show that there is no statistically significant impact of board committee size, independence and national diversity on Tobin's Q, which is in line with the results obtained using OLS fixed-effect estimations. As for tenure diversity, only for the sustainability committee does it have a slightly significant positive impact on Tobin's Q, moderated by CEO power. The coefficient of the variable allowing for the deterring role of CEO power is significant at the 10% level, which proves that CEO power mitigates the positive effect of sustainability committee tenure diversity.

Turning to Table 10, we see that there is a statistically significant (at the 5% level) positive impact of sustainability committee diversity in terms of its members' education attainment on Tobin's Q. This effect is even greater taking into account the deterring effect of CEO power. At the same time, there is no significant impact of committee educational major diversity on Tobin's Q.

According to the results presented in Table 11, some characteristics of board committee members' experience affect Tobin's Q. Firstly, the experience of sustainability committee members in finance slightly contributes to corporate performance measured by Tobin's Q; however, this effect is significant only in the case of lower CEO power (the coefficient 0.5877 is significant at the 10% level). Secondly, there are negative effects of sustainability committee members' industry-specific experience (significant at the 5% level) and experience of being a CEO or its equivalent in the public or academic field (significant at the 10% level), which may be mitigated by a more powerful CEO. Finally, a higher proportion of members with experience in public service on the sustainability and audit committees enhances Tobin's Q, and this effect is significantly stronger for sustainability committee members.

The results of building two-step GMM models for TSR are presented in Tables 12 and 13.

Table 12. Two-step GMM Arellano-Bond dynamic panel data estimations for the impact of board committee composition characteristics on TSR

	$StratCom_{it}$	$StratCom_{it} \times (1 - CEO\_Power_{it})$
TSR_{it-1}	0.1543** (0.075)	0.1542** (0.077)
$ComSize_{it}$	-0.0106 (0.032)	0.0163 (0.033)
$ComSize_{it-1}$	-0.0472 (0.031)	-0.0966** (0.041)
$ComSize_{it-2}$	0.0021 (0.048)	0.0010 (0.042)
$ComIndep_{it}$	0.3129 (0.294)	0.4929 (0.385)
$ComIndep_{it-1}$	-0.4095 (0.323)	-0.3811 (0.355)
$ComIndep_{it-2}$	-0.1921 (0.429)	-0.1499 (0.455)
$ComNatDiv_{it}$	-0.0498 (0.496)	0.1822 (0.588)
$ComNatDiv_{it-1}$	0.7768* (0.450)	1.0963** (0.441)
$ComNatDiv_{it-2}$	0.1232 (0.289)	-0.1666 (0.429)
$ComTenureDiv_{it}$	0.0521 (0.181)	0.0647 (0.184)
$ComTenureDiv_{it-1}$	0.2860 (0.277)	0.3456 (0.300)
$ComTenureDiv_{it-2}$	0.2543 (0.173)	0.3183* (0.193)
ROA_{it}	-0.1184 (0.362)	-0.1605 (0.330)
ROA_{it-1}	1.2386* (0.686)	1.3414** (0.599)
ROA_{it-2}	-0.6615 (0.482)	-0.6516 (0.453)
$Firm\_Size_{it}$	0.6532** (0.314)	0.7023** (0.268)
$FirmAge_{it}$	-1.2143** (0.569)	-1.3148** (0.560)
$RevGrowth_{it}$	0.2065 (0.179)	0.1655 (0.156)
$Debt\_Level_{it}$	0.5435 (0.722)	0.6476 (0.654)
$CAPEX\_Level_{it}$	0.0095 (0.038)	0.0112 (0.033)
$Oper\_Perf_{it}$	-0.1085* (0.059)	-0.1251** (0.055)
$CashHold_{it}$	-0.6530 (0.545)	-0.6103 (0.482)

	StratCom$_{it}$	StratCom$_{it}$×(1 – CEO_Power$_{it}$)
FinSlack$_{it}$	0.2471 (0.182)	0.2729* (0.156)
OwnConcentr$_{it}$	-0.0013 (0.033)	0.0042 (0.028)
StateOwn$_{it}$	0.1644 (0.920)	0.0209 (0.958)
Big4$_{it}$	0.1362 (0.173)	0.0969 (0.178)
CONST	-3.9354 (3.351)	-4.1280 (3.094)
Sargan test (p-value)	27.9003 (0.0854)	24.2015 (0.1885)
AR(2) (p-value)	-0.0846 (0.9325)	-0.0598 (0.9523)
Robust SE	Yes	Yes
Observations	395	395

Note: standard errors in parenthesis; statistical significance: *p<0.1 **p<0.05 ***p<0.01.

Source: created by the author.

Table 13. Two-step GMM Arellano-Bond dynamic panel data estimations for the impact of board committee members' experience on TSR

	SustComit	SustComit××(1 – CEO_Powerit)	StratComit	StratComit××(1 – CEO_Powerit)
TSR$_{it-1}$	0.0593 (0.073)	0.0655 (0.075)	0.1392* (0.072)	0.1606** (0.069)
ComSize$_{it}$	0.4261 (0.310)	0.6768* (0.383)	0.2013 (0.285)	0.3009 (0.376)
ComSize$_{it-1}$	1.1056* (0.665)	1.3688 (0.972)	0.5501 (0.407)	0.6277* (0.375)
ComSize$_{it-2}$	0.4548 (0.316)	0.4206 (0.544)	-0.5113* (0.310)	-0.7217** (0.305)
ComIndep$_{it}$	0.6561** (0.324)	0.9939** (0.421)	0.0776 (0.245)	0.0806 (0.298)
ComIndep$_{it-1}$	0.4507 (0.479)	-0.0655 (0.577)	-0.5475 (0.678)	-1.1124* (0.672)
ComIndep$_{it-2}$	-0.1206 (0.315)	-0.3534 (0.507)	-0.0578 (0.247)	0.0181 (0.292)
ComNatDiv$_{it}$	-0.5841** (0.234)	-0.8963** (0.351)	-0.1892 (0.243)	-0.0904 (0.298)
ComNatDiv$_{it-1}$	-0.4406** (0.352)	-0.6662 (0.436)	-0.1195 (0.299)	-0.4535 (0.354)
ComNatDiv$_{it-2}$	0.5490* (0.280)	0.5483* (0.316)	-0.1364 (0.189)	0.1022 (0.196)
ComTenureDiv$_{it}$	0.0522 (0.228)	0.0532 (0.292)	0.2374 (0.207)	0.3015 (0.258)
ComTenureDiv$_{it-1}$	0.1192 (0.310)	0.6595 (0.434)	-0.0503 (0.505)	0.1651 (0.486)
ComTenureDiv$_{it-2}$	-0.7830** (0.302)	-0.4810 (0.597)	0.2546 (0.280)	0.2976 (0.326)
ROA$_{it}$	0.2138 (0.300)	0.6189 (0.490)	-0.1353 (0.408)	-0.3534 (0.589)
ROA$_{it-1}$	0.1283 (0.412)	0.4274 (0.619)	0.2832 (0.587)	-0.1107 (0.730)
ROA$_{it-2}$	-0.3876 (0.362)	-0.6704 (0.407)	0.2396 (0.582)	0.4530 (0.849)
Firm_Size$_{it}$	0.0539 (0.347)	-0.0303 (0.357)	-0.0505 (0.360)	0.1684 (0.350)
FirmAge$_{it}$	1.0535 (0.643)	1.1848* (0.648)	0.8812 (0.664)	0.8354 (0.689)
RevGrowth$_{it}$	-0.5999 (0.414)	-0.5916 (0.419)	-0.6736 (0.502)	-0.6217 (0.465)
Debt_Level$_{it}$	0.3553 (0.234)	0.3902* (0.228)	0.5029* (0.301)	0.5294* (0.287)
CAPEX_Level$_{it}$	-1.0687* (0.616)	-1.0799* (0.601)	-1.6157** (0.764)	-1.5386** (0.647)
Oper_Perf$_{it}$	0.0898 (0.149)	0.0990* (0.157)	0.1982 (0.164)	0.1780 (0.157)

	SustCom*it*	SustCom*it*× ×(1 – CEO_Power*it*)	StratCom*it*	StratCom*it*× ×(1 – CEO_Power*it*)
CashHold*it*	0.3318 (0.519)	0.1527 (0.520)	0.2360 (0.719)	0.6369** (0.725)
FinSlack*it*	-0.0121 (0.030)	-0.0093 (0.030)	-0.0170 (0.035)	-0.0284 (0.034)
OwnConcentr*it*	-0.0852 (0.053)	-0.0952* (0.055)	-0.0617 (0.063)	-0.0739 (0.062)
StateOwn*it*	-0.5262 (0.488)	-0.4858 (0.509)	-0.3920 (0.540)	-0.5142 (0.482)
Big4*it*	0.1582 (0.159)	0.1834 (0.189)	0.1131 (0.201)	0.1707 (0.190)
CONST	-0.0152 (0.026)	-0.0154 (0.026)	-0.0087 (0.033)	-0.0175 (0.029)
Sargan test (p-value)	-0.2307 (1.016)	-0.2628 (1.052)	-0.0575 (1.005)	-0.2435 (1.248)
AR(2) (p-value)	0.2053 (0.130)	0.1782 (0.131)	0.1485 (0.178)	0.1636 (0.161)
Robust SE	-0.5453 (2.219)	-0.8488 (2.298)	-0.4430 (3.731)	-1.1020 (3.139)
Observations	26.6264 (0.1137)	26.8479 (0.1092)	27.2305 (0.0994)	23.8221 (0.2031)
AR(2) (p-value)	-0.4995 (0.6174)	-0.5291 (0.5967)	-0.2493 (0.8031)	-0.1617 (0.8715)
Robust SE	Yes	Yes	Yes	Yes
Observations	395	395	395	395

Note: standard errors in parenthesis; statistical significance: *p<0.1 **p<0.05 ***p<0.01.

Source: created by the author.

It is noteworthy that the quality of regressions with TSR as the dependent variable is lower than the quality of regressions with Tobin's Q as the dependent variable. Specifically, regressions specified by Models 1a and 2a for the sustainability and audit committees suffer from invalid overidentifying restrictions (the null hypothesis of the Sargan test is rejected). Moreover, the Sargan test also demonstrates that overidentifying restrictions are not valid for Model 1a for the strategy committee (the null hypothesis is rejected at the 10% level). Consequently, I consider the results of constructing Model 2a only for the strategy committee, indicating that greater strategy committee size has a slight negative impact on TSR, while a higher share of foreign members in the strategy committee has a significant positive impact on TSR (the coefficient 1.0963 with a 1-year lag is significant at the 10% level).

As for regressions specified by Models 1b and 2b (i.e., education diversity), the Sargan test (overidentifying restrictions) and the Arellano-Bond test (serial correlation in the first-differenced errors in orders 1 and 2) reject the null hypotheses; consequently, the results of these regressions cannot be taken into account.

As expected, the quality of regressions is higher for sustainability and strategy committee professional experience. Both Models 1c and 2c presented in Table 13 demonstrate that a higher proportion of sustainability committee members with professional experience in finance significantly contributes to TSR. Interestingly, a higher proportion of sustainability committee members with experience in technical fields leads to higher TSR, while a higher concentration of members with industry-specific experience, on the contrary, has a negative impact on TSR. A higher concentration of sustainability committee members with experience of being a CEO (or its equivalent) negatively affects TSR; however, this effect is mitigated by a powerful CEO. As for the strategy committee, there is a negative impact of its members' experience in finance on TSR, which is mitigated by a powerful CEO. Finally, the regressions for audit committee members' professional experience were not included in Table 13 as they failed to pass the Sargan and Arellano-Bond tests. The overall results of econometric analysis are summarized in Table 14.

Table 14. Summary of econometric analysis results

Board committee characteristics and expected effects	Committee	Findings: Tobin's Q	Findings: TSR
H1. A higher board committee independence level, ceteris paribus, enhances corporate financial performance			
Independence level (+)	Sustainability committee	Not supported	Not supported
	Strategy committee	Not supported	Not supported
	Audit committee	Not supported	Not supported

Board committee characteristics and expected effects	Committee	Findings: Tobin's Q	Findings: TSR
H2. Greater board committee tenure diversity, ceteris paribus, enhances corporate financial performance			
Tenure diversity (+)	Sustainability committee	+*	Not supported
	Strategy committee	Not supported	+*
	Audit committee	Not supported	Not supported
H3. A higher share of foreign directors in board committees, ceteris paribus, enhances corporate financial performance			
National diversity (+)	Sustainability committee	Not supported	Not supported
	Strategy committee	Not supported	+**
	Audit committee	Not supported	Not supported
H4. A higher level of board committee education diversity, ceteris paribus, enhances corporate financial performance			
Educational level diversity (+)	Sustainability committee	+**	Not supported
	Strategy committee	Not supported	Not supported
	Audit committee	Not supported	Not supported
Major diversity (+)	Sustainability committee	Not supported	Not supported
	Strategy committee	Not supported	Not supported
	Audit committee	Not supported	Not supported
H5. Different types of board committee professional expertise, ceteris paribus, enhance corporate financial performance			
Experience in finance (+)	Sustainability committee	+*	+*
	Strategy committee	Not supported	+* (1-year lag) −* (2-year lag)
	Audit committee	Not supported	Not supported
Experience in a technical field (+)	Sustainability committee	Not supported	+**
	Strategy committee	−*	Not supported
	Audit committee	Not supported	Not supported
Industry-specific experience (+)	Sustainability committee	−*	−**
	Strategy committee	Not supported	Not supported
	Audit committee	Not supported	Not supported
Experience of being a CEO (+)	Sustainability committee	−*	−**
	Strategy committee	Not supported	Not supported
	Audit committee	Not supported	Not supported
Experience in state-services (+)	Sustainability committee	+**	Not supported
	Strategy committee	Not supported	Not supported
	Audit committee	+*	Not supported

Board committee characteristics and expected effects	Committee	Findings: Tobin's Q	Findings: TSR
H6. A higher level of CEO power, ceteris paribus, mitigates the positive effects of board committee human capital on financial performance			
Sustainability committee		Supported	Supported
Strategy committee		Not supported	Not supported
Audit committee		Supported	Not supported

Source: created by the author.

Having presented the empirical findings, let us now discuss their implications for understanding the role of board committees in shaping corporate financial performance in Russia.

Discussion

In this paper I analyze the impact of the characteristics of key board committees – the audit, strategy, and sustainability committees – on corporate financial performance measured by market-based indicators (Tobin's Q and TSR) and the moderating role of CEO power. Although there is a number of papers investigating the impact of corporate governance characteristics on the financial performance of Russian companies [3; 5–7; 82], they mostly focus on overall board characteristics without considering board committee composition and human capital characteristics. Some papers investigate the impact of board committee characteristics on corporate performance in both developed and emerging markets [37; 60; 66; 68]. However, they mostly focus on audit committee characteristics (for example, size, independence, and the share of directors with financial expertise) and rarely study board committee diversity in terms of human capital such as education and professional experience. This paper contributes to the existing literature in this field.

Many papers that consider board committee characteristics include committee independence in their models. Unlike most of them, I have not confirmed a significant impact of board committee independence on corporate performance. Some papers considering board members' independence explain the insignificance of its impact on corporate performance by higher busyness [22; 92]. This difference may also be attributed to the overall corporate governance environment in Russia. Higher ownership concentration, higher share of state ownership and top-management power hinders the monitoring role of boards, making directors' independence a less significant factor than their specific knowledge and ties [4; 93]. These results do not support Hypothesis 1, highlighting the importance of considering local market characteristics when evaluating the effects of corporate governance practices.

At the same time, my findings partly support Hypothesis 2, demonstrating a positive impact of board sustainability and strategy committee tenure diversity on market-based financial performance indicators, which is in line with

previous findings [63; 80]. Diversified board committees in terms of members' tenure accumulate not only different types of knowledge and experience, but also different views on the company – the views of "centenarians" aware of firm-specific issues and "newcomers" with a fresh perspective. Tenured directors possess accumulated firm-specific knowledge, allowing them to perform both advisory and monitoring functions more effectively [10; 63], which is in line with the *resource-based view*. Moreover, co-tenure of board committee members mitigates the negative effects of board expertise and background diversity [57].

The results of econometric analysis partly support Hypothesis 3 by demonstrating the positive impact of strategy committee national diversity on market-based financial performance indicators. This is in line with some previous studies of the Russian market [3], and may be explained from the *resource-based view* perspective, as foreign directors bring knowledge and experience which can hardly be found on the local corporate governance market, as well as social ties with foreign stakeholders [16; 49]. However, it should be emphasized that unique knowledge and experience obtained in foreign companies and institutional environments may be acquired by domestic board members studying or working abroad [30], which makes further research necessary.

As for the education diversity of board committee members, Hypothesis 4 about its positive impact is partly supported only for the sustainability committee, where members with different levels of education (undergraduate, graduate, MBA, PhD, Candidate of Sciences, Doctor of Sciences) contribute to higher Tobin's Q, which is in line with the *resource-based theory* [54]. Companies with more educated board members tend to implement more risk-averse strategies and practices by enhancing financial resilience [94] and company liquidity [95], thus making the company more attractive to investors. However, the overall weak impact of board committee education diversity on corporate financial performance is in line with some previous results [96] and may be explained by a lack of industry-specific and firm-specific knowledge in certain industries.

According to the obtained results, the professional experience of board committee members has the most significant contribution to corporate performance. I show that the professional experience of strategy and sustainability

committee members in finance significantly contributes to corporate financial performance, while, for the audit committee with greater a representation of this type of experience, this effect is not statistically significant. This is in line with results of some previous studies stating that the diversification (or *breadth*) of board members' professional experience contributes more to corporate innovativeness and overall performance rather than a higher proportion (or *depth*) of certain types of experience [44; 86]. Additionally, a higher proportion of members with professional experience in finance in "non-financial" board committees may prevent companies from overinvestment or, in other words, improve the investment efficiency of company [97].

The findings also show that industry-specific experience and the experience of performing CEO (or equivalent) functions are mostly an insignificant or even a negative factor for the sustainability committee. These findings partly contradict Muravyev [3] but may be explained by the negative effect of the concentration of certain types of experience, narrowing the spectrum of information and approaches used to make decisions. At the same time, a higher share of directors with experience in public service in the sustainability and audit committees contributes to Tobin's Q, as such directors may broaden company access to resources thanks to their professional ties [8; 9; 84]. Thus, the results partly support Hypothesis 5.

Finally, the results confirm that a higher level of CEO power mitigates certain effects of board committee characteristics on corporate performance, which is in line with Hypothesis 6, formulated on the basis of the findings of Hayness and Hillman [44] and more recent findings for emerging markets [8]. Powerful CEOs influence the implementation of decisions made by boards, and can both constrain the implementation of positive initiatives [98] and mitigate the negative effects of non-optimal decisions [57]. However, according to the existing literature, powerful CEOs contribute to corporate performance in the case of a more powerful *monitoring* role of the board [43; 99], suggesting that the board's power should be enhanced by mandating clear rights and powers in corporate charters and regulatory documents [100].

To sum up, the results demonstrate that board committees are not homogeneous in terms of the effects of their composition on corporate performance. It is shown that board professional experience diversity is the most significant factor, albeit it can be deterred by a powerful CEO. Additionally, by highlighting both similarities and differences with previous research, new insights are offered into the complex dynamics of corporate governance and its effects on financial outcomes of Russian corporations.

Conclusion

The results of this study demonstrate that board committee characteristics significantly affect corporate financial performance of Russian public non-financial companies. These findings have several important implications for practitioners and policymakers in Russia and similar emerging markets in the context of the massive changes in corporate governance structure in Russian companies after the sanctions imposed in 2022–2023. Companies should consider diversifying expertise within their board audit committees beyond traditional financial and legal backgrounds to include members with experience in technical fields, public service and other non-financiia fields. Further diversification is necessary for strategy and sustainability committees, as a higher level of diversity can provide a broader perspective and enhance decision-making processes. These implications are valuable for both currently listed companies seeking to optimize their board committee structure and private companies preparing to go public in line with the current IPO boom in Russia [101].

As for policymakers, regulatory bodies should consider developing and implementing guidelines that encourage or require board committee diversity, including recommendations for members' professional and educational backgrounds. Additionally, the study demonstrates the need for enhanced disclosure requirements regarding board composition and members' roles, enabling stakeholders to assess the effectiveness of corporate governance practices in promoting financial performance.

Although this study provides valuable insights, it also has some limitations. Firstly, the sample is limited, covering only the period before the crisis of 2022, when a number of foreign directors and some influential Russian directors left corporate boards. Secondly, the paper does not consider several important types of professional experience such as experience in R&D fields or the experience of being a university professor or researcher. Thirdly, there is no comparative analysis of knowledge and experience brought by internal and external (foreign, independent) board members. Finally, variables of board social capital are not included in the models, albeit there is evidence that board members' professional ties contribute to corporate performance and value [102–104]. Further research on the dataset of Russian companies is necessary to bridge these gaps.

Acknowledgement

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Appendix

Appendix 1. Description of variables

Variable notation	Variable description
Dependent variables (FinPerfit)	
TobinsQ*it*	Tobin's Q of company *i* in the year *t*
TSR*it*	Total Shareholder Return (TSR) of company *i* in the year *t*
BoardComCharactaristics – 11 variables representing characteristics of following board committees: *audit*, *strategy*, *sustainability* (*ESG*) committees. Following previous studies [49; 105], I apply Blau index [106] to evaluate diversity.	
ComTenureDiv*it*	Tenure diversity of committee members. I use 5 groups, depending on the number of years on board: group 1 (0;3), group 2 [3;5], group 3 (5;10], group 4 (10;15], group 5 (15;+). Using these groups, I build Blau index: ComTenureDiv*it* = 1 – $\sum p(\text{Group}g)^2$, *g* from 1 to 5
ComEduLevDiv*it*	I use 5 levels of education of committee members – 1 (undergraduate), 2 (graduate), 3 (MBA), 4 (PhD/candidate of sciences), 5 (doctor of sciences), – and calculate Blau index: ComEduLevDiv*it* = 1 – $\sum p(\text{Group}g)^2$, *g* from 1 to 5
ComEduMajorDiv*it*	I use 6 majors – Economics, Finance and Accounting, Management, Law, Technical sciences, Humanitarian sciences – and calculate Blau index: ComEduMajorDiv*it* = 1 – $\sum p(\text{Group}g)^2$, *g* from 1 to 6
ComFinExp*it*	The **percentage** of committee members who have an experience of work in finance and audit, in banking and financial services.
ComTechExp*it*	The **percentage** of committee members who have an experience of working in technical services (engineering, technical support, etc.).
ComIndExp*it*	The **percentage** of committee members who have an experience of work in the same industry as a Board member (in another company) or executive.
ComCEOExp*it*	The **percentage** of committee members who have an experience of being CEO / partner in consulting / minister / rector.
ComStateExp*it*	The **percentage** of committee members who have an experience in public services.
ComNatDiv*it*	Share of foreign committee members.
ComSize*it*	Natural logarithm of the number of committee members.
ComIndep*it*	Share of independent committee members.
CEO Power	
I build CEO Power index by **summarizing** following three metrics with coefficients equal to 1/3:	
CEO_Tenure*it*	Dummy-variable, equals 1, if CEO tenure is greater than average for the sample, 0 – otherwise.
CEO_Board*it*	CEO's participation in key board committees: strategy, remuneration, and sustainability committee, varying from 0 (CEO does not participate in Board committees) to 1 (participates in all committees).
CEO_Own*it*	Dummy-variable, equals 1, if CEO's share in ownership is greater than average for the sample, 0 – otherwise.
Firm parameters	
Firm_Size*it*	Natural logarithm of total assets (in mln RUR) of company *i* in the year *t*.

Variable notation	Variable description
FirmAgeit	Natural logarithm of age (in years) of company i in the year t.
RevGrowthit	Revenue growth rate for company i in the year t.
Debt_Levelit	Financial leverage, determined by formula: $$Debt\_Level_{it} = Total\ Debt\ Book\ value_{it} / Total\ Assets\ Book\ value_{it}$$
CAPEX_Levelit	This parameter is determined by formula: $$CAPEX\_Level_{it} = CAPEX_{it} / Revenue_{it}$$
ROAit	Return on assets of company i in the year t.
Oper_Perfit	Company's operational performance determined by formula: $$Oper\_Perf_{it} = EBITDA_{it} / Revenue_{it}$$
CashHoldit	Cash holding level of company i in the year t calculated as: $$CashHold_{it} = Cash\&Equivalents_{it} / Revenue_{it}$$
FinSlackit	Financial slack, representing financial resilience of company i in the year t, calculated as: $$FinSlack_{it} = (Cash\&Equivalents_{it} - CurrentLiabilities_{it}) / Revenue_{it}$$
OwnConcentrit	I determine ownership concentration in company i in the year t [66, 93]: $$OwnConcentr_{it} = \ln(TOP3\ Owners\ Share_{it} / (1 - TOP3\ Owners\ Share_{it}))$$ *TOP3 Owners Share* – share of 3 largest shareholders in company's ownership.
StateOwnit	State's share in ownership of company i in the year t.
Big4it	Dummy-variable, equals 1 if annual report of company i in the year t is assured by one of the Big4 audit companies (Deloitte, EY, KPMG or PwC), 0 - otherwise.

Source: created by the author.