Portable Director-Specific Quality

Finance Working Paper N° 870/2023
September 2026

Dipesh Bhattarai
Western Kentucky University
Roy Schmardebeck
University of Tennessee
Matthew Serfling
University of Tennessee
Tracie Woidtke
University of Tennessee

ECGI Working Paper Series in Finance

Portable Director-Specific Quality

Working Paper N° 870/2023
September 2026

Dipesh Bhattarai
Roy Schmardebeck
Matthew Serfling
Tracie Woidtke

Abstract

Boards shape the credibility and usefulness of information, but their effectiveness depends on directors who elicit, evaluate, and challenge information supplied by managers. We examine whether directors possess portable, value-relevant attributes that persist across board appointments and influence firms' information environments and governance outcomes. We develop Director-Specific Quality (DSQ), an individual-director measure of contributions to value distinct from the firms they serve. DSQ explains 9.6 percent of the variation in Tobin's Q. Investors recognize this component: high-DSQ appointments generate more positive returns, their deaths generate more negative returns, and high-DSQ directors receive greater shareholder support. Higher-DSQ boards have lower analyst forecast errors and dispersion, more informative earnings, greater liquidity, better-aligned managerial incentives, and more effective capital allocation. These outcomes deteriorate following high-DSQ director deaths. Exploratory evidence suggests that DSQ reflects observable expertise and harder-to-measure soft skills, including interpersonal effectiveness, cognitive ability, character strengths, and emotional intelligence.

Keywords: Board of Directors, Director Quality, Firm Value, Director Characteristics

JEL Classification: M40, M41, G14, G30

Dipesh Bhattarai
Western Kentucky University

Roy Schmardebeck
University of Tennessee

Matthew Serfling
University of Tennessee

Tracie Woidtke
University of Tennessee

Portable Director-Specific Quality

Dipesh Bhattarai
Western Kentucky University

Roy Schmardebeck
The University of Tennessee, Knoxville

Matthew Serfling
The University of Tennessee, Knoxville

Tracie Woidtke
The University of Tennessee, Knoxville

We are grateful for the helpful comments and suggestions from Onur Bayar (discussant), Audra Boone, Rui Dai (discussant), Scott Guernsey, Douglas Fairhurst, Rachel Li (discussant), Tingting Liu, Anahit Mkrtchyan, Amanjot Singh (discussant), Austin Starkweather, Joshua White, Fei Xie, and Scott Yonker; and seminar and conference participants at the 2022 Financial Markets and Corporate Governance Conference, the 2022 FMA Annual Meeting, the 2022 SFA Annual Meeting, the 2023 EFA (Eastern) Annual Meeting, Drexel University Annual Corporate Governance Conference (lunch session), Kent State University, the University of Kansas, the University of Tennessee, and Washington State University.

Serfling is grateful for funding from the Truist Fund in Finance and the Ray and Joan Myatt Faculty Research Fellowship.

The authors have no conflicts of interest to disclose.

Does this article have supplemental material(s)? Yes

Portable Director-Specific Quality

ABSTRACT

Boards shape the credibility and usefulness of information, but their effectiveness depends on directors who elicit, evaluate, and challenge information supplied by managers. We examine whether directors possess portable, value-relevant attributes that persist across board appointments and influence firms' information environments and governance outcomes. We develop Director-Specific Quality (*DSQ*), an individual-director measure of contributions to value distinct from the firms they serve. *DSQ* explains 9.6 percent of the variation in Tobin's Q. Investors recognize this component: high-*DSQ* appointments generate more positive returns, their deaths generate more negative returns, and high-*DSQ* directors receive greater shareholder support. Higher-*DSQ* boards have lower analyst forecast errors and dispersion, more informative earnings, greater liquidity, better-aligned managerial incentives, and more effective capital allocation. These outcomes deteriorate following high-*DSQ* director deaths. Exploratory evidence suggests that *DSQ* reflects observable expertise and harder-to-measure soft skills, including interpersonal effectiveness, cognitive ability, character strengths, and emotional intelligence.

Keywords: Board of Directors, Director Quality, Firm Value, Director Characteristics

JEL Classifications: M40, M41, G14, G30

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process: The authors used OpenAI's ChatGPT to assist with editing and improving the clarity and organization of selected passages and with drafting or refining portions of the computer code used for data processing and empirical analysis. All AI-assisted text and code were reviewed, tested, and revised by the authors. The authors made all research-design decisions, verified the accuracy of the analyses, and take full responsibility for the manuscript's content, results, interpretations, and conclusions.

I. INTRODUCTION

Boards play a central role in shaping the reporting, disclosure, and governance systems through which firms produce credible information for capital markets. Although boards act collectively, their effectiveness depends on individual directors' ability to elicit information, evaluate managerial explanations, challenge assumptions, and influence monitoring and advising decisions. Prior research examines how board structure, observable director characteristics, expertise, and director-firm fit affect governance and firm outcomes (e.g., Beasley, 1996; Klein, 2002; Dhaliwal et al., 2010; Krishnan et al., 2011; Adams et al., 2018). Practitioner guidance, such as from the National Association of Corporate Directors, further emphasizes the importance of less observable individual attributes, including judgment, emotional intelligence, communication, adaptability, and relationship-building (Gelbard, 2024; Kierzek, 2025; PwC, 2026). Yet these potentially important dimensions of director quality are largely absent from conventional director data.

This measurement gap leaves a fundamental question unresolved: do individual directors possess value-relevant attributes that persist across board appointments and systematically affect governance and firm value? The answer matters because boards influence disclosure credibility, managerial oversight, and the information available to capital market participants (Bushman and Smith, 2001; Armstrong et al., 2010), making it important to understand individual directors' contributions to board effectiveness (CII-REF, 2019; Spencer Stuart, 2025). Evidence of a portable component of director quality would imply that directors affect firms through capabilities that generalize across organizations and settings, rather than solely through idiosyncratic director-firm matches.

This paper studies whether such a portable director-specific component exists and is economically meaningful. We develop a measure of Director-Specific Quality, or *DSQ*, designed to capture the persistent director-specific contribution to firm value that is transferable across board appointments. We then use this measure to examine whether capital market participants recognize this component of director quality and whether it is reflected in firm outcomes. Our outcome

tests are motivated by the idea that high-*DSQ* directors improve how boards elicit, process, and use information. Higher-quality directors can bring stronger judgment, expertise, and influence to the board, enhancing the board's monitoring of managers and advising on corporate decisions. Accordingly, firms with higher-*DSQ* boards should have stronger information environments, better managerial incentive alignment, and more effective capital allocation decisions (Bushman and Smith, 2001; Healy and Palepu, 2001; Lambert et al., 2007; Armstrong et al., 2010).

To construct *DSQ*, we use the Abowd et al. (1999) (hereafter AKM) methodology to decompose firm value, measured using Tobin's Q, into director, firm, year, and observable time-varying components. The estimated director fixed effect captures the portion of firm value associated with an individual director after accounting for persistent firm characteristics, year effects, and time-varying firm, board, and director characteristics. We interpret this component as the portable, director-specific portion of value creation and use the estimated director effects as our measure of *DSQ*.[1] Importantly, *DSQ* is not a new index of observable director credentials. Instead, it is a reduced-form measure of portable, value-relevant director attributes that remain after accounting for other determinants. It may reflect observable characteristics examined in prior work, such as education, experience, and expertise, as well as harder-to-measure attributes such as emotional intelligence, interpersonal skills, deliberation ability, and adaptability. This feature is important because director effectiveness is likely multidimensional and not easily summarized by any single observable characteristic (Cohen et al., 2014; Kim and Starks, 2016; Adams et al., 2018).

We first estimate *DSQ* and examine whether this director-specific component is economically meaningful. We estimate *DSQ* using Tobin's Q as the outcome because firm value provides a summary measure of the channels through which directors may affect firms. Focusing on non-employee directors, we find that *DSQ* explains 9.6 percent of the total variation in Tobin's Q and

[1] AKM has been used to decompose outcomes into individual- and organization-specific components in a variety of settings, including studies of executive compensation (Graham et al., 2012; Coles and Li, 2020), inventor contributions to innovation (Bhaskarabhatla et al., 2021), manager influence on accounting quality and corporate social responsibility (Davidson et al., 2019; Wells, 2020), and supervisor effects on employee misconduct (Kowaleski et al., 2024).

11.8 percent of explainable variation. By comparison, firm fixed effects explain 53.7 percent of total variation, while time-varying controls and year effects explain 15.6 percent and 2.4 percent, respectively. These findings indicate that individual directors contribute meaningfully to firm value beyond firm-level factors and the characteristics included in the model.

We next examine whether capital market participants recognize this director-specific component. We find that appointments of higher-*DSQ* directors generate more positive announcement returns, while deaths of higher-*DSQ* directors generate more negative announcement returns, consistent with investors valuing the arrival and loss of high-quality directors (e.g., Nguyen and Nielsen, 2010; Schmid and Urban, 2023). We also find that higher-*DSQ* directors receive stronger shareholder voting support in director elections. These findings suggest that *DSQ* captures director-specific attributes that are recognized by investors and shareholders.

Having established that *DSQ* is economically meaningful and recognized by market participants, we examine whether high-*DSQ* directors are associated with firm outcomes that reflect the board's monitoring and advising roles. Our central hypothesis is that directors with higher portable quality improve how boards obtain, interpret, and use information. Directors influence firm value not only through discrete decisions, but also through oversight of reporting and disclosure, the design of managerial incentives, and the evaluation of major investments. High-*DSQ* directors may be better able to question managers, process complex information, evaluate competing alternatives, and guide decision-making in ways that improve board effectiveness. We therefore organize the board-level tests into three areas: the information environment, managerial incentives, and capital allocation.

First, we examine the information environment. If high-*DSQ* directors improve disclosure credibility, financial reporting oversight, and strategic communication, firms with higher board-level *DSQ* should have information environments that allow outside investors and analysts to assess firm value more precisely. Because directors' information-related effects may arise through multiple unobservable actions, we focus on external information-environment proxies commonly used in

the literature. We find that firms with higher board-level *DSQ* have lower analyst forecast errors, lower forecast dispersion, stronger earnings response coefficients, narrower bid-ask spreads, and lower Amihud illiquidity, consistent with more credible and useful firm information. We also examine whether *DSQ* is associated with the *FScore* from Dechow et al. (2011) and financial statement misstatements. We find limited evidence that *DSQ* is associated with lower misreporting risk, suggesting that the information-environment benefits of high-*DSQ* boards are more likely to operate through broader disclosure credibility and information quality than through a lower incidence of reporting failures.

Second, we examine managerial incentives. Effective boards design compensation contracts that align managers' incentives with shareholder interests (Bebchuk and Fried, 2003; Bushman and Smith, 2001; Laux and Laux, 2009). Consistent with high-*DSQ* boards providing stronger compensation oversight, we find that firms with higher board-level *DSQ* award CEOs greater performance-sensitive compensation and a higher fraction of compensation in equity.

Third, we examine capital allocation. Boards advise on and oversee major uses of corporate resources, including cash holdings, acquisitions, and innovation. Prior work links governance quality to the value of cash, acquisition outcomes, and investment decisions (Faulkender and Wang, 2006; Dittmar and Mahrt-Smith, 2007; Masulis et al., 2007; Harford et al., 2008; Manso, 2011). We find that firms with higher board-level *DSQ* have a higher marginal value of cash, acquirer announcement returns, and innovation output. Together, these results suggest that the information-environment improvements we document are part of a broader pattern in which high-*DSQ* directors improve how information is brought into the boardroom and used in oversight and decision-making, with downstream effects on both firm transparency and the quality of corporate decisions.

We conduct several additional tests to strengthen the interpretation of *DSQ*. We first show that *DSQ* is distinct from and incremental to observable director expertise. The relation between *DSQ* and director- and firm-level outcomes remains robust after controlling for financial, industry,

managerial, and legal experience. We also use director deaths to examine whether firm outcomes change after firms experience a plausibly exogenous loss of *DSQ*. Following the death of a high-*DSQ* director, firms experience weaker information environments, lower CEO incentive alignment, lower marginal values of cash, poorer M&A outcomes, and lower innovation output.

Finally, we conduct an exploratory analysis into what attributes *DSQ* may capture by relating it to observable director characteristics and soft skills inferred from biographies through textual analysis. We find that *DSQ* is positively associated with several observable characteristics linked to director effectiveness, including leadership experience, elite education, graduate degree, and legal expertise. We also find associations between *DSQ* and inferred soft skills such as empathy, patience, adaptability, emotional intelligence, analytical, and being a skilled facilitator. The findings suggest that *DSQ* is modestly related to several observable traits and more strongly related to a broad set of difficult-to-quantify soft skills. No single dimension dominates, suggesting that high-*DSQ* directors appear to combine transferable attributes, like interpersonal effectiveness, cognitive ability, character strengths, and emotional intelligence, to collectively enhance board effectiveness.

Throughout the paper, we address several econometric concerns. Following Jarosiewicz and Ross (2023), we show that *DSQ* is unlikely to be spurious by scrambling director-firm matches. When we do so, the explanatory power of *DSQ* declines by 65 percent, and the scrambled estimates are unrelated to the outcomes we study. We also show that our results are robust to estimating *DSQ* using rolling windows and only information available up to $t-1$, to using abnormal stock returns instead of Tobin's Q, and to alternative approaches for addressing concerns related to limited mobility, differences between movers and stayers, and assortative matching.

Our paper contributes to the literature in three ways. First, we extend governance research by moving beyond board-level structure and observable director traits to identify a portable individual-director component of effectiveness. Prior research studies whether boards matter in the aggregate (Nguyen and Nielsen, 2010; Burt et al., 2020) or whether specific observable director characteristics

improve governance and performance (DeFond et al., 2005; Güner et al., 2008; Fahlenbrach et al., 2010; Adams et al., 2018).[2] We show that individual directors possess a measurable director-specific component that travels across appointments and explains economically meaningful variation in firm value. This evidence complements work emphasizing team effects and multidimensional board composition (Kim and Starks, 2016; Adams et al., 2018) by demonstrating that director quality also has an important individual-specific dimension.

Second, we contribute to research on governance and information environments by showing that portable director quality is reflected in the credibility and usefulness of firm information. Prior research links specific forms of director expertise, such as accounting, legal, or industry expertise, to reporting quality, disclosure, and information asymmetry (DeFond et al., 2005; Krishnan et al., 2011; Faleye et al., 2018), and stronger governance is associated with richer information environments (Healy and Palepu, 2001; Lambert et al., 2007; Armstrong et al., 2010). We extend this literature by showing that a portable component of director quality beyond observable expertise is reflected in analyst forecast properties, earnings informativeness, and market liquidity. We also show that *DSQ* is reflected in managerial incentive alignment and capital allocation, suggesting that portable director quality influences not only firm reporting but also the incentives and decisions through which managers create value. Thus, our contribution is not simply that boards matter for reporting oversight, but that a portable dimension of individual director quality helps explain how information is produced, incentives are structured, and resources are allocated.

Third, we contribute by introducing and validating a scalable measure of *DSQ* that can be used by researchers and practitioners. Director effectiveness is inherently multidimensional, and measures based only on observable traits risk missing hard-to-measure attributes such as emo-

[2] Adjacent studies show that individual directors explain variation in governance, financial reporting, and disclosure choices (Richardson et al., 2003) and that accounting performance is related to director heterogeneity (Cavaco et al., 2017; Lu et al., 2022). Our paper differs from these studies by constructing and validating a reusable measure of *DSQ* based on the director's contribution to a market-based measure of firm value, rather than using director fixed effects primarily as controls or to identify director styles. We also examine how portable director quality is reflected in firm outcomes, including the information environment, managerial incentives, and capital allocation.

tional intelligence, communication, analytical ability, adaptability, and empathy. *DSQ* captures the director-specific, transferable portion of firm value that remains after accounting for firm effects, year effects, and time-varying controls. By validating the measure through market reactions, shareholder voting, director deaths, observable expertise controls, and biography-based attributes, we provide a tool that future accounting, finance, and governance research can use to study how director quality shapes reporting, disclosure, incentives, investment, and board design.

II. BACKGROUND AND MOTIVATION

Directors perform two central governance functions: monitoring managers and advising on major corporate decisions. Both functions require directors to obtain, interpret, and act on complex information. Directors must evaluate managerial explanations, assess the credibility of internal reports, understand risks and strategic alternatives, and translate this information into oversight and advice. Consistent with this view, stronger boards are associated with more informative disclosure, greater transparency, and governance structures that facilitate oversight of managers (Ajinkya et al., 2005; Karamanou and Vafeas, 2005; Dhaliwal et al., 2010; Armstrong et al., 2014).

Although boards make decisions collectively, their effectiveness depends on the quality of the individual directors who contribute to board decisions. The 2025 Spencer Stuart Board Index reflects this view, noting that recent changes in board accountability and disclosure practices are part of a broader recognition that "effective governance depends not only on the collective performance of the board, but also on individual director contributions" (Spencer Stuart, 2025). PwC (2026) also emphasizes that individual directors affect board performance through their judgment, engagement, perspectives, and boardroom behavior, including their influence on group dynamics. Consistent with this view, the Council on Institutional Investors' guidance on board evaluation states that effective evaluation processes assess performance at the board, committee, and individual-director levels (CII-REF, 2019). These perspectives support the idea that director quality extends beyond

observable credentials or specific expertise. High-quality directors may improve board effectiveness by asking better questions, challenging management, eliciting information relevant to decision-making, and helping the board monitor and advise management more effectively.

A central challenge in this literature is measuring director quality. Prior research often uses observable board or director characteristics, such as board independence and size, financial and industry expertise, or demographic diversity, as proxies for governance quality. While useful, these measures capture only selected dimensions of a director's ability. They may not fully capture the judgment, diligence, communication ability, information-processing skill, reputation, influence, or willingness to challenge management that can determine whether a director is effective in the boardroom. Moreover, observable credentials do not necessarily imply that directors have the same impact on governance outcomes. For example, financial expertise is more effective when directors have sufficient status to influence board decisions (Badolato et al., 2014). Thus, observable characteristics capture only part of the variation in directors' monitoring and advising effectiveness.

This measurement problem motivates our focus on *DSQ*. Two directors with similar observable credentials can differ substantially in their ability to question managers, interpret complex information, improve governance, and enhance value. Likewise, the same observable characteristic may not translate into the same governance effect across directors or firms. We therefore ask whether directors possess portable, director-specific qualities that systematically influence firm value beyond what can be inferred from board composition, committee assignments, or observable director data. *DSQ* is designed to capture this persistent component of a director's contribution.

Investors and shareholders have incentives to evaluate whether directors are likely to improve board effectiveness. If *DSQ* captures variation in individual director contributions, then changes in the presence of high-*DSQ* directors should alter expectations about the board's ability to monitor and advise management. The appointment of a high-*DSQ* director should increase the board's expected effectiveness, whereas the loss of a high-*DSQ* director should reduce effectiveness. This

reasoning suggests that market participants may react more favorably when high-*DSQ* directors are appointed and less favorably when the firm loses high-*DSQ* directors. Shareholders should also show greater support for high-*DSQ* directors who make stronger contributions to the firm.

If portable director quality matters, it should be reflected in firm-level outcomes. We focus on three areas in which directors' monitoring and advising roles are likely to be especially important: the information environment, managerial incentives, and capital allocation. These areas correspond to core board responsibilities and provide a framework for assessing whether high-*DSQ* directors influence firms in economically meaningful ways. The information environment is particularly important in our setting because directors affect firm outcomes in part by shaping how information is demanded, evaluated, and communicated within and outside the firm. Managerial incentives and capital allocation provide complementary settings in which directors use information to monitor managers, align incentives, and advise on major corporate decisions.

The first area is the information environment. Boards shape firms' information environments through their oversight of financial reporting, internal information flows, and disclosure practices. Effective monitoring requires timely, credible, and detailed information. Directors who process complex information more effectively may be more likely to request additional information, challenge incomplete or ambiguous disclosures, and promote credible communication with investors. Prior research finds that firms with more effective board and audit committee structures provide more frequent and higher quality management forecasts, including greater accuracy and stronger responses to market news (Ajinkya et al., 2005; Karamanou and Vafeas, 2005). More broadly, credible disclosure and stronger information environments reduce information asymmetry between firms and capital market participants (Healy and Palepu, 2001; Lambert et al., 2007). Thus, if high-*DSQ* directors improve the board's ability to demand, interpret, and communicate firm-specific information, firms with higher board-level *DSQ* should have stronger information environments.

The second area is managerial incentives. Directors influence firm outcomes through their role in hiring, evaluating, compensating, and disciplining executives. Compensation contracts are a central mechanism through which boards align managerial incentives with shareholder interests (Core et al., 1999; Bushman and Smith, 2001; Chhaochharia and Grinstein, 2009; Laux and Laux, 2009). Directors who are more diligent, informed, or willing to challenge managerial preferences should be more likely to support compensation structures that tie managers' wealth more closely to firm performance. Therefore, if high-*DSQ* directors provide stronger monitoring and compensation oversight, firms with higher board-level *DSQ* should exhibit stronger CEO incentive alignment.

The third area is capital allocation. Boards evaluate major uses of corporate resources, including cash holdings, acquisition proposals, and innovation investments. These decisions often involve substantial uncertainty, managerial discretion, and potential conflicts between managers and shareholders. Prior work links governance quality to the value of cash holdings, acquisition outcomes, and innovation (Dittmar and Mahrt-Smith, 2007; Faulkender and Wang, 2006; Masulis et al., 2007; Harford et al., 2008; Manso, 2011). High-*DSQ* directors may improve capital allocation by scrutinizing managerial proposals, requesting and processing additional information, identifying strategic opportunities, and providing advice on complex decisions. Thus, if *DSQ* improves monitoring and advising, firms with higher board-level *DSQ* should allocate capital more effectively.

III. DATA AND EMPIRICAL METHODOLOGY

Sample Selection

Our sample begins with all nonemployee directors in BoardEx from 2000 to 2023. BoardEx provides unique director and firm identifiers, as well as detailed information on director characteristics and board composition. We obtain firm financial statement information from Compustat, stock return information from CRSP, and institutional ownership data from Thomson Reuters' 13-F Holdings database. We obtain classified board information from Guernsey et al. (2025) and

Guernsey et al. (2022). We also use the SDC database to obtain M&A information and the Voting Analytics database for information on director election vote outcomes. We manually merge Voting Analytics to BoardEx using CUSIPs and director name matches. After removing observations with missing data and estimating our AKM model described in the following section, our base sample has 504,533 firm-director-year observations, corresponding to 7,239 firms and 60,015 unique directors.

Estimating Director-Specific Quality

To estimate each director's portable contribution to firm value, we adopt the connected-group methodology of Abowd et al. (1999).[3] This methodology allows us to back out a reduced-form measure of value-relevant portable *DSQ* that includes all director characteristics, whether easily observable or not, after removing firm and time-varying characteristics.[4] Specifically, we decompose firm value into director, firm, year, and observable time-varying components as follows:

$$\text{Ln}(TQ_{ijt}) = \theta_i + \psi_j + \omega_t + X_{jt(t-1)}\beta + Z_{ijt}\gamma + \varepsilon_{ijt}, \tag{1}$$

where TQ_{ijt} is Tobin's Q for firm j, on whose board director i serves in year t. The model includes director fixed effects, θ_i, firm fixed effects, ψ_j, year fixed effects, ω_t, time-varying firm and board controls, $X_{jt(t-1)}$, and time-varying director controls, Z_{ijt}. The controls help isolate the portable director-specific component from observable firm, board, and time-varying director characteristics that may be correlated with both director quality and firm value, as well as from time-varying firm needs for particular director attributes. Firm-level controls capture size, capital structure, operating performance, ownership, investment intensity, risk, and governance structure. Board-level controls

[3] In principle, the fixed effects could be estimated using ordinary least squares. However, because our setting contains tens of thousands of unique directors and firms, we follow prior work and use the AKM methodology. We describe the methodology formally in Online Appendix OA.1.

[4] This decomposition is analogous to evaluating the contribution of individual researchers to a department's research productivity. A department's output reflects department-specific resources, such as infrastructure, colleagues, and research culture, as well as researcher-specific attributes, such as creativity, effort, expertise, and judgment. Productive researchers tend to remain productive across institutional settings, although the magnitude of their contribution may vary with the environment. Similarly, our empirical approach separates the component of firm value attributable to persistent firm characteristics and observable time-varying factors from the component associated with individual directors across the firms on whose boards they serve.

capture board independence, gender diversity, board size, CEO-chair duality, and the presence of a lead independent director. Director-level controls capture public board experience, busyness, tenure, independence, age, industry experience, committee assignments, and board leadership roles. Detailed variable definitions are provided in the Appendix, and Table A1 presents summary statistics for the variables used in the decomposition regression.[5]

The estimated director fixed effect captures the portable director-specific component of firm value attributable to a director across the firms she serves, after accounting for the other components in Eq. (1). We refer to this transferable director effect as director-specific quality, or *DSQ*. Identification comes from variation in board composition across firms and over time. Director departures and appointments create within-firm variation in board composition, while directors who serve on multiple boards help connect firms and directors within the AKM network. In our sample, director turnover is common, with 8.6 percent of directors leaving a firm each year and 26.7 percent of directors serving on at least two different Russell 3000 boards during the sample period.[6] We estimate Eq. (1) within connected groups of directors and firms and normalize the recovered director fixed effects within connected groups so that director effects are comparable across groups (Cornelissen, 2008).[7] The Online Appendix provides the formal derivation and additional implementation details.

[5]Point-in-time variables, such as firm size, are measured at the beginning of the fiscal year, while flow variables, such as profitability, are measured over the contemporaneous fiscal year. We winsorize firm financial statement variables, stock-return variables, and director tenure at the 1st and 99th percentiles and express dollar values in 2017 dollars.

[6]The 26.7 percent share of directors who serve on multiple Russell 3000 boards, or director movers, is substantially larger than the 5 percent and 6.5 percent of managerial movers in Graham et al. (2012) and Wells (2020), respectively, and the 16 percent of inventor movers in Liu et al. (2023). Because our sample is limited to Russell 3000 firms, these figures understate directors' total board service. Among directors who appear to serve on only one board in our sample, 81.3 percent serve on at least one other public or private board at some point, and 62.8 percent serve on another public or private board simultaneously. Online Appendix Table A2 provides additional director mobility and connectedness statistics.

[7]We use the Stata command *felsdvreg* to implement the AKM method. Table A3 reports the estimates from Eq. (1). Although the specification differs from standard regressions because it includes both director and firm fixed effects, the coefficients on the observable determinants of firm value are consistent with prior work. Because the reference director and firm differ across connected groups, we normalize the estimated fixed effects, but our results are similar when we restrict the estimation to the largest connected group containing 94.5 percent of the observations.

Figure 1 presents the annual distribution of the estimated *DSQ*. The median remains relatively stable throughout the sample, and the interquartile range exhibits little variation across years. The 10th–90th percentile range indicates substantial cross-sectional dispersion in *DSQ* in every year. Overall, the figure reveals no pronounced year-specific shift in the center of the *DSQ* distribution. This evidence reduces the concern that our findings are driven by an obvious change in the annual distribution of estimated director quality. Table 1 decomposes the variation in Tobin's Q following Graham et al. (2012) and Coles and Li (2020). Firm-specific effects explain the largest share of the variation in Tobin's Q, 53.7percent. Time-varying firm, board, and director characteristics explain 15.6 percent, and year fixed effects explain 2.4 percent. Most important for our study, director-specific effects explain 9.6 percent of total variation and 11.8 percent of explainable variation. These estimates indicate that the portable component of individual director quality accounts for a meaningful component of firm value beyond firm-specific factors, year effects, and observable time-varying characteristics.

We use the estimated director-specific effects in several ways. In director-level tests, *DSQ* is the estimated fixed effect for the individual director. We standardize *DSQ* to have a standard deviation of one and form tercile indicators to allow for nonlinear effects in some specifications. In firm-level tests, we average *DSQ* across all directors serving on a firm's board to construct *AvgDSQ*. We also define *FSQ* as the estimated firm fixed effect. Following the logic of Coles and Li (2020), our regressions control for Tobin's Q net of *DSQ* and *FSQ*, *ResidTQ*. This control helps ensure that the relation between *DSQ* and the outcomes we study is not simply capturing residual components of firm value omitted from Eq. (1). Our results are similar when we exclude *ResidTQ*.

For our primary measure, we estimate *DSQ* using the full sample. This approach is appropriate for our main objective of estimating a director-specific component that is portable across firms and stable over time, and it uses the maximum number of director moves to produce more precise estimates. However, we also report an out-of-sample specification in each main analysis in which

we reestimate Eq. (1) each year using only data available through year $t-1$ to mitigate concerns that the full-sample measure may use future information that is not observable to investors or firms at time t. We refer to these specifications as "out-of-sample" analyses because only historical information is used to estimate *DSQ* and *FSQ*. These tests provide a conservative assessment of whether historically estimated director quality predicts subsequent firm outcomes.

Before turning to the main tests, we briefly summarize the validation and robustness analyses that support our interpretation of *DSQ* as a portable director-specific component. Section VII first shows that our results are robust to alternative approaches for estimating *DSQ*, including characteristic-adjusted returns, mover and stayer subsamples, and the mover dummy variables approach of Bertrand and Schoar (2003). Second, we address the concern raised by Jarosiewicz and Ross (2023) that fixed effects approaches can produce spurious estimates of individual "styles" using placebo tests based on scrambled director-firm matches. Finally, we conduct several tests to examine whether director-firm assortative matching explains our results.[8]

IV. DIRECTOR-LEVEL ANALYSIS

We begin by examining whether *DSQ* captures portable, value-relevant attributes that are recognized by market participants and shareholders. We first study market reactions to director appointments and deaths, which provide direct evidence on whether investors value the arrival or loss of high-*DSQ* directors. Our next test uses director election outcomes to assess whether shareholders provide greater voting support to high-*DSQ* directors.

[8]Because Tobin's Q is measured using stock prices at fiscal year-end, a potential concern is that the estimated *DSQ* and *FSQ* mechanically incorporate market reactions to value-relevant events near fiscal year-end, such as M&A announcements, director appointments, or director deaths. This concern is unlikely to explain our results. Only 1.09 percent of firm-years have one of these events within a ±5 day window around fiscal year-end, and only 3.21 percent have one within a ±14 day window. Our main results are similar after excluding firm-years with these events near fiscal year-end.

Director Appointment and Death CARs

Table 2 presents the results examining the relation between *DSQ* and abnormal stock returns around announcements of new director appointments and director deaths. Appointment announcement returns provide a market-based assessment of the expected contribution of a newly appointed director to firm value. We obtain appointment announcements from BoardEx and supplement these data with appointments announced in 8-K filings because BoardEx coverage declines substantially after 2012.[9] We remove announcements accompanied by major confounding news events in the ±3-day window and estimate five-day cumulative abnormal returns, *CAR*, using a market model based on CRSP value-weighted returns and parameters estimated over trading days $[-210, -11]$ before the announcement.[10] In this analysis and all subsequent director-level analyses, regressions include an extensive set of time-varying firm-, board-, and director-level controls. The base specifications include two-digit SIC industry and year fixed effects, and standard errors are clustered by firm.

The results show that investors respond more favorably to appointments of high-*DSQ* directors. In column 1, a one standard deviation increase in *DSQ* is associated with 15.2 bps higher appointment CARs, which is economically meaningful relative to the mean and standard deviation of appointment CARs of 12.0 and 594 bps, respectively. The result is similar in column 2 when we include firm fixed effects. Column 3 shows a monotonic relation across *DSQ* terciles. Relative to directors in the first tercile, appointments of directors in the second and third terciles are associated with 26.5 and 39.2 bps higher CARs, respectively. In the out-of-sample specifications, the continuous *DSQ* estimates in columns 4 and 5 are positive but statistically insignificant, while column 6

[9]We obtain BoardEx appointment announcements by filtering the BoardEx Announcement file for descriptions that contain "join this board." We supplement these data with 8-K filings from Item 5.02(d). We obtain the SEC links from WRDS SEC Analytics Suite, use textual analysis to parse director names and announcement dates, use the filing report date when the announcement date is missing, and match the director's name and firm to BoardEx. The combined appointment sample covers 2003 through 2024.

[10]We obtain confounding news events from Ravenpack News Analytics and exclude appointments with earnings announcements or equity actions, including buybacks, reorganizations, private placements, spin-offs, and stock splits.

shows that appointments of directors in the third tercile of out-of-sample *DSQ* are associated with 29.7 bps higher CARs than appointments of directors in the first tercile.

Because director appointments are not exogenous, appointment CARs may reflect both the expected contribution of the director and the selection or matching of the director to the firm. We therefore also examine director deaths, which provide a more plausibly exogenous shock to the board's *DSQ*. Columns 7 and 8 show that announcement returns are more negative when high-*DSQ* directors die.[11] A one standard deviation increase in the deceased director's *DSQ* is associated with a 30.8 bps lower announcement CAR. Further, relative to deaths of directors in the first tercile of *DSQ*, deaths of directors in the third tercile are associated with 84.6 bps lower CARs. These effects are economically meaningful relative to the mean and standard deviation of director death CARs of -20.7 and 502 bps, respectively. Overall, the appointment and death results suggest that *DSQ* captures directors' contribution to firm value beyond selection and matching effects.

Director Election Outcomes

Table 3 examines the relation between *DSQ* and shareholder voting support in director elections. We match election outcomes from Voting Analytics to BoardEx over 2004 through 2024, the period in which Voting Analytics coverage is more complete. We measure shareholder support, *%Vote*, as the fraction of shares voted "for" the director multiplied by 100.

The results show that high-*DSQ* directors receive greater shareholder support. Column 1 reports a positive and statistically significant coefficient on *DSQ*. A one standard deviation increase in *DSQ* is associated with 12.7 bps more shareholder support. Although average support for directors is high, with a mean *for* vote percentage of 94.3 percent, based on the estimates in Iliev et al. (2015),

[11] We obtain director death dates from the BoardEx Profiles file because the BoardEx Announcements file appears to stop collecting death announcements after 2012. We verify that the recorded death dates match death announcement dates in earlier years and require that the director was serving on the firm's board at the time of death. As in the appointment analysis, we remove observations accompanied by other major news announcements. A caveat is that the CAR around a director death reflects the expected net effect of losing the director, which may also depend on the expected quality of the replacement director. We find that firms tend to replace deceased high-*DSQ* directors with lower-*DSQ* directors, and deceased low-*DSQ* directors with higher-*DSQ* directors.

the 12.7 bps increase in shareholder support implies a 3.1 percent reduction in director turnover. The result is similar in column 2 when we include firm fixed effects. In column 3, directors in the third tercile of *DSQ* receive 26.6 bps more shareholder support than directors in the first tercile. In the out-of-sample specifications, columns 4 through 6 show that the relation between *DSQ* and shareholder support remains positive and statistically significant. These findings suggest that shareholders recognize and provide more support for directors with higher *DSQ*.

V. BOARD-LEVEL ANALYSIS

We next examine how *DSQ* is reflected in firm-level outcomes. We organize the board-level tests into three areas in which directors' monitoring and advising roles are likely to be especially important: the information environment, managerial incentives, and capital allocation.

DSQ and the Information Environment

High-*DSQ* directors may be associated with stronger information environments by improving how boards oversee financial reporting, evaluate internal information, and communicate with capital market participants. Through more effective monitoring and clearer strategic communication, high-*DSQ* boards can increase the credibility, transparency, and interpretability of firm disclosures. We examine this using analyst forecast properties, earnings response coefficients (ERCs), and market liquidity. These outcomes allow us to assess whether higher board-level *DSQ* is associated with improved analyst information processing, more informative earnings, and lower information asymmetry. We also examine whether *DSQ* is associated with misreporting risk.

We first examine analyst forecast errors and forecast dispersion, which capture the precision and consensus of external information intermediaries. Forecast error reflects the accuracy of analysts' expectations about future earnings, while forecast dispersion measures disagreement among analysts and reflects uncertainty about firm fundamentals. If high-*DSQ* boards improve disclosure quality,

enhance strategic clarity, and reduce managerial opacity, analysts should be able to form more accurate and less divergent expectations.[12]

Table 4 shows that boards with higher average *DSQ* are associated with lower analyst forecast errors and dispersion. In column 1, a one standard deviation increase in *AvgDSQ* is associated with a 17.9 percent decrease in analyst forecast errors relative to the sample mean (= 0.183/1.021). Columns 2–4 show that this result holds when controlling for firm fixed effects and in our out-of-sample specifications. The results for forecast dispersion are similar. In column 5, a one standard deviation increase in *AvgDSQ* is associated with a 16.1 percent decrease in analyst forecast dispersion relative to the sample mean (= 0.064/0.397). Columns 6–8 show that this relation also holds with firm fixed effects and in the out-of-sample specifications.

We next examine ERCs, which measure the sensitivity of stock returns to earnings announcements and capture the extent to which accounting earnings convey new value-relevant information to investors. Conditional on an earnings surprise, higher ERCs indicate that reported earnings are more credible, informative, and useful for valuation. Directors with higher *DSQ* may improve oversight of financial reporting, and promote more transparent disclosure practices, thereby enhancing earnings quality and credibility when reported earnings deviate from analyst forecasts. As a result, if high-*DSQ* boards improve the informativeness of reported earnings, firms with higher board-level *DSQ* should exhibit stronger market reactions to earnings surprises.[13] Table 5 shows that investors react more strongly to earnings surprises at firms with higher board-level *DSQ*. Column 1 shows that a one standard deviation increase in *AvgDSQ* is associated with an 8.5 percent relative increase in

[12]We obtain quarterly analyst forecasts and actual EPS from IBES and retain only the last analyst forecast before actual earnings are released for each firm-quarter. Forecast error, *FrcstError*, equals the absolute value of actual quarterly EPS minus the mean analyst consensus forecast, scaled by the firm's stock price on the day the forecasts are calculated. Forecast dispersion, *FrcstDisp*, equals the standard deviation of quarterly analyst forecasts scaled by the firm's stock price on the day the consensus forecast is calculated. We multiply both measures by 100.

[13]We measure market reactions, *CAR*, as the five-day CAR around an earnings announcement using a market model based on CRSP value-weighted returns and parameters estimated over trading days $[-210, -11]$ before the announcement. Earnings surprise, *ESURP*, equals actual quarterly EPS minus the mean analyst consensus forecast, scaled by the firm's stock price on the day the forecasts are calculated.

market reactions to earnings surprises (= 0.060/0.708). This result remains robust to firm fixed effects and out-of-sample specifications in columns 2-4.

We then examine market liquidity using bid-ask spreads and Amihud (2002) illiquidity. Bid-ask spreads capture trading frictions and adverse selection costs faced by market makers, while Amihud illiquidity measures the price impact of trades and reflects information asymmetry in trading. Higher spreads and illiquidity indicate greater uncertainty about firm value and higher information risk. If high-*DSQ* boards improve disclosure quality, reduce uncertainty, and enhance the credibility of financial information, firms with higher board-level *DSQ* should exhibit narrower bid-ask spreads and lower illiquidity. Table 6 shows that boards with higher average *DSQ* are associated with improved liquidity. In column 1, a one standard deviation increase in *AvgDSQ* is associated with approximately 13.5 percent lower bid-ask spreads. Columns 2–4 show that this result holds when controlling for firm fixed effects and in our out-of-sample specification. Similarly, column 5 shows that a one standard deviation increase in *AvgDSQ* is associated with a 33.9 percent decrease in illiquidity. Columns 6–8 show that this result also holds with firm fixed effects and in the out-of-sample specification.

Finally, we examine whether *DSQ* is associated with misreporting risk. High-*DSQ* directors may be better able to challenge managerial opportunism, strengthen internal controls, and promote ethical reporting cultures, thereby reducing incentives and opportunities for earnings manipulation or misstatements. At the same time, if the information-environment benefits of high-*DSQ* boards primarily arise from broader disclosure credibility and monitoring rather than the avoidance of extreme reporting failures, we may not observe a strong relation between *DSQ* and misstatements.

Table A4 reports regressions relating board-level *DSQ* to misreporting. We use two measures: the fraud risk score, *FScore*, of Dechow et al. (2011) and an indicator for financial statement misstatements. In specifications without firm fixed effects, *AvgDSQ* is negatively and statistically related to *FScore*, suggesting that higher-quality boards are associated with lower predicted fraud

risk. However, this relation is not robust to the inclusion of firm fixed effects. Across all specifications, we find no statistically significant relation between *AvgDSQ* and the incidence of financial misstatements. These results suggest that the information-environment benefits associated with high-*DSQ* boards are not primarily attributable to a lower incidence of misreporting. The evidence is more consistent with high-*DSQ* boards improving the usefulness and credibility of firms' reporting and disclosures.

DSQ and Equity-Based Compensation

An effective board designs compensation contracts that align managerial incentives with shareholder interests. Executive compensation is thus a central governance mechanism through which boards motivate, monitor, and evaluate managers. A common way to reduce agency problems is to tie the CEO's compensation more closely to firm performance. Consistent with this view, firms with stronger monitoring and better governance structures award CEOs more pay-performance-sensitive compensation (Coles et al., 2014). Thus, if higher board-level *DSQ* reflects stronger governance, high-*DSQ* boards should award CEOs more performance-sensitive compensation.

Table 7 examines the relation between board-level *DSQ* and CEO equity-based compensation. We use two measures from Execucomp. In columns 1–4, we examine the *Delta* of CEO wealth, which measures the dollar change in CEO wealth for a 1 percent change in the firm's stock price. In columns 5–8, we measure equity-based compensation as the fraction of total CEO compensation paid in stock and option awards, *Equity*.[14]

The results show that boards with higher average *DSQ* tie CEO compensation more closely to firm performance. Columns 1 and 5 report positive and statistically significant coefficients on *AvgDSQ*. A one standard deviation increase in *AvgDSQ* is associated with approximately 17.4 percent higher CEO wealth-performance sensitivity and 1.7 percent more equity-based compensation

[14]We calculate *Delta* based on the CEO's full portfolio of stock and option holdings following Core and Guay (2002). In these analyses, we also control for CEO age and CEO tenure.

relative to the sample mean (= 0.009/0.522). The latter effect equals 3.4 percent of the standard deviation of *Equity*. Columns 2 and 6 show that these results continue to hold after controlling for firm fixed effects. Columns 3–4 and 7–8 further show that the results hold when calculating *AvgDSQ* using the out-of-sample specifications

DSQ and Capital Allocation

The prior analyses show that higher board-level *DSQ* is associated with stronger information environments and greater managerial incentive alignment. We next examine whether *DSQ* is also reflected in capital allocation outcomes, where directors' monitoring and advising roles are likely to be important. We examine this in three ways. First, we use shareholders' valuation of cash holdings to assess whether investors expect firms with high-*DSQ* boards to allocate internal capital more efficiently. Second, we examine M&A announcement returns to assess whether high-*DSQ* boards are associated with better acquisition decisions. Third, we examine innovation output to assess whether high-*DSQ* boards are associated with more valuable innovation.

Managers hold cash to fund M&A, investment, and other growth opportunities. However, cash also creates agency problems because liquid assets give managers discretion over how resources are used. Managers may use cash or discretionary spending to expand the firm beyond its optimal size or pursue projects that provide private benefits at shareholders' expense. We therefore examine whether board-level *DSQ* affects the marginal value of cash, which captures investors' assessment of how an additional dollar of cash affects shareholder value. Higher marginal values of cash indicate that investors expect managers to use cash in ways that benefit shareholders, and prior work shows that well-governed firms have higher marginal values of cash.

Table 8 examines the relation between board-level *DSQ* and the marginal value of cash following Faulkender and Wang (2006). The coefficient of interest is on $\Delta C \times AvgDSQ$, where ΔC is the change in cash holdings from fiscal year $t-1$ to t, scaled by lagged market value of equity.

Thus, the coefficient on $\Delta C \times AvgDSQ$ represents the incremental change in the marginal value of cash associated with a one standard deviation increase in *AvgDSQ*.[15] We find that boards with higher average *DSQ* are better stewards of shareholder capital. Column 1 shows a positive and statistically significant coefficient on $\Delta C \times AvgDSQ$. A one standard deviation increase in *AvgDSQ* is associated with a \$0.129 higher marginal value of cash. Columns 2–4 show that this result holds when controlling for firm fixed effects and using the out-of-sample specifictions.

We next examine M&A, a major capital allocation decision where managers' interests can diverge from shareholders' interests. Reputation, prestige, and compensation tied to firm size can give managers incentives to use acquisitions to increase the size and scope of the firm, even when the deals destroy shareholder value. Prior work characterizes acquisitions as strategic decisions that require significant board input and uses acquisition outcomes to capture board monitoring and advising performance (e.g., Kim et al., 2014). High-quality directors can improve M&A outcomes by preventing value-destroying deals, helping managers identify strategically valuable targets, assessing deal risks and opportunities, and advising on post-merger integration. We therefore use acquirer CARs around M&A announcements to measure investors' assessment of deal quality.

Table 9 presents results examining the relation between board-level *DSQ* and acquirer CARs around M&A announcements. We obtain deal announcements of U.S. targets from SDC and apply standard filters following Masulis et al. (2007).[16] The results indicate that boards with higher average *DSQ* make better M&A decisions. Column 1 shows a positive and statistically significant coefficient on *AvgDSQ*. A one standard deviation increase in *AvgDSQ* is associated with 50.1 bps

[15] The Appendix provides the full marginal value of cash specification. All regressions include the level and interaction terms required by Faulkender and Wang (2006), which we do not tabulate for brevity. Following convention, we exclude financial and utility firms because of the unique nature of their cash holding policies.

[16] To be included, deals must satisfy the following criteria: the acquirer owns less than 50 percent of the target before the deal and 100 percent after completion; deal value is at least \$1 million; deal value scaled by the acquirer's market value of equity on the 11th trading day before the announcement is at least 1 percent; the deal form is 'Merger," 'Acq. of Assets," or "Acq. Maj. Int."; and the deal is eventually completed. We calculate five-day CARs using the market model based on CRSP value-weighted returns and parameters estimated over trading days $[-210, -11]$ relative to the deal announcement. The regressions also include deal-level controls.

higher M&A CARs, which is economically meaningful relative to the mean and standard deviation of M&A CARs of 104 bps and 750 bps, respectively. Columns 2–4 show that this result holds when controlling for firm fixed effects and when calculating *AvgDSQ* using the out-of-sample specifications. Columns 5 and 6 further restrict the sample to deals with value of at least 5 percent of the bidder's market value of equity. This restriction focuses on more prominent deals in which board members are more likely to be involved. The coefficients are larger in this subsample and continue to show that firms with higher *AvgDSQ* have better M&A outcomes.

Finally, we examine innovation. Innovation is critical to long-run competitiveness, but it requires risky investment with uncertain and often option-like payoffs. This setting involves distinct information problems because innovation inputs and outputs are difficult to measure, evaluate, and communicate to outside investors (Glaeser and Lang, 2024). Because R&D outcomes can range from large successes to complete failure, risk-averse managers may underinvest in innovation relative to risk-neutral shareholders' preferences. Boards can mitigate this problem by designing incentives that tolerate failure and encourage exploration (Manso, 2011). Directors can also shape innovation strategy by setting long-run priorities, identifying and evaluating R&D opportunities, overseeing R&D spending, facilitating knowledge diffusion, and connecting the firm to outside markets (Chang and Wu, 2021; Genin et al., 2023). To the extent that high-*DSQ* directors are better advisors, monitors, or possess attributes conducive to innovation, firms with higher board-level *DSQ* should produce more and higher-quality innovation.

Table 10 examines the relation between board-level *DSQ* and innovation using Poisson regressions. We focus on innovation output measured by patenting activity. In addition to patent and citation counts, we use the private economic value of patenting activity from Kogan et al. (2017), which combines patent and stock market data to estimate the value of patents. We calculate the total

value of patenting activity for a firm by summing the market value of each patent granted during the firm's fiscal year, thereby capturing both the quantity and quality of innovation output.[17]

The results show that innovation output is strongly related to board-level *DSQ*. In columns 1–4, the dependent variable is the value of patents filed in a year. Column 1 shows a positive and statistically significant coefficient on *AvgDSQ*. A one standard deviation increase in *AvgDSQ* is associated with approximately 28.1 percent more value in innovation. This result holds in column 2 after controlling for firm fixed effects and in columns 3 and 4 when calculating *AvgDSQ* using the out-of-sample specifications.[18] Column 5 shows a similar result when the dependent variable is the number of patents. As an alternative measure of patent quality, column 6 focuses on the intensive margin of innovation and uses citations per patent as the dependent variable. The results show that firms with higher *AvgDSQ* produce more highly cited patents. In sum, Tables 4–10 show that higher board-level *DSQ* is reflected in stronger information environments, greater managerial incentive alignment, and better capital allocation outcomes.

VI. ADDITIONAL ANALYSES

Is *DSQ* Incremental to Observable Director Expertise?

We next examine whether *DSQ* captures variation in director quality beyond observable dimensions of director expertise commonly studied in the accounting and governance literature. *DSQ* is designed to measure the portable, director-specific component of quality that is not summarized by any single observable characteristic. Although our baseline *DSQ* estimates already account for time-varying director characteristics, including industry experience, we further augment our outcome regressions with controls for directors' financial, industry, managerial, and legal experience. This

[17]The patent value measure is based on CARs around patent grant announcements. Although announcement returns are measured around the patent grant date, patent value is assigned to the patent's filing date. We end the sample in 2021 to mitigate truncation bias in later years because patents take approximately two years, on average, to be granted.

[18]The sample size falls from column 1 to column 2 and from column 3 to column 4 because fixed effects Poisson models require within-firm variation in the outcome variable, limiting the sample to firms with at least one patent during the sample period.

analysis allows us to assess whether *DSQ* explains director- and firm-level outcomes beyond these established experience-based measures of director expertise.

Table 11 reports the results. In the director-level tests, we control for whether the individual director has financial, industry, managerial, or legal experience. In the firm-level tests, we control for the board-level average of these characteristics across all directors. Across these specifications, the estimated effects of *DSQ* remain robust. Although each observable expertise measure is significant in a subset of outcome tests, *DSQ* continues to be statistically significant across all outcomes. These findings indicate that *DSQ* captures a distinct and value-relevant component of director quality that is incremental to observable forms of director expertise.

Do Outcomes Change Around Director Deaths?

The appointment and death announcement tests show that market participants value the arrival and loss of high-*DSQ* directors. We next use director deaths to examine whether firm outcomes change when firms experience a plausibly exogenous loss of *DSQ*.

In Table 12, we reestimate the analyses in Tables 4–10 using the ±3 years around director deaths. The treatment variable, *DSQ*, is the director-specific effect of the director who dies. We interact this variable with *After*, an indicator equal to one for fiscal periods after the director's death, and zero otherwise.[19] The coefficient on *DSQ*×*After* therefore captures whether firm outcomes worsen more after the death of a high-*DSQ* director than after the death of a low-*DSQ* director.[20]

The results are broadly consistent with our previous findings. Following the death of a high-*DSQ* director, analyst forecast errors and dispersion increase, bid-ask spreads widen, and illiquidity rises, consistent with greater information asymmetry. We also find that after a high-*DSQ* director dies,

[19] All regressions include the corresponding level and interaction terms, which we do not tabulate for brevity. Because we use a stacked event design in which event windows can overlap, we include separate cohort-firm and cohort-year fixed effects for each director death year.

[20] As shown in the director death analysis, firms tend to replace deceased high-*DSQ* directors with lower-*DSQ* directors and deceased low-*DSQ* directors with higher-*DSQ* directors. Thus, the estimates capture the net effect of losing the deceased director and the expected change in board-level director quality after replacement.

CEO compensation becomes less tied to firm performance, the marginal value of cash decreases, M&A announcement CARs decline, and innovation output falls. Conversely, these outcomes generally improve following the death of a low-*DSQ* director.

What Director Attributes Might *DSQ* Capture?

Because *DSQ* is estimated from firm value rather than director characteristics, it captures a latent component of director quality whose underlying attributes are not directly observable. To gain insight into the types of skills reflected in *DSQ*, we draw on the management, psychology, and governance literatures suggesting that effective leaders and directors create value through a combination of social, cognitive, and character capital, with emotional intelligence shaping how these attributes are expressed in interpersonal and decision making settings.[21]

Social capital encompasses interpersonal skills that facilitate communication, trust, collaboration, and information sharing (Salas et al., 2005). In the boardroom, these attributes foster productive interactions that improve deliberations and information exchange (Westphal and Bednar, 2005; Minichilli et al., 2009). Cognitive capital reflects the ability to process information, evaluate alternatives, update beliefs, solve complex problems, and exercise sound judgment (Mumford et al., 2000; Bunderson and Sutcliffe, 2003; Woolley et al., 2010). Within boards, these capabilities translate into deliberative capital, which enhances board decision-making through rigorous analysis, constructive challenge, information integration, learning, adaptability, and strategic judgment (Amason, 1996; Eisenhardt et al., 1997; Forbes and Milliken, 1999). Character capital captures integrity, reliability, emotional maturity, resilience, and stewardship-oriented behavior (Davis et al., 1997; Peterson and Seligman, 2004; Seijts et al., 2019). In the boardroom, these attributes contribute to stewardship

[21] The dominant frameworks conceptualize emotional intelligence as encompassing self-awareness, self-regulation, empathy, and relationship management, thereby spanning social, cognitive, and character-related dimensions of leadership effectiveness (Mayer and Salovey, 1997; Goleman, 1998). The terms we use correspond with the literature and those listed by practitioners who argue that interpersonal capabilities such as emotional intelligence, adaptability, active listening, communication, and relationship-building are essential complements to technical expertise as boards face complex governance environments (Kierzek, 2025). They specifically emphasize that effective directors must contribute to board culture, facilitate constructive debate, and improve collective decision-making.

capital, strengthening directors' ability to monitor management, exercise fiduciary responsibility, and maintain effective oversight. Emotional intelligence is related to each of these forms of capital because it affects how directors manage their own reactions, interpret others' views, respond to conflict, and contribute to decision-making. Thus, to the extent that *DSQ* captures director attributes that are valuable, but difficult to observe directly, it is likely to reflect a combination of attributes that allow directors to contribute effectively to board processes and firm value.

We begin by constructing 12 observable director traits from BoardEx, including education, gender, and managerial, financial, and legal experience.[22] Most of these characteristics are time-invariant or predetermined by the time a director enters our sample. For example, educational background are fixed before the director's board service, while entrepreneurial, managerial, financial, and legal experience are typically accumulated earlier in the director's career. Some characteristics may directly capture the value of a specific background or career experience, while others may proxy for broader underlying attributes, such as ability or judgment.

Next, we use director biographies to construct 48 measures of soft skills identified in prior literature that could relate to the characteristics of well-performing directors that are portable. We group each of these traits into one of the four dimensions of director quality (i.e., social, cognitive, and character capital along with emotional intelligence). To identify these soft skills, we first use Gemini to obtain director biographies. We then use a sentence-transformer-based Natural Language Processing (NLP) approach to score the extent to which each biography reflects each soft skill.[23]

Table 13 presents correlations between *DSQ* and these director attributes. The sample includes one observation for each of the 50,398 directors with BoardEx characteristics and biography data.[24]

[22]The full list of observable traits are MBA degree, graduate degree, Ivy league university degree, academic experience, legal experience, financial experience, management experience, female, entrepreneur, military experience, political experience, and professional qualifications. Definitions are in the Appendix.

[23]The Online Appendix OA.2 provides detailed variable definitions and describes the construction of the observable director traits and biography-based soft-skill measures.

[24]Although we obtain biographies for 84 percent of directors, a concern is that it may be easier to obtain biographies for high-*DSQ* directors. However, the low correlation between *DSQ* and the likelihood that we obtain a biography (0.012) suggests this is not a significant concern.

The first columns present results for the full biography sample, while the last two columns restrict the sample to directors in the top and bottom deciles of *DSQ*. Focusing on the last columns, six observable traits are statistically correlated with DSQ, with correlations ranging from 0.024 to 0.036. The observable traits most strongly correlated with *DSQ* are having a graduate degree, graduating from an Ivy League university, management experience, and legal experience. Among the inferred soft skills, we include the description of each category and the full list of soft skill traits in Table A5 in the Online Appendix but tabulate the soft skills above the minimum correlation (0.024) from the observable director characteristics. We find that *DSQ* is most strongly correlated with empathy, patience, adaptability, analytical ability, emotional intelligence, being a skilled facilitator, being a good communicator, critical thinking, and self-awareness, with correlations ranging from 0.045 to 0.065. While *DSQ* is not related to all the attributes that we investigate, we find that it is correlated with important aspects of social, cognitive, and character capital along with emotional intelligence-related attributes that impact these different forms of capital.

These results suggest that *DSQ* captures a portable, multidimensional component of director quality. It is not simply a proxy for a single observable characteristic, such as education, gender, or prior experience, nor can it be simply constructed from easily observable and quantifiable characteristics. Instead, *DSQ* is modestly related to several observable traits and more strongly correlated with a broader set of difficult-to-quantify soft skills that are important for governance. Thus, commonly used single measures of director quality are likely incomplete because they omit soft skills and do not capture the multidimensional nature of repeatable, value-relevant director quality. The strongest correlations among the inferred soft skills are not concentrated in a single domain and no individual attribute dominates. Instead, high-*DSQ* directors appear to combine interpersonal effectiveness, cognitive ability, character-based strengths, and emotional intelligence to collectively enhance board effectiveness across firms.[25]

[25] These findings should be interpreted cautiously. The analysis is exploratory, and the textual measures are necessarily imperfect proxies for underlying attributes. Nevertheless, the results provide suggestive evidence that *DSQ* captures a

VII. ROBUSTNESS TESTS

This section presents robustness and validation tests that support our interpretation of *DSQ* as a portable director-specific component. We organize the tests around three concerns. First, our results could depend on how we estimate *DSQ*. Second, the estimated director effects could be a statistical artifact of the AKM procedure rather than a meaningful measure of director quality. Third, director-firm assortative matching could explain the relation between *DSQ* and the outcomes we study. Overall, the evidence suggests that our conclusions are not driven by these concerns.

Alternative Measures of *DSQ*

We first examine whether our results are sensitive to the construction of *DSQ* and *FSQ*. Our baseline measure uses Tobin's Q in the AKM decomposition because Tobin's Q is widely used in governance research and captures the market's assessment of firm value. However, because Tobin's Q may reflect other persistent firm characteristics, we reestimate the AKM model using the firm's Daniel et al. (1997) characteristic-adjusted buy-and-hold return over the fiscal year. This alternative outcome removes expected returns associated with size, book-to-market, and momentum and provides a market-based measure of abnormal performance. Table A6 shows that our main results are similar using this alternative estimate of *DSQ* and *FSQ*.

We also examine whether the results depend on director mobility. The AKM model uses movers, or directors who serve on more than one board in the sample, to connect directors and firms, but it recovers director effects for both movers and stayers within connected groups. To ensure that our findings are not driven by differences between movers and stayers (Table A7), we show that our results are similar when estimated separately for the two groups (Tables A8 and A9). Finally, Table A10 shows that the results are robust when we estimate *DSQ* using the mover dummy variables

multidimensional set of difficult-to-observe capabilities that extend beyond traditional observable measures of director quality. The breadth of the associations further suggests that the portable component of director quality is unlikely to be adequately proxied by any single characteristic or simple index constructed from observable director traits.

approach of Bertrand and Schoar (2003), which identifies director effects using only directors with multiple board appointments. Together, these tests indicate that our conclusions are not sensitive to the dependent variable in the AKM model, inclusion of stayers, or fixed effects estimation approach.

Scrambled Director-Firm Matches

A second concern is that estimated director fixed effects may arise mechanically from the fixed effects procedure. Jarosiewicz and Ross (2023) show that fixed effects approaches can attribute variation to individual "styles" even when the underlying individual-firm matches are randomized. Following their approach, we randomly assign directors to different firms, reestimate *DSQ*, and examine whether the resulting placebo *DSQ* estimates are related to the outcomes we study. The placebo tests suggest that our *DSQ* estimates are not spurious. When we scramble director-firm matches, the variation in Tobin's Q explained by *DSQ* falls by 65 percent. Moreover, Table A11 shows that placebo *DSQ* is unrelated to the director- and firm-level outcomes we study.

Director-Firm Assortative Matching

A final concern is director-firm assortative matching. If high-*DSQ* directors systematically match with particular types of firms, then our results could reflect the firms to which directors match rather than the directors themselves. We address this concern in several ways. First, the AKM model includes firm fixed effects when estimating *DSQ*, and our outcome regressions control for *FSQ* and *ResidTQ*. These controls help separate *DSQ* from persistent and residual firm characteristics. Our results are also similar in specifications with firm fixed effects and when we exclude *ResidTQ*.

Second, we examine whether high-*DSQ* directors systematically serve on high-*FSQ* firms by assessing the correlation between the two. The raw correlation between *DSQ* and *FSQ* is -0.099, and it shrinks to -0.042 after applying the bias correction of Andrews et al. (2008) and Bonhomme et al. (2023). This low correlation suggests limited sorting between high-*DSQ* directors and high-*FSQ*

firms. This pattern differs from much of the employee wage literature, which often finds positive assortative matching between workers and firms (e.g., Engbom and Moser, 2022), but is consistent with evidence on inventor productivity (Bhaskarabhatla et al., 2021).

Third, we follow Card et al. (2013) and compare our separate director and firm fixed effects model to a saturated model with director-firm pair fixed effects. If director-firm match effects are economically important, the saturated model should substantially outperform the model with separate director and firm effects. The saturated model increases R^2 by only 1.65 percent, indicating that director-firm match effects explain little variation beyond the separate director and firm effects.

Fourth, following Ewens and Rhodes-Kropf (2015), we separate directors based on whether they move to higher- or lower-value firms. Moves to higher Tobin's Q firms are more likely to reflect voluntary matching into more desirable positions, whereas moves to lower Tobin's Q firms are less likely to reflect this type of sorting. Tables A12 and A13 show that our results hold for both groups and are similar when we define moves using market value of equity instead of Tobin's Q. Finally, if our results are driven by high-*DSQ* directors matching to the best-performing firms or low-*DSQ* directors matching to the worst-performing firms, then removing the tails of the firm-value distribution should weaken the relation between *DSQ* and our outcomes. Table A14 shows that our results continue to hold after excluding firms in the top and bottom quintiles of Tobin's Q. Overall, these tests suggest that director-firm assortative matching is unlikely to explain our findings.

VIII. CONCLUSION

There is continued interest in how individual directors shape board effectiveness and firm outcomes, particularly through attributes such as judgment, engagement, and ability to demand and process information. Yet these attributes are difficult to observe, limiting evidence on their effects on board effectiveness and firm value. We address this challenge by developing *DSQ* as a reduced-form measure of the portable, value-relevant component of individual director quality.

DSQ allows us to assess whether directors contribute to governance and firm value across board appointments beyond observable credentials, expertise, and board structure.

Our evidence indicates that *DSQ* explains a meaningful share of the variation in firm value (9.6 percent), is recognized by capital market participants and shareholders, and is reflected in the way firms produce information, align managerial incentives, and allocate capital. These findings suggest that high-quality directors do not matter only through isolated decisions or narrow areas of expertise. Instead, they appear to improve the board's broader information-processing function: helping boards obtain better information and use that information in monitoring and advising.

We also highlight the limits of measuring director effectiveness using observable characteristics alone. *DSQ* remains incremental to financial, legal, managerial, and industry experience. Following the loss of a high-*DSQ* director, firms exhibit weaker information environments, lower incentive alignment, and poorer capital allocation. Moreover, *DSQ* is associated with both observable traits and harder-to-measure soft skills, consistent with director quality being multidimensional. Overall, our findings show that individual directors possess a portable component of quality associated with how boards monitor managers, advise on decisions, and shape the information available to investors. By introducing and validating *DSQ*, we provide a scalable measure for future research on individual directors effects on reporting, disclosure, incentives, investment, and board design.

REFERENCES

Abowd, J. M., Kramarz, F., and Margolis, D. N. (1999). High wage workers and high wage firms. *Econometrica*, 67(2):251–333.

Adams, R. B., Akyol, A. C., and Verwijmeren, P. (2018). Director skill sets. *Journal of Financial Economics*, 130(3):641–662.

Ajinkya, B., Bhojraj, S., and Sengupta, P. (2005). The association between outside directors, institutional investors and the properties of management earnings forecasts. *Journal of Accounting Research*, 43(3):343–376.

Amason, A. C. (1996). Distinguishing the effects of functional and dysfunctional conflict on strategic decision making: Resolving a paradox for top management teams. *Academy of Management Journal*, 39(1):123–148.

Amihud, Y. (2002). Illiquidity and stock returns: Cross-section and time-series effects. *Journal of Financial Markets*, 5(1):31–56.

Andrews, M. J., Gill, L., Schank, T., and Upward, R. (2008). High wage workers and low wage firms: Negative assortative matching or limited mobility bias? *Journal of the Royal Statistical Society*, 171(3):673–697.

Armstrong, C. S., Core, J. E., and Guay, W. R. (2014). Do independent directors cause improvements in firm transparency? *Journal of Financial Economics*, 113(3):383–403.

Armstrong, C. S., Guay, W. R., and Weber, J. P. (2010). The role of information and financial reporting in corporate governance and debt contracting. *Journal of Accounting and Economics*, 50(2-3):179–234.

Badolato, P. G., Donelson, D. C., and Ege, M. (2014). Audit committee financial expertise and earnings management: The role of status. *Journal of Accounting and Economics*, 58(2-3):208–230.

Beasley, M. S. (1996). An empirical analysis of the relation between the board of director evaluate this paper's chances of rr at top finance, ms, jfqa, or review of financeand financial statement fraud. *The Accounting Review*, 71(4):443–465.

Bebchuk, L. A. and Fried, J. M. (2003). Executive compensation as an agency problem. *Journal of Economic Perspectives*, 17(3):71–92.

Bertrand, M. and Schoar, A. (2003). Managing with style: The effect of managers on firm policies. *Quarterly Journal of Economics*, 118(4):1169–1208.

Bhaskarabhatla, A., Cabral, L., Hegde, D., and Peeters, T. (2021). Are inventors or firms the engines of innovation? *Management Science*, 67(6):3899–3920.

Bonhomme, S., Holzheu, K., Lamadon, T., Manresa, E., Mogstad, M., and Setzler, B. (2023). How much should we trust estimates of firm effects and worker sorting? *Journal of Labor Economics*, 41(2):291–322.

Bunderson, J. S. and Sutcliffe, K. M. (2003). Management team learning orientation and business unit performance. *Journal of Applied Psychology*, 88(3):552–560.

Burt, A., Hrdlicka, C., and Harford, J. (2020). How much do directors influence firm value? *Review of Financial Studies*, 33(4):1818–1847.

Bushman, R. M. and Smith, A. J. (2001). Financial accounting information and corporate governance. *Journal of Accounting and Economics*, 32(1-3):237–333.

Card, D., Heining, J., and Kline, P. (2013). Workplace heterogeneity and the rise of West German wage inequality. *Quarterly Journal of Economics*, 128(3):967–1015.

Cavaco, S., Crifo, P., Rebérioux, A., and Roudaut, G. (2017). Independent directors: Less informed but better selected than affiliated board members? *Journal of Corporate Finance*, 43:106–121.

Chang, C.-H. and Wu, Q. (2021). Board networks and corporate innovation. *Management Science*, 67(6):3618–3654.

Chhaochharia, V. and Grinstein, Y. (2009). CEO compensation and board structure. *Journal of Finance*, 64(1):231–261.

CII-REF (2019). Board Evaluation Disclosure. CII Research and Education Fund.

Cohen, J. R., Hoitash, U., Krishnamoorthy, G., and Wright, A. M. (2014). The effect of audit committee industry expertise on monitoring the financial reporting process. *The Accounting Review*, 89(1):243–273.

Coles, J. L., Daniel, N. D., and Naveen, L. (2014). Co-opted boards. *Review of Financial Studies*, 27(6):1751–1796.

Coles, J. L. and Li, Z. (2020). Managerial attributes, incentives, and performance. *Review of Corporate Finance Studies*, 9(2):256–301.

Core, J. and Guay, W. (2002). Estimating the value of employee stock option portfolios and their sensitivities to price and volatility. *Journal of Accounting Research*, 40(3):613–630.

Core, J. E., Holthausen, R. W., and Larcker, D. F. (1999). Corporate governance, chief executive officer compensation, and firm performance. *Journal of Financial Economics*, 51(3):371–406.

Cornelissen, T. (2008). The Stata command felsdvreg to fit a linear model with two high-dimensional fixed effects. *The Stata Journal*, 8(2):170–189.

Daniel, K., Grinblatt, M., Titman, S., and Wermers, R. (1997). Measuring mutual fund performance with characteristic-based benchmarks. *Journal of Finance*, 52(3):1035–1058.

Davidson, R. H., Dey, A., and Smith, A. J. (2019). CEO materialism and corporate social responsibility. *The Accounting Review*, 94(1):101–126.

Davis, J. H., Schoorman, F. D., and Donaldson, L. (1997). Toward a stewardship theory of management. *Academy of Management Review*, 22(1):20–47.

Dechow, P. M., Ge, W., Larson, C. R., and Sloan, R. G. (2011). Predicting material accounting misstatements. *Contemporary Accounting Research*, 28(1):17–82.

DeFond, M. L., Hann, R. N., and Hu, X. (2005). Does the market value financial expertise on audit committees of boards of directors? *Journal of Accounting Research*, 43(2):153–193.

Dhaliwal, D., Naiker, V., and Navissi, F. (2010). The association between accruals quality and the characteristics of accounting experts and mix of expertise on audit committees. *Contemporary Accounting Research*, 27(3):787–827.

Dittmar, A. and Mahrt-Smith, J. (2007). Corporate governance and the value of cash holdings. *Journal of Financial Economics*, 83(3):599–634.

Eisenhardt, K. M., Kahwajy, J. L., and Bourgeois, L. J. (1997). How management teams can have a good fight. *Harvard Business Review*, 75(4):77–85.

Engbom, N. and Moser, C. (2022). Earnings inequality and the minimum wage: Evidence from brazil. *American Economic Review*, 112(12):3803–47.

Ewens, M. and Rhodes-Kropf, M. (2015). Is a VC partnership greater than the sum of its partners? *Journal of Finance*, 70(3):1081–1113.

Fahlenbrach, R., Low, A., and Stulz, R. M. (2010). Why do firms appoint CEOs as outside directors? *Journal of Financial Economics*, 97(1):12–32.

Faleye, O., Hoitash, R., and Hoitash, U. (2018). Industry expertise on corporate boards. *Review of Quantitative Finance and Accounting*, 50(2):441–479.

Faulkender, M. and Wang, R. (2006). Corporate financial policy and the value of cash. *Journal of Finance*, 61(4):1957–1990.

Forbes, D. P. and Milliken, F. J. (1999). Cognition and corporate governance: Understanding boards of directors as strategic decision-making groups. *Academy of Management Review*, 24(3):489–505.

Gelbard, A. (2024). How emotional intelligence increases boardroom effectiveness. *Private Company Director*. Private Company Director, August 1, 2024.

Genin, A., Ma, W., Bhagwat, V., and Bernile, G. (2023). Board experiential diversity and corporate radical innovation. *Strategic Management Journal*, 44(11):2634–2657.

Glaeser, S. and Lang, M. (2024). Measuring innovation and navigating its unique information issues: A review of the accounting literature on innovation. *Journal of Accounting and Economics*, 78(2-3):101720.

Goleman, D. (1998). What makes a leader? *Harvard Business Review*, 76(6):93–102.

Graham, J. R., Li, S., and Qiu, J. (2012). Managerial attributes and executive compensation. *Review of Financial Studies*, 25(1):144–186.

Guernsey, S., Guo, F., Liu, T., and Serfling, M. (2025). Thirty years of change: The evolution of classified boards. *The Journal of Finance*, 80(5):2971–3020.

Guernsey, S., Sepe, S. M., and Serfling, M. (2022). Blood in the water: The value of antitakeover provisions during market shocks. *Journal of Financial Economics*, 143(3):1070–1096.

Güner, A. B., Malmendier, U., and Tate, G. (2008). Financial expertise of directors. *Journal of Financial Economics*, 88(2):323–354.

Harford, J., Mansi, S. A., and Maxwell, W. F. (2008). Corporate governance and firm cash holdings in the US. *Journal of Financial Economics*, 87(3):535–555.

Healy, P. M. and Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics*, 31(1-3):405–440.

Iliev, P., Lins, K. V., Miller, D. P., and Roth, L. (2015). Shareholder voting and corporate governance around the world. *Review of Financial Studies*, 28(8):2167–2202.

Jarosiewicz, V. E. and Ross, D. G. (2023). Revisiting managerial "style": The replicability and falsifiability of manager fixed effects for firm policies. *Strategic Management Journal*, 44(3):858–886.

Karamanou, I. and Vafeas, N. (2005). The association between corporate boards, audit committees, and management earnings forecasts: An empirical analysis. *Journal of Accounting research*, 43(3):453–486.

Kierzek, H. (2025). Board success requires soft skills, too. *Directorship Magazine*. Summer 2025 issue.

Kim, D. and Starks, L. T. (2016). Gender diversity on corporate boards: Do women contribute unique skills? *American Economic Review*, 106(5):267–271.

Kim, K., Mauldin, E., and Patro, S. (2014). Outside directors and board advising and monitoring performance. *Journal of Accounting and Economics*, 57(2-3):110–131.

Klein, A. (2002). Audit committee, board of director characteristics, and earnings management. *Journal of Accounting and Economics*, 33(3):375–400.

Kogan, L., Papanikolaou, D., Seru, A., and Stoffman, N. (2017). Technological innovation, resource allocation, and growth. *Quarterly Journal of Economics*, 132(2):665–712.

Kowaleski, Z. T., Sutherland, A. G., and Vetter, F. W. (2024). The effect of supervisors on employee misconduct. *The Accounting Review*, 99(3):287–313.

Krishnan, J., Wen, Y., and Zhao, W. (2011). Legal expertise on corporate audit committees and financial reporting quality. *The Accounting Review*, 86(6):2099–2130.

Lambert, R., Leuz, C., and Verrecchia, R. E. (2007). Accounting information, disclosure, and the cost of capital. *Journal of Accounting Research*, 45(2):385–420.

Laux, C. and Laux, V. (2009). Board committees, CEO compensation, and earnings management. *The Accounting Review*, 84(3):869–891.

Liu, T., Mao, Y., and Tian, X. (2023). The role of human capital: Evidence from corporate innovation. *Journal of Empirical Finance*, 74:101435.

Loughran, T. and Ritter, J. (2004). Why has IPO underpricing changed over time? *Financial Management*, 33(3):5–37.

Lu, D., Liu, G., and Liu, Y. (2022). Who are better monitors? Comparing styles of supervisory and independent directors. *International Review of Financial Analysis*, 83:102305.

Manso, G. (2011). Motivating innovation. *Journal of Finance*, 66(5):1823–1860.

Masulis, R. W., Wang, C., and Xie, F. (2007). Corporate governance and acquirer returns. *Journal of Finance*, 62(4):1851–1889.

Mayer, J. D. and Salovey, P. (1997). What is emotional intelligence? In Salovey, P. and Sluyter, D. J., editors, *Emotional Development and Emotional Intelligence: Educational Implications*, pages 3–31. Basic Books, New York.

Minichilli, A., Zattoni, A., and Zona, F. (2009). Making boards effective: An empirical examination of board task performance. *British Journal of Management*, 20(1):55–74.

Mumford, M. D., Zaccaro, S. J., Harding, F. D., Jacobs, T. O., and Fleishman, E. A. (2000). Leadership skills for a changing world: Solving complex social problems. *The Leadership Quarterly*, 11(1):11–35.

Nguyen, B. D. and Nielsen, K. M. (2010). The value of independent directors: Evidence from sudden deaths. *Journal of Financial Economics*, 98(3):550–567.

Peterson, C. and Seligman, M. E. P. (2004). *Character Strengths and Virtues: A Handbook and Classification*. Oxford University Press, New York.

PwC (2026). Individual Director Assessments. PwC Governance Insights Center.

Richardson, S. A., Sloan, R. G., Soliman, M. T., and Tuna, I. (2005). Accrual reliability, earnings persistence and stock prices. *Journal of Accounting and Economics*, 39(3):437–485.

Richardson, S. A., Tuna, A., and Wysocki, P. D. (2003). Accounting for taste: Board member preferences and corporate policy choices. *Working Paper*.

Salas, E., Sims, D. E., and Burke, C. S. (2005). Is there a "big five" in teamwork? *Small Group Research*, 36(5):555–599.

Schmid, T. and Urban, D. (2023). Female directors and firm value: New evidence from directors' deaths. *Management Science*, 69(4):2449–2473.

Seijts, G., Gandz, J., Crossan, M., and Reno, M. (2019). Leader character in board governance. *Journal of Management and Governance*, 23(1):161–183.

Spencer Stuart (2025). 2025 U.S. Spencer Stuart Board Index. Technical report, Spencer Stuart.

Wells, K. (2020). Who manages the firm matters: The incremental effect of individual managers on accounting quality. *The Accounting Review*, 95(2):365–384.

Westphal, J. D. and Bednar, M. K. (2005). Pluralistic ignorance in corporate boards and firms' strategic persistence in response to low firm performance. *Administrative Science Quarterly*, 50(2):262–298.

Woolley, A. W., Chabris, C. F., Pentland, A., Hashmi, N., and Malone, T. W. (2010). Evidence for a collective intelligence factor in the performance of human groups. *Science*, 330(6004):686–688.

APPENDIX. VARIABLE DEFINITIONS

This table provides the definitions for the main variables used in this study. Variables not included here are defined in the corresponding table captions. Compustat and CRSP variables are in italics when appropriate.

Director-Level Variables

#Seats: Total number of boards of publicly listed companies that a director has served on at the annual report date.

%Vote: Total number of "for" votes divided by the total number of votes cast ("for" + "against" + "abstain"). This measure is multiplied by 100.

Academics: Indicator variable equal to one if the director has taught at a university or holds a Ph.D. degree, and zero otherwise.

Age65: Indicator variable equal to one if a director is at least 65, and zero otherwise.

AuditChair: Indicator variable equal to one if a director is the audit committee chair, and zero otherwise.

AuditCom: Indicator variable equal to one if a director is on the audit committee, and zero otherwise.

Busy: Indicator variable equal to one if a director sits on three or more boards during a year, and zero otherwise.

CAR: Five-day cumulative abnormal return centered around a director appointment or death announcement. Parameters are estimated using the market model and CRSP value-weighted index over the [-210,-11] trading days before an announcement. **%CAR** is **CAR** multiplied by 100.

Chair-Lead: Indicator variable equal to one if a director is a lead independent director or chairman of the board, and zero otherwise.

CompChair: Indicator variable equal to one if a director is the compensation committee chair, and zero otherwise.

CompCom: Indicator variable equal to one if a director is on the compensation committee, and zero otherwise.

DSQ: Director-specific quality estimated using the AKM method.

DSQq2-DSQq3: Indicator variables that equal one if director-specific quality (*DSQ*) is in the second or third tercile, respectively, and zero otherwise.

Entrepreneur: Indicator variable equal to one if a director has founded a company or organization, and zero otherwise.

Financial Exp: Indicator variable equal to one if a director has worked as an accountant, banker, CFO, treasurer, loan officer, CFP, or in finance, and zero otherwise.

Grad Degree: Indicator variable equal to one if a director has a master's degree other than an MBA, and zero otherwise.

IndExp: Indicator variable equal to one if a director has worked at another firm in the same two-digit SIC industry, and zero otherwise.

IndepDir: Indicator variable equal to one if a director is independent, and zero otherwise.

Ivy Univ: Indicator variable equal to one if a director graduated from an Ivy League school, and zero otherwise.

Legal Exp: Indicator variable equal to one if a director has a Juris Doctor degree or worked as a lawyer, judge, consultant, or attorney, and zero otherwise.

Management Exp: Indicator variable equal to one if a director has had the title of president, CEO, COO, manager, or supervisor, and zero otherwise.

MBA Degree: Indicator variable equal to one if a director has a master's in business administration degree, and zero otherwise.

Military Exp: Indicator variable equal to one if a director has military experience, and zero otherwise.

NomChair: Indicator variable equal to one if a director is the nominating committee chair, and zero otherwise.

NomCom: Indicator variable equal to one if a director is on the nominating committee, and zero otherwise.

Political Exp: Indicator variable equal to one if a director has experience as a senator or member of congress or has worked at the White House or in the House of Representatives, and zero otherwise.

Prof Quals: Total number of professional educational qualifications of a director.

ResidTQ: Natural logarithm of Tobin's Q minus director- and firm-specific quality [Ln(*TQ*)-*DSQ*-*FSQ*]. When this variable is at the board-level, we average *ResidTQ* across all directors at a firm during a year.

Soft Skills: We determine whether a director possesses distinct soft skills using a three-step procedure. First, we generate detailed biographies for each director using the Google Gemini 3 Pro. For each director, we use the following prompt: "Return ONLY a valid JSON object. No explanation, no comments, no markdown. Task: Search and collect biographies, including skills, expertise, qualifications, experience, and abilities, of [director name] who serves as a director on the following public companies: [company names]. Instructions: First, collect biographies that clearly correspond to the director who served on the boards of the companies listed above. Second, extract biographies from all available sources. Output JSON format: { "director_descriptions": ["string1", "string2"], "source_name": ["source1", "source2"] }." . Third, we use a sentence-transformer-based Natural Language Processing (NLP) approach to measure the soft-skill content of director biographies. This approach allows us to assign each biography a continuous similarity score for each trait, capturing the extent to which the language in the biography is semantically related to that trait rather than relying only on exact keyword matches. We score biographies with respect to several traits, such as adaptable, analytical, self aware, active listener, emotionally intelligent, empathetic, and patient. Because the sentence-transformer model produces a separate semantic similarity score for each trait, each biography can load on multiple soft skills simultaneously.

Tenure: The number of years a director has served on a board.

Firm- and Board-Level Variables

#Cites: Number of citations to patents filed in a year that are eventually granted.

#Pats: Number of patents filed in a year that are eventually granted.

$Pats: Market value of eventually granted patents filed in a year (Kogan et al., 2017).

AvgDSQ: Average of director-specific quality (*DSQ*) across all directors at a firm during a year.

Beta: Firm's sensitivity to market risk calculated using the value-weighted market model over the past three years and requiring at least 24 months of data.

BHAR: Firm's buy-and-hold return minus the buy-and-hold return on the CRSP value-weighted index over its fiscal year.

BidAsk: The average bid-ask spread of a firm's stock over a year.

BrdSize: Total number of directors on a board.

CAR: Five-day cumulative abnormal return centered around an earnings announcement. Parameters are estimated using the market model and CRSP value-weighted index over the [-210,-11] trading days before an announcement.

CEO-Chair: Indicator variable equal to one if the CEO is also the chair of the board, and zero otherwise.

ClassBrd: Indicator variable equal to one if a firm has a classified board, and zero otherwise.

Delta: The dollar change in CEO stock and option wealth given a 1% change in stock price.

Equity: Fraction of a CEO's total compensation (*tdc1*) coming from stock and option awards (*rstkgrnt*, *stock_awards*, *option_awards_blk_value*, *option_awards*).

ESURP: A firm's actual quarterly earnings per share minus the mean consensus analyst forecast all scaled the stock price on the day the consensus forecast was calculated.

Female: Fraction of female directors on a board.

FrcstDisp: The standard deviation of quarterly analyst forecasts scaled the stock price on the day the consensus forecast was calculated. We multiple this measure by 100.

FrcstError: The absolute value of a firm's actual quarterly earnings per share minus the mean consensus analyst forecast all scaled the stock price on the day the consensus forecast was calculated. We multiple this measure by 100.

FScore: The fraud index from Dechow et al. (2011). The F-score is calculated based on the predicted probability of accounting fraud in the current year, using the following model: $\hat{y} = -7.893 + 0.790 \times RSST\ Accruals + 2.518 \times \Delta Receivables + 1.191 \times \Delta Inventories + 1.979 \times \%Soft\ Assets + 0.171 \times \Delta Cash\ Sales - 0.932 \times \Delta ROA + 1.029 \times Actual\ Issuance$. *RSST Accruals* is accruals measured according to Richardson et al. (2005) and scaled by average total assets. Δ*Receivables* is the change in accounts receivables scaled by average total assets. Δ*Inventories* is the change in inventory scaled by average total assets. %*Soft Assets* is total assets minus net property, plant and equipment minus cash and cash equivalents scaled by average total assets. Δ*Cash Sales* is the change in cash sales scaled by average total assets. Δ*ROA* is the change in return on assets. *Actual Issuance* is an indicator variable that equals one if the firm

issued debt or equity during the year, and zero otherwise. The probability of fraud is calculated as: $e^{\hat{y}} / \left(1 + e^{\hat{y}}\right)$. The F-score is then calculated as the probability of fraud divided by the unconditional probability of fraud (0.0037).

FSQ: Firm-specific effect estimated using the AKM method.

FSQq2-FSQq3: Indicator variables equal to one if the firm-specific effect is in the second or third tercile, respectively, and zero otherwise.

Illiq: The average Amihud (2002) illiquidity measure of a firm's stock over a year, which equals the absolute value of daily returns multiplied by 100,000 and then scaled by trading volume.

Indep: Fraction of independent directors on a board.

IO: Fraction of a firm's shares outstanding owned by institutional investors.

LEV: Value of debt in current liabilities plus long-term debt scaled by book value of assets [(*dlc*+*dltt*)/*at*].

Lead-Indep: Indicator variable equal to one if a firm has a lead independent director, and zero otherwise.

Misstatement: An indicator variable equal to one if a misstatement was reported for a firm during the year.

OROA: Operating income before depreciation scaled by book assets (*oibdp/at*).

R&D: R&D expenses scaled by sales (*xrd/sale*). *xrd* is set to zero when missing.

Size: Book value of assets (*at*) (in millions and 2017 dollars).

TQ: Market value of assets scaled by book value of assets [(*at-ceq*+*prcc_f*×*csho*)/(*at*)].

VOL: Annualized standard deviation of monthly returns over a firm's fiscal year.

M&A Variables

AllCash: Indicator variable equal to one if a deal is all cash-financed, and zero otherwise.

BHAR: Bidder's buy-and-hold return over the [-210, -11] trading days before a deal announcement minus the buy-and-hold on the CRSP value-weighted index.

CAR: Five-day bidder cumulative abnormal return centered around an M&A announcement date. Parameters are estimated using the market model and CRSP value-weighted index over the [-210,-11] trading days before a deal announcement. **%CAR** is **CAR** multiplied by 100.

DivAcq: Indicator variable equal to one if a bidder and target do not share a two-digit SIC code industry, and zero otherwise.

FCF: Operating income before depreciation (*oibdp*) - interest expenses (*xint*) - taxes (*txt*) - capital expenditures (*capx*), all scaled by book value of total assets (*at*).

Hitech: Indicator variable equal to one if a bidder and target are both from high tech industries defined by Loughran and Ritter (2004), and zero otherwise.

MB: Market value of assets scaled by book value of assets [(*at-ceq*+*prcc_f*×*csho*)/(*at*)].

MLEV: Book value of debt scaled by market value of assets [(*dltt*+*dlc*)/(*at-ceq*+*prcc_f*×*csho*)].

MVE: Market value of equity on the 11th trading day before the deal announcement (in 2017 dollars).

Private: Indicator variable equal to one if a target is privately held, and zero otherwise.

RelSize: Deal value scaled by the bidder's market value of equity on the 11th trading day before the deal announcement.

StockDeal: Indicator variable equal to one if the deal is partially stocked-financed, and zero otherwise.

Subsidiary: Indicator variable equal to one if a target is a subsidiary, and zero otherwise.

Marginal Value of Cash Variables

The marginal value of cash is estimated following Faulkender and Wang (2006).

$$r_{jt} - R^B_{jt} = \gamma + \gamma_1 \frac{\Delta C_{jt}}{M_{jt-1}} + \gamma_2 \frac{\Delta E_{jt}}{M_{jt-1}} + \gamma_3 \frac{\Delta NA_{jt}}{M_{jt-1}} + \gamma_4 \frac{\Delta RD_{jt}}{M_{jt-1}} + \gamma_5 \frac{\Delta I_{jt}}{M_{jt-1}} + \gamma_6 \frac{\Delta D_{jt}}{M_{jt-1}} + \gamma_7 \frac{C_{jt-1}}{M_{jt-1}} + \gamma_8 L_{jt}$$
$$+\gamma_9 \frac{NF_{jt}}{M_{jt-1}} + \gamma_{10} \frac{\Delta C_{jt}}{M_{jt-1}} \times \frac{C_{jt-1}}{M_{jt-1}} + \gamma_{11} \frac{\Delta C_{jt}}{M_{jt-1}} \times L_{jt} + \gamma_{12} AvgDSQ_{jt} + \gamma_{13} \frac{\Delta C_{jt}}{M_{jt-1}} \times AvgDSQ_{jt} + \varepsilon_{jt},$$

ΔC: Change in cash holdings (*che*) scaled by lagged market value of equity (*prcc_f*×*csho*).

Δ**D:** Change in common dividends (*dvc*) scaled by lagged market value of equity (*prcc_f*×*csho*).

Δ**E:** Change in earnings before extraordinary items plus interest, deferred tax credits, and investment tax credits (*ib*+*xint*+*txdi*+*itci*) scaled by lagged market value of equity (*prcc_f*×*csho*).

Δ**I:** Change in interest expense (*xint*) scaled by lagged market value of equity (*prcc_f*×*csho*).

Δ**NA:** Change in total book assets minus cash holdings (*at*-*che*) scaled by lagged market value of equity (*prcc_f*×*csho*).

Δ**RD:** Change in R&D expenditures (*xrd*, set to zero when missing) scaled by lagged market value of equity (*prcc_f*×*csho*).

$\mathbf{C}_{t-1}$**:** Lagged cash holdings (*che*) scaled by lagged market value of equity (*prcc_f*×*csho*).

L: Book value of debt (*dlcc*+*dlt*) scaled by market value of assets (*dlc*+*dltt*+*prcc_f*×*csho*).

NF: Total equity issuances minus repurchases plus debt issuances minus debt redemptions (*sstk*-*prstk*+*dltis*-*dltr*) scaled by lagged market value of equity (*prcc_f*×*csho*).

$\mathbf{r} - \mathbf{R^B}$: A firm's annual stock return minus the return on a size and book-to-market matched portfolio.

Figure 1: Distribution of DSQ by Year

This figure shows the distribution of *DSQ* estimated using the AKM method by year. Median and 10^{th}, 25^{th}, 75^{th}, and 90^{th} percentiles are reported.

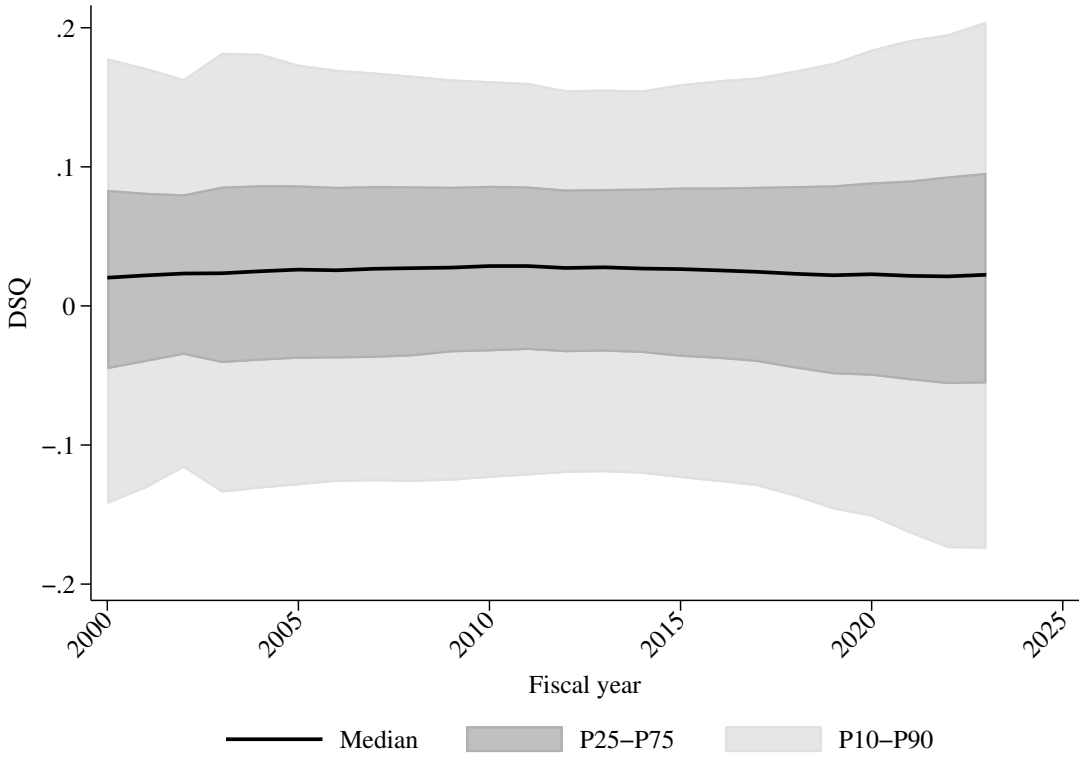

Table 1: Contribution of DSQ and Summary Statistics

The table reports the decomposition of the variation in the natural logarithm of Tobin's Q from Table A3 into five components using the following variance decomposition formula:

$$R^2 = \frac{\text{cov}\left(\text{Ln}\,TQ_{ijt}, \text{Ln}\,\widehat{TQ}_{ijt}\right)}{\text{var}\left(\text{Ln}\,TQ_{ijt}\right)} = \frac{\text{cov}\left(\text{Ln}\,TQ_{ijt}, \hat{\theta}_i + \widehat{\psi}_j + \widehat{\omega}_t + X_{jt(t-1)}\widehat{\beta} + Z_{ijt}\widehat{\gamma}\right)}{\text{var}\left(\text{Ln}\,TQ_{ijt}\right)}$$

$$= \frac{\text{cov}\left(\text{Ln}\,TQ_{ijt}, \widehat{\theta}_i\right)}{\text{var}\left(\text{Ln}\,TQ_{ijt}\right)} + \frac{\text{cov}\left(\text{Ln}\,TQ_{ijt}, \hat{\psi}_j\right)}{\text{var}\left(\text{Ln}\,TQ_{ijt}\right)} + \frac{\text{cov}\left(\text{Ln}\,TQ_{ijt}, \hat{\omega}_t\right)}{\text{var}\left(\text{Ln}\,TQ_{ijt}\right)} + \frac{\text{cov}\left(\text{Ln}\,TQ_{ijt}, X_{jt(t-1)}\hat{\beta} + Z_{ijt}\hat{\gamma}\right)}{\text{var}\left(\text{Ln}\,TQ_{ijt}\right)}.$$

Ln(TQ) is the natural logarithm of a firm's market value of assets scaled by book value of assets. θ_i, ψ_j, and ω_t are director, firm, and year fixed effects, respectively. $X_{jt(t-1)}$ are time-varying firm and board characteristics, and Z_{ijt} are time-varying director characteristics. The estimated director fixed effects θ_i capture DSQ.

Component	R^2 attributable to the component (in %)	% of R^2 attributable to the component (in %)
Director-specific effects	9.59	11.78
Firm-specific effects	53.74	66.02
Year effects	2.36	2.90
Time-varying effects	15.75	22.81
Residual	18.57	–

Table 2: Director-Specific Quality and Appointment and Death CARs

This table reports results from OLS regressions relating director appointment and death announcement CARs to *DSQ* over the period 2003 to 2024. The dependent variable *%CAR* in columns 1-6 is the five-day cumulative abnormal return centered around the announcement of a director appointment. Columns 7 and 8 examine the relation between *DSQ* and five-day CARs centered around the announcement of a director death. *DSQ* and *FSQ* are director- and firm-specific effects estimated using the AKM method, respectively, and normalized to have a standard deviation of one. *DSQq2-DSQq3* are indicator variables that equal one if *DSQ* is in the second or third tercile, and zero otherwise. FSQ controls include *FSQ* or *FSQq2-FSQq3*. In columns 4-6, *DSQ* and *FSQ* are estimated using the AKM method using data up to *t*-1. Other control variables include *ResidTQ*, *Ln(Size)*, *BHAR*, *LEV*, *OROA*, *IO*, *R&D*, *VOL*, *Beta*, *Indep*, *Female*, *CEO-Chair*, *Lead-Indep*, *Ln(BrdSize)*, *ClassBrd*, *Ln(#Seats)*, *Busy*, and *Age65*. Columns 7 and 8 further control for *Tenure*, *IndepDir*, *Chair-Lead*, *AuditCom*, *NomCom*, *CompCom*, *AuditChair*, *NomChair*, and *CompChair*. All variables are defined in the Appendix. Standard errors in parentheses are clustered by firm.

	%CAR							
	(1) Appt	(2) Appt	(3) Appt	(4) Appt	(5) Appt	(6) Appt	(7) Death	(8) Death
DSQ	0.152***	0.172**		0.063	0.058		-0.308*	
	(0.058)	(0.077)		(0.083)	(0.095)		(0.184)	
DSQq2			0.265**			0.139		-0.359
			(0.114)			(0.170)		(0.362)
DSQq3			0.392***			0.297*		-0.846**
			(0.121)			(0.180)		(0.406)
FSQ Controls	✓		✓	✓	✓	✓	✓	✓
Other Controls	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
SIC2 FE	✓		✓	✓		✓	✓	✓
Firm FE		✓			✓			
Out-of-Sample				✓	✓	✓		
Obs	17,433	16,213	17,433	6,814	5,290	6,814	1,229	1,229
Adj R^2	0.038	0.173	0.038	0.040	0.189	0.040	0.027	0.027

Table 3: Director-Specific Quality and Election Outcomes

This table reports results from OLS regressions relating director election outcomes to *DSQ* over the period 2004 to 2024. The dependent variable *%Vote* in columns 1-6 is the fraction of "for" votes scaled by the number of "for", "against", and "abstain" votes and multiplied by 100. *DSQ* and *FSQ* are director- and firm-specific effects estimated using the AKM method, respectively, and normalized to have a standard deviation of one. *DSQq2-DSQq3* are indicator variables that equal one if *DSQ* is in the second or third tercile, and zero otherwise. FSQ controls include *FSQ* or *FSQq2-FSQq3*. In columns 4-6, *DSQ* and *FSQ* are estimated using the AKM method using data up to *t*-1. Other control variables include *ResidTQ*, *Ln(Size)*, *BHAR*, *LEV*, *OROA*, *IO*, *R&D*, *VOL*, *Beta*, *Indep*, *Female*, *CEO-Chair*, *Lead-Indep*, *Ln(BrdSize)*, *ClassBrd*, *Ln(#Seats)*, *Tenure*, *Busy*, *IndepDir*, *Age65*, *Chair-Lead*, *AuditCom*, *NomCom*, *CompCom*, *AuditChair*, *NomChair*, and *CompChair*. All variables are defined in the Appendix. Standard errors in parentheses are clustered by firm.

	%Vote					
	(1)	(2)	(3)	(4)	(5)	(6)
DSQ	0.127**	0.188***		0.153***	0.216***	
	(0.058)	(0.049)		(0.055)	(0.047)	
DSQq2			0.088			0.317***
			(0.096)			(0.084)
DSQq3			0.266**			0.382***
			(0.113)			(0.110)
FSQ Controls	✓		✓	✓	✓	✓
Other Controls	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
SIC2 FE	✓		✓	✓		✓
Firm FE		✓			✓	
Out-of-Sample				✓	✓	✓
Obs	212,244	212,122	212,244	205,302	205,177	205,302
Adj R^2	0.105	0.314	0.105	0.108	0.319	0.109

Table 4: Director-Specific Quality and Analyst Forecasts

This table reports results from OLS regressions relating analyst forecast accuracy and dispersion to board-level *DSQ* over the period 2001 to 2024. The dependent variables in columns 1-4 and 5-8 are the absolute value of the analyst forecast error scaled by price (*FrcstError*) and the standard deviation of analyst forecasts scaled by price (*FrcstDisp*), respectively. *DSQ* and *FSQ* are director- and firm-specific effects estimated using the AKM method, respectively. *AvgDSQ* is the average *DSQ* across directors on a board during a year and normalized to have a standard deviation of one. In columns 3-4 and 7-8, *DSQ* and *FSQ* are estimated using the AKM method using data up to *t*-1. Other control variables include *ResidTQ*, the natural logarithm of CEO age and tenure, *Ln(Size)*, *BHAR*, *LEV*, *OROA*, *IO*, *R&D*, *VOL*, *Beta*, *Indep*, *Female*, *CEO-Chair*, *Lead-Indep*, *Ln(BrdSize)*, and *ClassBrd*. All variables are defined in the Appendix. Standard errors in parentheses are clustered by firm.

	FrcstError				FrcstDisp			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
AvgDSQ	-0.183***	-0.304***	-0.126***	-0.235***	-0.064***	-0.111***	-0.032***	-0.081***
	(0.022)	(0.034)	(0.018)	(0.022)	(0.009)	(0.014)	(0.007)	(0.009)
FSQ	✓		✓	✓	✓		✓	✓
Other Controls	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
SIC2 FE	✓		✓		✓		✓	
Firm FE		✓		✓		✓		✓
Out-of-Sample			✓	✓			✓	✓
Obs	235,633	235,560	220,695	220,625	211,663	211,566	200,375	200,281
Adj R^2	0.082	0.323	0.076	0.336	0.110	0.413	0.100	0.422

Table 5: Director-Specific Quality and ERCs

This table reports results from OLS regressions relating market reactions to earnings surprises and board-level *DSQ* over the period 2001 to 2024. The dependent variable *CAR* in columns 1-4 is the five-day cumulative abnormal return centered around a quarterly earnings announcement. *ESURP* is the actual earnings per share minus the consensus forecast all scaled by price. *DSQ* and *FSQ* are director- and firm-specific effects estimated using the AKM method, respectively. *AvgDSQ* is the average *DSQ* across directors on a board during a year and normalized to have a standard deviation of one. In columns 3-4, *DSQ* and *FSQ* are estimated using the AKM method using data up to *t*-1. Other control variables include *ResidTQ*, the natural logarithm of CEO age and tenure, *Ln(Size)*, *BHAR*, *LEV*, *OROA*, *IO*, *R&D*, *VOL*, *Beta*, *Indep*, *Female*, *CEO-Chair*, *Lead-Indep*, *Ln(BrdSize)*, and *ClassBrd*. All variables are defined in the Appendix. Standard errors in parentheses are clustered by firm.

	CAR			
	(1)	(2)	(3)	(4)
ESURP	0.708***	0.725***	0.700***	0.714***
	(0.018)	(0.019)	(0.019)	(0.020)
ESURP×AvgDSQ	0.060***	0.060***	0.033**	0.040***
	(0.014)	(0.015)	(0.014)	(0.015)
AvgDSQ	0.002***	0.005***	-0.000	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
FSQ	✓		✓	✓
Other Controls	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
SIC2 FE	✓		✓	
Firm FE		✓		✓
Out-of-Sample			✓	✓
Obs	235,633	235,560	220,695	220,625
Adj R^2	0.034	0.044	0.030	0.042

Table 6: Director-Specific Quality and Market Liquidity

This table reports results from OLS regressions relating measures of market liquidity to board-level *DSQ* over the period 2001 to 2024. The dependent variables in columns 1-4 and 5-8 are the natural logarithm of the firm's bid-ask spread (*Ln(BidAsk)*) and the natural logarithm of the Amihud (2002) illiquidity measure (*Ln(Illiq)*), respectively. *DSQ* and *FSQ* are director- and firm-specific effects estimated using the AKM method, respectively. *AvgDSQ* is the average *DSQ* across directors on a board during a year and normalized to have a standard deviation of one. In columns 3-4 and 7-8, *DSQ* and *FSQ* are estimated using the AKM method using data up to *t*-1. Other control variables include *ResidTQ*, the natural logarithm of CEO age and tenure, *Ln(Size)*, *BHAR*, *LEV*, *OROA*, *IO*, *R&D*, *VOL*, *Beta*, *Indep*, *Female*, *CEO-Chair*, *Lead-Indep*, *Ln(BrdSize)*, and *ClassBrd*. All variables are defined in the Appendix. Standard errors in parentheses are clustered by firm.

	Ln(BidAsk)				Ln(Illiq)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
AvgDSQ	-0.135***	-0.150***	-0.128***	-0.115***	-0.339***	-0.336***	-0.331***	-0.287***
	(0.007)	(0.008)	(0.006)	(0.006)	(0.013)	(0.012)	(0.012)	(0.011)
FSQ	✓		✓	✓	✓		✓	✓
Other Controls	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
SIC2 FE	✓		✓		✓		✓	
Firm FE		✓		✓		✓		✓
Out-of-Sample			✓	✓			✓	✓
Obs	70,276	69,619	64,456	63,727	70,373	69,716	64,550	63,821
Adj R^2	0.802	0.892	0.799	0.891	0.869	0.936	0.870	0.937

Table 7: Director-Specific Quality and Pay-Performance Sensitivity

This table reports results from OLS regressions relating CEO compensation to board-level *DSQ* over the period 2001 to 2024. The dependent variables in columns 1-4 and 5-8 are the natural logarithm of the sensitivity of changes in CEO wealth to a 1% change in stock price (*Ln(Delta)*) and the fraction of a CEO's total compensation coming from stock and option awards (*Equity*), respectively. *DSQ* and *FSQ* are director- and firm-specific effects estimated using the AKM method, respectively. *AvgDSQ* is the average *DSQ* across directors on a board during a year and normalized to have a standard deviation of one. In columns 3-4 and 7-8, *DSQ* and *FSQ* are estimated using the AKM method using data up to *t*-1. Other control variables include *ResidTQ*, the natural logarithm of CEO age and tenure, *Ln(Size)*, *BHAR*, *LEV*, *OROA*, *IO*, *R&D*, *VOL*, *Beta*, *Indep*, *Female*, *CEO-Chair*, *Lead-Indep*, *Ln(BrdSize)*, and *ClassBrd*. All variables are defined in the Appendix. Standard errors in parentheses are clustered by firm.

	Ln(Delta)				Equity			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
AvgDSQ	0.174***	0.205***	0.147***	0.097***	0.009***	0.008***	0.013***	0.015***
	(0.016)	(0.015)	(0.014)	(0.012)	(0.003)	(0.003)	(0.002)	(0.002)
FSQ	✓		✓	✓	✓		✓	✓
Other Controls	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
SIC2 FE	✓		✓		✓		✓	
Firm FE		✓		✓		✓		✓
Out-of-Sample			✓	✓			✓	✓
Obs	34,352	34,240	33,119	32,998	34,265	34,156	33,049	32,932
Adj R^2	0.580	0.768	0.574	0.767	0.231	0.416	0.223	0.412

Table 8: Director-Specific Quality and Marginal Value of Cash

This table reports results from OLS regressions relating the marginal value of cash to board-level *DSQ* over the period 2001 to 2024. The dependent variable $r - R^B$ is a firm's stock return over its fiscal year minus the return on a size and book-to-market matched portfolio. *DSQ* and *FSQ* are director- and firm-specific effects estimated using the AKM method, respectively. *AvgDSQ* is the average *DSQ* across directors on a board during a year and normalized to have a standard deviation of one. ΔC equals the change in cash scaled by lagged market value of equity. FSQ controls include the level terms and interactions of *FSQ* with ΔC. In columns 3 and 4, *DSQ* and *FSQ* are estimated using the AKM method using data up to t-1. We also control for *ResidTQ* and its interaction with ΔC. Faulkender and Wang (2006) control variables include ΔE, ΔNA, ΔRD, ΔI, ΔD, NF, $\Delta C \times L$, and $\Delta C \times C_{t-1}$. Other control variables include *Indep*, *Female*, *CEO-Chair*, *Lead-Indep*, *Ln(BrdSize)*, and *ClassBrd*. All variables are defined in the Appendix. Standard errors in parentheses are clustered by firm.

	$r - R^B$			
	(1)	(2)	(3)	(4)
ΔC	1.371***	1.348***	1.213***	1.232***
	(0.061)	(0.060)	(0.068)	(0.065)
ΔC×AvgDSQ	0.129***	0.151***	0.077***	0.075***
	(0.023)	(0.022)	(0.026)	(0.025)
AvgDSQ	0.006**	0.048***	-0.020***	-0.063***
	(0.003)	(0.004)	(0.003)	(0.004)
FSQ Controls	✓		✓	✓
Other Controls	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
SIC2 FE	✓		✓	
Firm FE		✓		✓
Out-of-Sample			✓	✓
Obs	47,632	47,014	44,598	43,949
Adj R^2	0.259	0.348	0.220	0.336

Table 9: Director-Specific Quality and M&A Announcement Returns

This table reports results from OLS regressions relating M&A announcement CARs to board-level *DSQ* over the period 2001 to 2024. In columns 5 and 6, the sample is restricted to deals where the deal value is at least 5% of the acquirer's market cap. The dependent variable *%CAR* in columns 1-6 is the five-day bidder cumulative abnormal return centered around an M&A announcement. *DSQ* and *FSQ* are director- and firm-specific effects estimated using the AKM method, respectively. *AvgDSQ* is the average *DSQ* across directors on a board during a year and normalized to have a standard deviation of one. In columns 3, 4, and 6, *DSQ* and *FSQ* are estimated using the AKM method using data up to *t*-1. Other control variables include *ResidTQ*, *Ln(MVE)*, *MB*, *FCF*, *MLEV*, *BHAR*, *Hitech*, *RelSize*, *AllCash*, *StockDeal*, *DivAcq*, *Private*, *Subsidiary*, *Indep*, *Female*, *CEO-Chair*, *Lead-Indep*, *Ln(BrdSize)*, and *ClassBrd*. All variables are defined in the Appendix. Standard errors in parentheses are clustered by firm.

	%CAR					
	(1)	(2)	(3)	(4)	(5)	(6)
AvgDSQ	0.501***	0.892***	0.427***	0.545**	0.648***	0.577***
	(0.127)	(0.239)	(0.137)	(0.223)	(0.168)	(0.182)
FSQ	✓		✓	✓	✓	✓
Other Controls	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
SIC2 FE	✓		✓		✓	✓
Firm FE		✓		✓		
Out-of-Sample			✓	✓		✓
RelSize≥5%					✓	✓
Obs	9,836	8,584	9,092	7,876	6,341	5,800
Adj R^2	0.056	0.130	0.055	0.131	0.073	0.071

Table 10: Director-Specific Quality and Innovation

This table reports results from Poisson regressions relating innovation to board-level *DSQ* over the period 2001 to 2021. Columns 1-5 use all firm-year observations (with requirement that there must be variation in the outcome variable within the fixed effects structure due to the Poisson regression) and column 6 requires a firm to have a patent during the year. The dependent variable *$Pats* in columns 1-4 is the real market value of patents filed during a year from Kogan et al. (2017). The dependent variable *#Pats* in column 5 is the number of patents filed during a year. The dependent variable *#Cites/#Pats* in column 6 is the ratio of the total number of citations to patents filed in a year. *DSQ* and *FSQ* are director- and firm-specific effects estimated using the AKM method, respectively. *AvgDSQ* is the average *DSQ* across directors on a board during a year and normalized to have a standard deviation of one. In columns 3 and 4, *DSQ* and *FSQ* are estimated using the AKM method using data up to *t*-1. Other control variables include *ResidTQ*, *Ln(Size)*, *BHAR*, *LEV*, *OROA*, *IO*, *R&D*, *VOL*, *Beta*, *Indep*, *Female*, *CEO-Chair*, *Lead-Indep*, *Ln(BrdSize)*, and *ClassBrd*. All variables are defined in the Appendix. Standard errors in parentheses are clustered by firm.

	$Pats				#Pats	#Cites/#Pats
	(1)	(2)	(3)	(4)	(5)	(6)
AvgDSQ	0.281***	0.215***	0.167***	0.098***	0.095**	0.060***
	(0.042)	(0.035)	(0.048)	(0.031)	(0.041)	(0.022)
FSQ	✓		✓	✓	✓	✓
Other Controls	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
SIC2 FE	✓		✓		✓	✓
Firm FE		✓		✓		
Out-of-Sample			✓	✓		
Obs	61,060	29,783	55,309	27,930	61,060	17,703
Pseudo R^2	0.809	0.939	0.787	0.937	0.702	0.382

Table 11: Controlling for Experience

This table reports results from OLS/Poisson regressions relating *DSQ* to the director- and firm-level outcomes from Tables 2-10. The dependent variables in columns 1-12, samples, and control variables are the same as those in their respective tables. CARs in columns 1, 5, and 11 correspond to returns around director appointment announcements, earnings announcements, and M&A announcements. However, in columns 1 and 2, we further control for whether the director has financial, industry, managerial, and legal experience. In columns 3-12, we control for the board-level average of the characteristics. Standard errors in parentheses are clustered by firm.

	%CAR	%Vote	FrcstError	FrcstDisp	CAR	Ln(BidAsk)	Ln(Illiq)	Ln(Delta)	Equity	$r - R^B$	%CAR	$Pats
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
DSQ	0.152***	0.127**										
	(0.058)	(0.057)										
AvgDSQ			-0.183***	-0.110***	0.002***	-0.135***	-0.338***	0.174***	0.008***	0.007**	0.502***	0.290***
			(0.022)	(0.013)	(0.000)	(0.007)	(0.013)	(0.016)	(0.002)	(0.003)	(0.127)	(0.043)
ESURP×AvgDSQ					0.060***							
					(0.014)							
ΔC×AvgDSQ										0.128***		
										(0.023)		
FinExp	-0.023	0.080	0.050	-0.103	-0.000	-0.107***	-0.272***	-0.032	0.018	0.051***	0.060	0.259
	(0.091)	(0.060)	(0.163)	(0.066)	(0.001)	(0.038)	(0.069)	(0.093)	(0.016)	(0.017)	(0.168)	(0.243)
IndExp	0.008	-0.029	0.061	0.125**	-0.000	-0.012	-0.047	0.100	0.095***	-0.064***	0.040	0.436**
	(0.096)	(0.083)	(0.086)	(0.052)	(0.001)	(0.028)	(0.049)	(0.074)	(0.011)	(0.011)	(0.187)	(0.175)
MngExp	-0.006	0.313***	-0.267	0.075	-0.001	-0.080*	-0.312***	0.095	0.084***	0.040**	-0.002	0.044
	(0.132)	(0.092)	(0.187)	(0.059)	(0.001)	(0.045)	(0.081)	(0.112)	(0.020)	(0.017)	(0.197)	(0.280)
LegalExp	0.005	-0.389***	0.327**	0.034	0.000	0.002	-0.246***	-0.072	0.013	0.010	0.316*	-0.218
	(0.110)	(0.070)	(0.159)	(0.068)	(0.002)	(0.039)	(0.070)	(0.098)	(0.018)	(0.018)	(0.192)	(0.243)
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SIC2 FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Obs	17,433	212,244	235,633	211,566	235,633	70,276	70,373	34,352	34,265	47,632	9,836	61,060
Adj/Pseudo R^2	0.038	0.105	0.082	0.413	0.034	0.802	0.869	0.580	0.239	0.260	0.056	0.811

Table 12: Outcomes Around Director Deaths

This table reports results from OLS/Poisson regressions relating *DSQ* to the firm-level outcomes from Tables 4-10. The sample includes the +/- 3 years around a director death. The dependent variables and firm- and board-level control variables are the same as those in their respective tables. CARs in columns 3 and 9 correspond to returns around earnings announcements and M&A announcements. All regressions include all the level and interaction terms but are not tabulated for brevity. *DSQ* is the director-specific effect of the director who died. *After* equals one if the firm's fiscal period is after the date when the director died, and zero otherwise. ΔC equals the change in cash scaled by lagged market value of equity. Standard errors in parentheses are clustered by firm.

	FrcstError	FrcstDisp	CAR	Ln(BidAsk)	Ln(Illiq)	Ln(Delta)	Equity	$r - R^B$	CAR	$Pats
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
DSQ×After	0.225***	0.103***	0.000	0.096***	0.274***	-0.174***	-0.012	-0.011	-0.020**	-0.119**
	(0.065)	(0.026)	(0.001)	(0.018)	(0.035)	(0.041)	(0.011)	(0.015)	(0.010)	(0.057)
ESURP×DSQ×After			-0.113							
			(0.109)							
ΔC×DSQ×After								-0.342*		
								(0.192)		
Controls	✓	✓	✓	✓	✓	✓	✓			✓
Year×Death Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Firm×Death Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Obs	17,262	14,866	17,262	6,819	6,824	3,262	3,256	4,229	580	2,317
Adj R^2	0.366	0.570	0.045	0.931	0.949	0.845	0.470	0.286	0.188	0.967

Table 13: Univariate Correlations of Director-Specific Quality and Traits

This table reports correlations between *DSQ* and observable director characteristics and biography-based director attributes. The first two columns use the full sample of directors, while the last two columns restrict the sample to directors in the top and bottom deciles of the *DSQ* distribution. The table includes only characteristics whose correlation with *DSQ* is at least 0.024 and statistically significant at the 5% level or better in the top-and-bottom-decile specification. All variables are defined in the Appendix. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	All Directors		Top and Bottom DSQ Deciles	
	Correlation	p-value	Correlation	p-value
Observable Director Characteristics				
Grad Degree	0.015***	0.001	0.036***	0.000
Ivy Univ	0.014***	0.002	0.031***	0.002
Managerial Exp	0.011**	0.017	0.029***	0.004
Legal Exp	0.010**	0.029	0.028***	0.004
Academic Exp	0.012***	0.008	0.025**	0.012
Ln(Prof Quals)	0.008*	0.061	0.024**	0.015
Social / Relational Capital				
Patient	0.024***	0.000	0.061***	0.000
Skilled facilitator	0.020***	0.000	0.051***	0.000
Good communicator	0.020***	0.000	0.048***	0.000
Collaborative	0.016***	0.000	0.039***	0.000
Diplomatic	0.014***	0.002	0.031***	0.002
Active listener	0.012***	0.006	0.029***	0.004
Cognitive / Deliberative Capital				
Adaptable	0.024***	0.000	0.056***	0.000
Analytical	0.023***	0.000	0.054***	0.000
Critical thinker	0.019***	0.000	0.047***	0.000
Innovative	0.019***	0.000	0.045***	0.000
Problem solver	0.013***	0.003	0.041***	0.000
Open minded	0.009**	0.033	0.031***	0.002
Reflective	0.012***	0.007	0.028***	0.005
Wise	0.011**	0.015	0.025**	0.012
Character / Stewardship Capital				
Ethical	0.014***	0.002	0.033***	0.001
Persistent	0.012***	0.009	0.031***	0.002
Dependable	0.013***	0.004	0.027***	0.006
Emotional Intelligence Related				
Empathetic	0.028***	0.000	0.065***	0.000
Emotional intelligence	0.025***	0.000	0.054***	0.000
Self aware	0.024***	0.000	0.054***	0.000
Controls emotional response	0.019***	0.000	0.045***	0.000
Understands others' emotions	0.023***	0.000	0.044***	0.000
Emotional insight	0.018***	0.000	0.040***	0.000
Constructive under stress	0.014***	0.001	0.033***	0.001
Aware of impact on others	0.013***	0.003	0.029***	0.003
Recognizes personal strengths	0.013***	0.004	0.025**	0.014

Portable Director-Specific Quality

Online Appendix

OA1. AKM METHODOLOGY

To quantify an individual director's contribution to firm value, we decompose firm value into several components using the connected group method from AKM (1999):

$$\text{Ln}(TQ_{ijt}) = \theta_i + \psi_j + \omega_t + X_{jt(t-1)}\beta + Z_{ijt}\gamma + \varepsilon_{ijt}. \tag{1}$$

where TQ_{ijt} is market value of assets scaled by book value of assets (Tobin's Q) at director i's firm j in year t. We include director (θ_i), firm (ψ_j), and year fixed effects (ω_t), several time-varying firm and board characteristics ($X_{jt(t-1)}$), and time-varying director characteristics (Z_{ijt}). The estimated director fixed effects capture *DSQ*.

Below we show how the director-fixed effects are recovered using the AKM methodology. After simplifying some of the notation based on the discussions in Ewens and Rhodes-Kropf (2015) and Liu et al. (2023), we can rewrite Eq. (1) as:

$$V_{ijt} = \theta_i + \sum_{l=1}^{J} F_{ilt}\psi_l + \omega_t + X_{jt}\beta + Z_{ijt}\gamma + \varepsilon_{ijt}, \tag{2}$$

where V_{ijt} is firm value, and F_{ilt} is a dummy variable equal to one for director i at firm l at time t, and zero otherwise.

The first step in the AKM method is demeaning all variables by director to remove the director-specific effects, such that the equation becomes:

$$V_{ijt} - \bar{V}_i = \sum_{l=1}^{J}(F_{ilt} - \bar{F}_{il})\psi_l + (\omega_t - \bar{\omega}_t) + (X_{jt} - \bar{X}_i)\beta + (Z_{it} - \bar{Z}_i)\gamma + (\varepsilon_{ijt} - \bar{\varepsilon}_i), \tag{3}$$

where $\bar{Y}_i$ represents the mean of a variable for each director i across the entire sample. Notably, the director fixed effects have been removed through this demeaning process. Eq. (3) is then estimated using the least-squares dummy variables method. Finally, the parameter estimates from Eq. (3) are used to recover the director-specific effects as follows:

$$\hat{\theta}_i = \bar{V}_i - \sum_{l=1}^{J} \bar{F}_{il}\hat{\psi}_l - \bar{X}_i\hat{\beta} - \bar{Z}_i\hat{\gamma}. \tag{4}$$

OA2. CLASSIFICATION OF BIOGRAPHY-BASED DIRECTOR ATTRIBUTES

Because *DSQ* is estimated from firm value rather than from director characteristics, it captures a latent, portable component of director quality whose underlying attributes are not directly observable. To provide insight into the types of attributes that may be reflected in *DSQ*, we classify the biography-based textual measures into four theoretically motivated categories. The classification is based on the function each attribute is expected to perform in board deliberations and oversight rather than on its empirical correlation with *DSQ*.

Social and relational capital consists of attributes that facilitate communication, collaboration, trust, and the exchange of information among directors and between the board and management. Representative terms include *skilled facilitator*, *good communicator*, *collaborative*, *active listener*, and *diplomatic*. These capabilities may help directors elicit information, encourage participation, manage disagreement, and facilitate productive boardroom interactions.

Cognitive and deliberative capital consists of attributes that facilitate analysis, judgment, learning, and strategic decision-making. Representative terms include *analytical*, *critical thinker*, *adaptable*, *innovative*, *reflective*, and *wise*. These capabilities may help directors process complex information, evaluate competing alternatives, update their assessments, and constructively challenge managerial proposals.

Character and stewardship capital consists of attributes associated with integrity, reliability, resilience, and the responsible exercise of fiduciary oversight. Representative terms include *ethical*, *dependable*, and *persistent*. These attributes may strengthen directors' commitment to monitoring management, protecting shareholder interests, and maintaining effective oversight when decisions are difficult or contested.

Finally, *emotional intelligence related* encompasses interpersonal awareness, self-awareness, and emotional self-regulation. Representative terms include *emotional intelligence*, *empathetic*, *self aware*, *understands others' emotions*, and *controls emotional response*. We classify emotional intelligence separately because it can support each of the other three forms of capital. For example, interpersonal awareness can facilitate communication and trust, self-awareness can improve judgment and receptiveness to alternative perspectives, and emotional regulation can support constructive deliberation under pressure.

Table A5 reports the complete set of retained textual terms within each category. For descriptive purposes, it uses the Pearson correlation between each textual measure and *DSQ* among directors in the top and bottom deciles of the *DSQ* distribution to rank terms. Terms are ordered within each category by the magnitude of their correlation with *DSQ*. Because the textual measures are noisy proxies for latent director attributes and many terms capture related concepts, we interpret the results as evidence about broad patterns across categories rather than as separate tests of whether every individual attribute contributes independently to director quality.

Table A1: Summary Statistics

This table reports summary statistics for the variables used in the decomposition of Tobin's Q regression in Table A3. This sample consists of 504,533 firm-director-year observations over the period 2000 to 2023 after excluding observations that are not part of the connected samples. All variables are defined in the Appendix.

	Mean	Std	P25	Median	P75
Tobin's Q	1.923	1.928	1.060	1.371	2.088
Ln(Size)	7.463	2.120	6.059	7.476	8.852
LEV	0.237	0.212	0.059	0.197	0.359
OROA	0.060	0.172	0.022	0.085	0.142
IO	0.606	0.296	0.385	0.670	0.856
R&D	0.273	1.459	0.000	0.000	0.035
VOL	0.118	0.076	0.066	0.097	0.145
Beta	1.193	0.822	0.632	1.077	1.598
Ln(#Seats)	1.658	0.866	1.099	1.609	2.303
Tenure	7.601	6.773	2.600	5.600	10.60
Busy	0.300	0.458	0.000	0.000	1.000
IndepDir	0.914	0.281	1.000	1.000	1.000
Age65	0.251	0.434	0.000	0.000	1.000
Chair-Lead	0.059	0.236	0.000	0.000	0.000
AuditCom	0.533	0.499	0.000	1.000	1.000
CompCom	0.496	0.500	0.000	0.000	1.000
NomCom	0.490	0.500	0.000	0.000	1.000
AuditChair	0.137	0.343	0.000	0.000	0.000
CompChair	0.129	0.335	0.000	0.000	0.000
NomChair	0.121	0.327	0.000	0.000	0.000
IndExp	0.249	0.432	0.000	0.000	0.000
Indep	0.773	0.137	0.700	0.800	0.889
Female	0.144	0.120	0.000	0.125	0.222
CEO-Chair	0.414	0.493	0.000	0.000	1.000
Lead	0.336	0.472	0.000	0.000	1.000
Ln(BrdSize)	2.224	0.282	2.079	2.197	2.398
ClassBrd	0.427	0.495	0.000	0.000	1.000

Table A2: Director Board Seat Composition

This table reports the number of boards each director sits on over the period 2000 to 2024. Panel A breaks down the number of different boards each director sits on over the sample period, while Panel B shows the number of firms who have directors that sit on more than one board and can be connected to a group following the AKM method.

Panel A: Number of Directors that Sit on Multiple Boards

More than one board	Number of different boards	Number of directors	Percentage
No	1	47,689	73.28
Yes	2	9,796	15.05
	3	3,848	5.91
	4	1,922	2.95
	5	923	1.42
	6	438	0.67
	7	231	0.35
	8	102	0.16
	9	64	0.10
	>9	63	0.10
	Total	65,076	100

Panel B: Number of Firms with Directors who Sit on Multiple Boards Over the Sample Period

Number of "movers" per firm	Number of firms	Percentage	Cumulative percentage
0	670	8.47	8.47
1-5	3,778	47.77	56.24
6-10	2,070	26.17	82.41
11-20	1,149	14.53	96.94
21- 30	219	2.77	99.77
31- 50	23	0.29	100
Total	7,909	100	

Table A3: Estimating Director-Specific Quality

This table reports results from estimating the following equation using the AKM method:

$$\text{Ln}(TQ_{ijt}) = \boldsymbol{\theta_i} + \psi_j + \omega_t + X_{jt(t-1)}\beta + Z_{ijt}\gamma + \varepsilon_{ijt}.$$

Ln(*TQ*) is the natural logarithm of a firm's market value of assets scaled by book value of assets. θ_i, ψ_j, and ω_t are director, firm, and year fixed effects, respectively. $X_{jt(t-1)}$ are time-varying firm and board characteristics, and Z_{ijt} are time-varying director characteristics. The estimated director fixed effects θ_i capture DSQ. All variables are defined in the Appendix. Standard errors are clustered by firm.

	Ln(TQ)	Standard Errors
Time-varying director characteristics		
Ln(#Seats)	0.005	(0.006)
Tenure	0.001**	(0.000)
Busy	0.001	(0.003)
Indep	0.014***	(0.004)
Age65	0.033	(0.063)
Chair-Lead	−0.012***	(0.003)
AuditCom	−0.004**	(0.002)
CompCom	−0.001	(0.002)
NomCom	−0.001	(0.002)
AuditChair	−0.001	(0.002)
CompChair	−0.003*	(0.002)
NomChair	−0.004**	(0.002)
IndExp	−0.001	(0.003)
Time-varying firm characteristics		
ClassBrd	−0.006	(0.008)
Ln(Size)	−0.162***	(0.006)
LEV	0.037*	(0.019)
OROA	0.634***	(0.036)
IO	0.069***	(0.012)
R&D	0.020***	(0.003)
VOL	0.077***	(0.029)
Beta	−0.004	(0.003)
Time-varying board characteristics		
Indep	0.015	(0.023)
Female	0.049*	(0.028)
CEO-Chair	0.020***	(0.005)
Lead-Indep	0.005	(0.005)
Ln(BrdSize)	0.049***	(0.013)
Director FE (θ_i)	✓	
Firm FE (ψ_j)	✓	
Year FE (ω_t)	✓	
Obs	528,876	
R^2	0.814	

Table A4: Director-Specific Quality and Financial Misreporting

This table reports results from OLS regressions relating measures of financial misreporting to board-level *DSQ* over the period 2001 to 2024. The dependent variables in columns 1-4 and 5-8 are the fraud index from Dechow et al. (2011) (*FScore*) and an indicator equal to one if a misstatement for a firm was revealed (*Misstatement*), and zero otherwise. *DSQ* and *FSQ* are director- and firm-specific effects estimated using the AKM method, respectively. *AvgDSQ* is the average *DSQ* across directors on a board during a year and normalized to have a standard deviation of one. In columns 3-4 and 7-8, *DSQ* and *FSQ* are estimated using the AKM method using data up to *t*-1. Other control variables include *ResidTQ*, the natural logarithm of CEO age and tenure, *Ln(Size)*, *BHAR*, *LEV*, *OROA*, *IO*, *R&D*, *VOL*, *Beta*, *Indep*, *Female*, *CEO-Chair*, *Lead-Indep*, *Ln(BrdSize)*, and *ClassBrd*. All variables are defined in the Appendix. Standard errors in parentheses are clustered by firm.

	FScore×100				Misstatement×100			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
AvgDSQ	-2.199***	0.060	-1.442***	0.445	-0.261	-0.428	-0.258	0.119
	(0.604)	(0.574)	(0.546)	(0.495)	(0.182)	(0.283)	(0.175)	(0.256)
FSQ	✓		✓	✓	✓		✓	✓
Other Controls	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
SIC2 FE	✓		✓		✓		✓	
Firm FE		✓		✓		✓		✓
Out-of-Sample			✓	✓			✓	✓
Obs	55,061	54,463	51,679	51,035	64,761	64,064	59,750	59,005
Adj R^2	0.269	0.603	0.275	0.613	0.031	0.180	0.031	0.182

Table A5: Classification of Biography-Based Director Attributes

This table classifies the retained biography-based textual measures into four theoretically motivated categories. Within each category, terms are ordered by the magnitude of their Pearson correlation with Director-Specific Quality (*DSQ*) among directors in the top and bottom deciles of the *DSQ* distribution. Correlation magnitudes are not reported. A superscript * identifies a correlation statistically significant at the 5% level or better. The analysis includes one observation per director.

Social / Relational Capital	**Cognitive / Deliberative Capital**	**Character / Stewardship Capital**	**Emotional Intelligence Related**
patient*	adaptable*	ethical*	empathetic*
skilled facilitator*	analytical*	persistent*	emotional intelligence*
good communicator*	critical thinker*	dependable*	self aware*
collaborative*	innovative*	neutral*	controls emotional response*
diplomatic*	problem solver*	discreet	understands others' emotions*
active listener*	open minded*	fair	emotional insight*
relationship management*	reflective*	honest	constructive under stress*
culturally sensitive*	wise*	courageous	aware of impact on others*
inclusive*	thoughtful*	consistent	recognizes personal strengths*
respectful	open to feedback	resilient	self regulation
builds rapport		trustworthy	
encourages healthy dissent			
team builder			
recognizes team needs			
mediates disputes			
consensus builder			
tactful			

Table A6: Robustness: Estimating DSQ from Stock Returns

This table reports results from OLS/Poisson regressions relating *DSQ* to the director- and firm-level outcomes from Tables 2-10. The dependent variables in columns 1-12, samples, and control variables are the same as those in their respective tables. CARs in columns 1, 5, and 11 correspond to returns around director appointment announcements, earnings announcements, and M&A announcements. However, in this table, *DSQ* and *FSQ* are estimated from Eq. (1) except that the dependent variable is DGTW characteristic-adjusted stock returns over a firm's fiscal year instead of Tobin's Q. Standard errors in parentheses are clustered by firm.

	%CAR	%Vote	FrcstError	FrcstDisp	CAR	Ln(BidAsk)	Ln(Illiq)	Ln(Delta)	Equity	$r - R^B$	%CAR	$Pats
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
DSQ	0.212***	0.237***										
	(0.062)	(0.069)										
AvgDSQ			-0.307***	-0.202***	0.001***	-0.239***	-0.620***	0.341***	0.021***	0.017***	0.682***	0.508***
			(0.025)	(0.015)	(0.000)	(0.008)	(0.015)	(0.018)	(0.003)	(0.003)	(0.135)	(0.058)
ESURP×AvgDSQ					0.039**							
					(0.015)							
ΔC×AvgDSQ										0.091***		
										(0.025)		
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SIC2 FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Obs	15,853	188,504	197,206	177,535	197,206	57,998	58,090	31,402	31,324	41,573	8,436	51,052
Adj/Pseudo R^2	0.039	0.108	0.074	0.416	0.034	0.810	0.880	0.603	0.234	0.216	0.056	0.845

Table A7: Comparing Director Characteristics for Movers and Stayers

This table reports variable means for directors with more than one directorship (Movers) and those with only one directorship (Stayers). The sample consists of 17,387 mover and 42,628 stayer observations. All variables are defined in the Appendix. *p*-values for a *t*-test of the difference in means between the two groups are reported.

	Mean Stayer	Mean Mover	Difference
DSQ	0.015	0.020	-0.005**
Ln(#Seats)	1.153	1.912	-0.759***
Tenure	6.071	5.826	0.245***
Busy	0.125	0.374	-0.250***
Indep	0.830	0.907	-0.077***
Age65	0.256	0.303	-0.047***
IndExp	0.162	0.358	-0.197***
Chair-Lead	0.052	0.061	-0.009***
AuditCom	0.484	0.532	-0.047***
CompCom	0.448	0.488	-0.040***
NomCom	0.431	0.469	-0.037***
AuditChair	0.099	0.138	-0.039***
CompChair	0.100	0.126	-0.026***
NomChair	0.093	0.115	-0.022***

Table A8: Robustness: Use DSQ Estimates from Mover Sample

This table reports results from OLS/Poisson regressions relating *DSQ* to the director- and firm-level outcomes from Tables 2-10. The dependent variables in columns 1-12, samples, and control variables are the same as those in their respective tables. CARs in columns 1, 5, and 11 correspond to returns around director appointment announcements, earnings announcements, and M&A announcements. However, in this table, we restrict the sample in columns 1 and 2 to directors with directorships at two or more firms, and in columns 3-12, we calculate *AvgDSQ* using directors with directorships at two or more firms. Standard errors in parentheses are clustered by firm.

	%CAR	%Vote	FrcstError	FrcstDisp	CAR	Ln(BidAsk)	Ln(Illiq)	Ln(Delta)	Equity	$r - R^B$	%CAR	$Pats
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
DSQ	0.164**	0.133**										
	(0.068)	(0.053)										
AvgDSQ			-0.154***	-0.098***	0.002***	-0.116***	-0.277***	0.149***	0.008***	0.008***	0.440***	0.223***
			(0.022)	(0.014)	(0.000)	(0.006)	(0.012)	(0.015)	(0.002)	(0.003)	(0.116)	(0.040)
ESURP×AvgDSQ					0.056***							
					(0.015)							
ΔC×AvgDSQ										0.095***		
										(0.022)		
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SIC2 FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Obs	10,002	123,676	224,654	203,417	224,654	65,645	65,742	33,437	33,356	45,068	9,291	56,836
Adj/Pseudo R^2	0.040	0.107	0.080	0.419	0.033	0.798	0.868	0.576	0.224	0.262	0.055	0.805

Table A9: Robustness: Use DSQ Estimates from Stayer Sample

This table reports results from OLS/Poisson regressions relating *DSQ* to the director- and firm-level outcomes from Tables 2-10. The dependent variables in columns 1-12, samples, and control variables are the same as those in their respective tables. CARs in columns 1, 5, and 11 correspond to returns around director appointment announcements, earnings announcements, and M&A announcements. However, in this table, we restrict the sample in columns 1 and 2 to directors with directorships at only one firm, and in columns 3-12, we calculate *AvgDSQ* using directors with directorships at only one firm. Standard errors in parentheses are clustered by firm.

	%CAR	%Vote	FrcstError	FrcstDisp	CAR	Ln(BidAsk)	Ln(Illiq)	Ln(Delta)	Equity	$r - R^B$	%CAR	$Pats
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
DSQ	0.135	0.146*										
	(0.088)	(0.084)										
AvgDSQ			-0.178***	-0.089***	0.002***	-0.124***	-0.313***	0.170***	0.009***	0.008***	0.486***	0.158***
			(0.024)	(0.012)	(0.000)	(0.006)	(0.012)	(0.015)	(0.002)	(0.003)	(0.130)	(0.036)
ESURP×AvgDSQ					0.058***							
					(0.015)							
ΔC×AvgDSQ										0.116***		
										(0.025)		
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SIC2 FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Obs	7,430	88,567	215,213	192,191	215,213	64,785	64,857	31,133	31,052	43,512	8,933	55,948
Adj./Pseudo R^2	0.038	0.107	0.083	0.411	0.035	0.800	0.864	0.578	0.235	0.259	0.057	0.803

Table A10: Robustness: Mover Dummy Variables Approach

This table reports results from OLS/Poisson regressions relating *DSQ* to the director- and firm-level outcomes from Tables 2-10. The dependent variables in columns 1-12, samples, and control variables are the same as those in their respective tables. CARs in columns 1, 5, and 11 correspond to returns around director appointment announcements, earnings announcements, and M&A announcements. However, in this table, *DSQ* and *FSQ* are estimated using the mover dummy approach that is restricted to only directors that have more than one board appointment. Standard errors in parentheses are clustered by firm.

	%CAR	%Vote	FrcstError	FrcstDisp	CAR	Ln(BidAsk)	Ln(Illiq)	Ln(Delta)	Equity	$r - R^B$	%CAR	$Pats
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
DSQ	0.150**	0.137***										
	(0.065)	(0.050)										
AvgDSQ			-0.146***	-0.094***	0.001***	-0.117***	-0.270***	0.146***	0.009***	0.009***	0.467***	0.211***
			(0.022)	(0.014)	(0.000)	(0.007)	(0.012)	(0.015)	(0.002)	(0.003)	(0.117)	(0.039)
ESURP×AvgDSQ					0.054***							
					(0.015)							
ΔC×AvgDSQ										0.088***		
										(0.022)		
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SIC2 FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Obs	10,002	123,676	224,654	203,417	224,654	65,645	65,742	33,437	33,356	45,068	9,291	56,836
Adj/Pseudo R^2	0.039	0.107	0.081	0.420	0.033	0.799	0.868	0.578	0.224	0.258	0.056	0.810

Table A11: Robustness: Randomly Assign Directors to Firms

This table reports results from OLS/Poisson regressions relating *DSQ* to the director- and firm-level outcomes from Tables 2-10. The dependent variables in columns 1-12, samples, and control variables are the same as those in their respective tables. CARs in columns 1, 5, and 11 correspond to returns around director appointment announcements, earnings announcements, and M&A announcements. However, in this table, *DSQ* and *FSQ* are estimated using directors who have been randomaly assigned to a different firm. Standard errors in parentheses are clustered by firm.

	%CAR	%Vote	FrcstError	FrcstDisp	CAR	Ln(BidAsk)	Ln(Illiq)	Ln(Delta)	Equity	$r - R^B$	%CAR	$Pats
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
DSQ	-0.036	-0.060										
	(0.054)	(0.049)										
AvgDSQ			0.028	0.005	-0.000	-0.007	0.003	-0.023	-0.030	-0.005**	-0.048	0.041
			(0.018)	(0.012)	(0.000)	(0.007)	(0.014)	(0.016)	(0.245)	(0.002)	(0.086)	(0.047)
ESURP×AvgDSQ					-0.005							
					(0.014)							
ΔC×AvgDSQ										-0.010		
										(0.023)		
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SIC2 FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Obs	17,844	212,244	242,008	215,599	242,008	74,427	74,524	34,597	34,506	49,197	10,069	64,573
Adj/Pseudo R^2	0.038	0.102	0.067	0.391	0.030	0.762	0.802	0.493	0.219	0.197	0.053	0.729

Table A12: Robustness: Estimate DSQ from Directors that Move Up

This table reports results from OLS/Poisson regressions relating *DSQ* to the director- and firm-level outcomes from Tables 2-10. The dependent variables in columns 1-12, samples, and control variables are the same as those in their respective tables. CARs in columns 1, 5, and 11 correspond to returns around director appointment announcements, earnings announcements, and M&A announcements. However, in this table, *DSQ* and *FSQ* are estimated using directors with only one board appointment and directors that move to a firm with at least a 10% higher Tobin's Q ratio. Standard errors in parentheses are clustered by firm.

	%CAR	%Vote	FrcstError	FrcstDisp	CAR	Ln(BidAsk)	Ln(Illiq)	Ln(Delta)	Equity	$r - R^B$	%CAR	$Pats
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
DSQ	0.173**	0.265***										
	(0.079)	(0.085)										
AvgDSQ			-0.183***	-0.178***	0.001***	-0.202***	-0.513***	0.266***	0.016***	-0.012***	0.767***	0.332***
			(0.027)	(0.017)	(0.000)	(0.008)	(0.014)	(0.018)	(0.003)	(0.003)	(0.190)	(0.038)
ESURP×AvgDSQ					0.084***							
					(0.016)							
ΔC×AvgDSQ										0.201***		
										(0.028)		
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SIC2 FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Obs	9,205	110,845	201,687	184,013	201,687	58,116	58,200	31,318	31,249	41,393	8,405	50,580
Adj/Pseudo R^2	0.036	0.106	0.073	0.416	0.032	0.798	0.872	0.576	0.223	0.259	0.061	0.804

Table A13: Robustness: Estimate DSQ from Directors that Move Down

This table reports results from OLS/Poisson regressions relating *DSQ* to the director- and firm-level outcomes from Tables 2-10. The dependent variables in columns 1-12, samples, and control variables are the same as those in their respective tables. CARs in columns 1, 5, and 11 correspond to returns around director appointment announcements, earnings announcements, and M&A announcements. However, in this table, *DSQ* and *FSQ* are estimated using directors with only one board appointment and directors that move to a firm with at least a 10% lower Tobin's Q ratio. Standard errors in parentheses are clustered by firm.

	%CAR	%Vote	FrcstError	FrcstDisp	CAR	Ln(BidAsk)	Ln(Illiq)	Ln(Delta)	Equity	$r - R^B$	%CAR	$Pats
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
DSQ	0.258***	0.209***										
	(0.081)	(0.080)										
AvgDSQ			-0.151***	-0.178***	0.001***	-0.194***	-0.515***	0.284***	0.022***	-0.014***	0.686***	0.375***
			(0.026)	(0.018)	(0.000)	(0.007)	(0.013)	(0.017)	(0.003)	(0.003)	(0.181)	(0.055)
ESURP×AvgDSQ					0.031**							
					(0.016)							
ΔC×AvgDSQ										0.165***		
										(0.027)		
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SIC2 FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Obs	9,783	118,162	209,327	190,748	209,327	60,502	60,596	32,138	32,061	42,649	8,801	52,637
Adj/Pseudo R^2	0.041	0.109	0.078	0.422	0.032	0.799	0.872	0.583	0.223	0.258	0.053	0.803

Table A14: Robustness: Drop High and Low Tobin's Q Firms

This table reports results from OLS/Poisson regressions relating *DSQ* to the director- and firm-level outcomes from Tables 2-10. The dependent variables in columns 1-12, samples, and control variables are the same as those in their respective tables. CARs in columns 1, 5, and 11 correspond to returns around director appointment announcements, earnings announcements, and M&A announcements. However, in this table, we drop observations that fall into the top and bottom quintiles of *Tobin's Q*. Standard errors in parentheses are clustered by firm.

	%CAR	%Vote	FrcstError	FrcstDisp	CAR	Ln(BidAsk)	Ln(Illiq)	Ln(Delta)	Equity	$r - R^B$	%CAR	$Pats
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
DSQ	0.162**	0.212***										
	(0.071)	(0.062)										
AvgDSQ			-0.157***	-0.083***	0.002***	-0.138***	-0.329***	0.193***	0.011***	0.004	0.894***	0.293***
			(0.020)	(0.012)	(0.000)	(0.007)	(0.013)	(0.016)	(0.003)	(0.003)	(0.171)	(0.058)
ESURP×AvgDSQ					0.057***							
					(0.017)							
ΔC×AvgDSQ										0.087***		
										(0.031)		
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SIC2 FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Obs	10,562	127,454	142,390	129,545	142,390	42,694	42,725	20,635	20,595	28,882	5,950	36,887
Adj/Pseudo R^2	0.049	0.103	0.094	0.440	0.034	0.811	0.878	0.574	0.221	0.261	0.063	0.810

About ECGI

ECGI is an international non-profit membership organisation that provides a platform for debate and dialogue among academics, policymakers, and business leaders, with a focus on major corporate governance, ESG, and stewardship issues.

The views expressed in this working paper are those of the authors, not those of the ECGI or its members.

www.ecgi.global

ECGI Working Paper Series in Finance

https://www.ecgi.global/publications/working-papers