Journal of Enterprise Information Management

Unlocking the moderating role of CEO external directorships: impact on blockchain investment and market value

Ariel K. H. Lui
Department of Information Systems and Business Analytics, RMIT University, Melbourne, Australia
Eric W. T. Ngai
Department of Management and Marketing, The Hong Kong Polytechnic University, Hong Kong, China, and
Maggie C. M. Lee
Department of Business Technology and Entrepreneurship, Swinburne University of Technology, Hawthorn, Australia

Received 10 July 2025
Revised 24 September 2025
5 December 2025
3 February 2026
Accepted 9 February 2026

Abstract

Purpose – Despite growing research on blockchain value, little is known about the role of CEOs in shaping these outcomes. This study examines whether CEO external directorships influence market reactions to blockchain investment announcements and how adoption strategy and application type condition this relationship through interaction effect.

Design/methodology/approach – We conduct an event study of 200 blockchain-related announcements by 138 U.S. public firms and use regression analyses to assess the effects of CEO external directorships, adoption strategy and application type.

Findings – CEO external directorships positively affect market responses to blockchain investments, with stronger effects for collaborative initiatives and financial applications. The results highlight the contingent value of CEO external social capital in complex IT investment decisions.

Practical implications – CEO external board ties can be a strategic asset in navigating regulatory, collaborative and technological complexities in blockchain projects. Boards and investors may consider executive network capital when evaluating leadership and strategic IT decisions.

Originality/value – This study offers one of the first pieces of empirical evidence on how CEO external directorships influence market reactions to blockchain investments. More importantly, it extends social capital, signaling and governance theories by showing that in blockchain investment contexts – characterized by heightened inter-organizational coordination, regulatory scrutiny and interpretive uncertainty – CEO external directorships function as context-activated social capital, whose value depends on adoption strategy and application type rather than being universally beneficial.

Keywords Blockchain, Market value, CEO external directorships, Adoption strategy, Application type

Paper type Research article

1. Introduction

Blockchain technology is rapidly emerging as a transformative force in business operations and decision-making. Beyond virtual currencies like Bitcoin, it now functions as enterprise information infrastructure enabling secure, transparent and decentralized data management across organizational boundaries, with growing applications in finance, supply chain and interorganizational collaboration. As global blockchain spending is projected to reach USD

Journal of Enterprise Information Management
Emerald Publishing Limited
e-ISSN: 1758-7409
p-ISSN: 1741-0398
DOI 10.1108/JEIM-07-2025-0587

1,950.3 billion by 2034, driven largely by smart-contract adoption in enterprise settings (Custom Market Insights, 2025), firms face heightened uncertainty, regulatory ambiguity and technical complexity – particularly in financial domains – making effective strategic decision-making essential.

Existing studies highlight blockchain's potential to enhance operational efficiency (e.g. Pan *et al*., 2020; Sharma *et al*., 2023) and improve market value (e.g. Cheng *et al*., 2019; Klöckner *et al*., 2022). However, no research has examined how CEO external social capital shapes market reactions to blockchain investment announcements – a notable gap given the interorganizational and legitimacy-intensive nature of blockchain initiatives. Social capital theory conceptualizes external board ties as channels for information, legitimacy and resources (Geletkanycz *et al*., 2001). CEOs who hold external directorships may therefore be better equipped to navigate blockchain's collaborative demands and regulatory complexities.

Research on CEO external directorships in finance and management has produced mixed findings, with some studies showing benefits through enhanced knowledge flows (Chang and Wu, 2021), and others highlighting downsides such as distraction, collusion and bias (e.g. Gedajlovic *et al*., 2013). In IT research, most social capital studies focus on internal ties (e.g. CIO–TMT relationships), and little is known about how external CEO networks influence IT investment outcomes (Randolph *et al*., 2020). Furthermore, while social capital theory explains the general value of executives' external ties, it does not account for how such ties operate under the interorganizational, legitimacy-intensive and regulatory demands of blockchain investments. This study addresses this gap by investigating whether and when CEO external directorships affect investor reactions to blockchain investment announcements. We pose two research questions:

> Q1: Do CEO external directorships influence market value following blockchain investment announcements?
>
> Q2: How do adoption strategy (collaborative vs. individual) and application type (financial vs. nonfinancial) condition this relationship through interaction effect?

Grounded in social capital theory, signaling theory, and a contingency perspective, we argue that CEO external directorships enhance market responses to blockchain investment announcements and that this moderating effect is further amplified in contexts requiring interorganizational coordination or regulatory navigation. Firms often form collaborations to create synergistic efficiency for blockchain solutions (Pan *et al*., 2020). The finance sector is known for its heavy regulation (McLaughlin *et al*., 2017), and implementing blockchain in this domain requires additional external legal information and advice. CEOs with external directorships can leverage broader information channels, legitimacy signals and expert access to support these more complex initiatives (Randolph *et al*., 2020). We assess these relationships using abnormal stock returns, a forward-looking and widely adopted indicator of investor expectations in IT investment research (e.g. Teo *et al*., 2016). Accordingly, the scope of this study is limited to blockchain investment announcements by U.S. public firms during 2020–2022, bounding generalizability to similar institutional settings. The findings capture short-term investor expectations at the time of announcement and should not be generalized to long-term performance outcomes or non-U.S. contexts.

Unlike prior research that examines internal executive networks or generic IT investment announcements, this study focuses on CEO external board-level ties and their contingent effects on market reactions to blockchain investment announcements. This study makes three distinct contributions. First, it addresses the lack of evidence on how CEO external directorships shape market reactions to blockchain investment announcements. Second, it identifies adoption strategy and application type as interaction-based boundary conditions that shape the value of CEO external directorships, responding to calls for a contingency-based understanding of blockchain value creation. Third, it advances social capital theory by showing that the value of CEO external ties is context-activated rather than universal,

emerging most strongly when blockchain initiatives intensify coordination and regulatory uncertainty, thereby extending existing theories of signaling and governance under heightened uncertainty.

2. Theoretical background

2.1 Blockchain and its organizational implications

Blockchain is a distributed ledger technology designed to record and validate transactions without a central authority. Its key characteristics – immutability, transparency and smart contracts – enable more secure and efficient interorganizational processes (Kim and Shin, 2019). Despite its potential, blockchain remains in early stages (Li *et al*., 2023), with firms facing high costs, scalability limitations, technical complexity and evolving regulation (Li *et al*., 2023). Adoption rates remain relatively low (AlShamsi *et al*., 2022), and many initiatives continue to operate in pilot phases (Li *et al*., 2023).

Although blockchain research is expanding, much of it remains conceptual or case-based, with limited quantitative evidence (Karakas *et al*., 2021). Existing studies show that blockchain can improve operating performance (Pan *et al*., 2020; Hasan *et al*., 2020) and market value (e.g. Cheng *et al*., 2019; Klöckner *et al*., 2022). More recent studies highlight governance and signaling mechanisms in blockchain initiatives (e.g. Ezzi *et al*., 2023; Filatotchev *et al*., 2025). Outcomes are shown to vary across project characteristics and use cases.

However, the role of CEOs, a key factor in successful blockchain investment (Hastig and Sodhi, 2020) – remains underexplored. We focus on CEO external directorships because blockchain initiatives require boundary-spanning resources – such as inter-organizational information, legitimacy and coordination. Unlike other CEO attributes (e.g. tenure, age), external directorships capture externally oriented social capital that is particularly relevant in blockchain's multi-party, legitimacy-intensive environment.

Blockchain differs from traditional enterprise IT because its value often depends on multi-firm coordination, shared governance and compliance with evolving regulatory frameworks. These demands heighten the importance of CEO external ties, which provide access to cross-firm information, alliance partners and regulatory insight – resources less critical for more mature or internally oriented technologies.

2.2 CEO external directorships and firm performance

Research has long debated whether CEO external directorships strengthen or weaken firm performance. From a resource-based perspective and social capital perspective, external board ties represent valuable and unique intangible resources offering firms substantial advantages (Barney, 1991; Peng *et al*., 2013). Well-connected executives can access diverse intelligence (Edvinsson and Malone, 1997) and enhance innovation quality (Chang and Wu, 2021; Faleye *et al*., 2014).

Conversely, agency theory warns that external board roles may create distractions, increase agency costs or facilitate collusion and biased decision-making (e.g. Gedajlovic *et al*., 2013; Xue *et al*., 2018; Khan and Mauldin, 2021). This ongoing debate highlights the need to investigate CEO external directorships in contexts – such as blockchain – where external knowledge, legitimacy and cross-firm coordination are especially critical.

2.3 IT, top management and organizational performance

Extensive work links IT investments to firm performance, with outcomes shaped by various contextual factors – such as country, industry and firm-specific characteristics (e.g. Lui *et al*., 2023). A consistent theme is the crucial role of top management support in achieving IT success. Research shows that individual top executives (e.g. the CIO and CEO) (Banker *et al*., 2022) and ties among top executives, including CIO-TMT relationships, improve organizational performance upon IT adoption (Bendig *et al*., 2023).

A newer stream emphasizes the role of social networks in IT value creation. Internal social capital – such as ties between CIOs, TMTs and business units – positively influences IT investment performance by facilitating knowledge combination and exchange (e.g. Karahanna and Preston, 2013; Wagner *et al*., 2014; Nugroho *et al*., 2020). Yet, external social capital held by CEOs remains underexplored.

2.4 Research gap

Prior studies provide mixed evidence on the performance effects of CEO external directorships. Embeddedness-based research highlights benefits such as information exchange, legitimacy and learning (Geletkanycz *et al*., 2001), while agency-based work emphasizes distraction and increased agency costs (e.g. Gedajlovic *et al*., 2013; Xue *et al*., 2018; Khan and Mauldin, 2021).

We extend this debate into the blockchain context, where uncertainty, regulatory scrutiny and interfirm collaboration amplify both the potential benefits and challenges of external ties. While IT research has examined internal governance factors, little is known about how CEO external directorships shape market responses to blockchain investment announcements. Blockchain investments amplify uncertainty, coordination complexity and legitimacy concerns, increasing investors' reliance on observable executive signals. In this setting, CEO external directorships function as context-activated social capital, simultaneously providing access to external information (social capital), conveying credibility and oversight capability (signaling), and mitigating governance concerns associated with novel IT investments. These mechanisms operate jointly to shape investor expectation formation rather than independently. These conditions distinguish blockchain investments from prior IT contexts and necessitate a refinement of executive social capital and signaling theories to account for context-activated effects.

Prior work suggests that executive external ties can provide information, legitimacy and coordination benefits (Geletkanycz and Boyd, 2011). However, existing applications of social capital theory do not explain how these mechanisms operate under blockchain's uniquely inter-organizational, legitimacy-intensive and regulatory conditions. Recent blockchain studies (e.g. Bai *et al*., 2024; Klöckner *et al*., 2022; Rogalski and Schiereck, 2025) further highlight that outcomes vary across project characteristics and use cases, reinforcing the need for a contingency-based understanding of blockchain value creation. Recent syntheses of blockchain research also highlight growing research on blockchain in accounting/auditing and cybersecurity (Al-Shattarat *et al*., 2025; Hassanein *et al*., 2025; Hassanein and Tharwat, 2024; Tharwat *et al*., 2025), noting positive market implications from efficiency and transparency but limited attention to executive governance factors – setting baseline expectations for positive announcement reactions moderated by CEO ties.

In summary, despite growing attention to blockchain's strategic value, the role of CEO external directorships in shaping market responses remains unexplored. We address this gap by theorizing how and when external ties influence blockchain investment outcomes. We frame agency theory as a competing baseline mechanism, which predicts negative market reactions due to CEO busyness, weakened monitoring or potential conflicts of interest associated with external directorships (Gedajlovic *et al*., 2013). In contrast, social capital mechanism and signaling theory predict positive reactions through enhanced information access, legitimacy and coordination capacity (Geletkanycz *et al*., 2001; Zhang and Wiersema, 2009). We integrate contingency theory as the reconciling framework, explaining when and why social capital and signaling mechanisms dominate agency concerns – namely, in blockchain contexts characterized by heightened uncertainty, regulatory scrutiny and interorganizational coordination demands. Under these conditions, investors prioritize external resources and observable credibility signals over potential managerial distractions from agency costs, particularly when initiatives involve collaboration or regulatory scrutiny. We elaborate on these mechanisms in Section 3 as the basis for our hypotheses.

3. Hypothesis

3.1 The moderating effect of CEO external directorship on the blockchain-performance link

CEO external directorships positively influence investor reactions to blockchain announcements through three mechanisms central to social capital theory: information access, legitimacy and coordination capacity.

First, information access: external ties provide CEOs with diverse strategic, industry and regulatory knowledge that helps them evaluate blockchain's complex architecture, anticipate compliance challenges and adopt emerging best practices (Cheng *et al*., 2021; Karahanna and Preston, 2013; Nugroho *et al*., 2020). This is particularly valuable in the blockchain context, where technological choices and regulatory expectations are rapidly evolving.

Second, legitimacy: serving on outside boards enhances a CEO's status and credibility (D'Aveni, 1990; Galaskiewicz, 1985), signaling managerial competence to external stakeholders (Podolny, 1994). CEOs with multiple directorships are viewed as more reputable and capable leaders (e.g. Zhang and Wiersema, 2009), which can reduce investors' perceived risk around high-uncertainty blockchain initiatives and increase confidence in the firm's execution capability (Podolny, 1994).

Third, coordination capacity: blockchain initiatives often require multi-party collaboration, shared governance and partner alignment. External directorships broaden CEO relational networks, facilitating trust-building, access to potential partners and smoother interorganizational coordination – capabilities especially relevant for consortium-based or cross-firm blockchain applications.

Together, these mechanisms reduce perceived execution and regulatory risk, leading investors to revise upward their expectations of firm value. While agency theory predicts negative effects due to CEO busyness and weakened monitoring (e.g. Gedajlovic *et al*., 2013), blockchain's heightened uncertainty and interorganizational demands cause investors to privilege social capital and signaling benefits (Geletkanycz *et al*., 2001; Teo *et al*., 2016). Formalizing the above arguments, we hypothesize:

H1. CEO external directorships are positively associated with market value following blockchain investment announcements.

3.2 Adoption strategy

Consistent with the contingency perspective, the benefits of CEO external directorships should be more pronounced under collaborative blockchain adoption strategies. Collaborative initiatives require shared standards, partner alignment and interfirm trust – conditions under which external social capital becomes especially valuable. Social capital theory suggests that external ties enhance coordination capacity and information flow across organizational boundaries, helping firms manage uncertainty and collective decision-making.

Firms may adopt blockchain individually or collaboratively. Collaboration involves cooperative agreement between two or more entities working together on a blockchain investment (Shipilov and Stern, 2016). Such strategies are common because blockchain value is maximized through interoperability, shared protocols and network effects (Carson *et al*., 2018). Collaborative approaches also enable firms to pool resources, co-create standards and achieve synergistic efficiencies in uncertain technological environments (Pan *et al*., 2020).

These characteristics make CEO external directorships particularly relevant in collaborative settings. External ties help CEOs nurture trust-based relationships, secure partner commitment and mobilize resources essential for cross-firm collaboration (Nawinna and Venable, 2019; Uzzi, 1996). They also provide access to dynamic capabilities and specialized knowledge that support coordination among diverse stakeholders (Randolph *et al*., 2020). Collaborative adoption strategies heighten coordination demands across firms, amplifying the perceived value of CEO external directorships as channels for alliance

formation and trust-building, thereby strengthening the positive translation of these ties into investor expectations.

H2. CEO external directorships lead to more positive market reactions for collaborative blockchain investments than for individual blockchain investments.

3.3 Types of applications

The influence of CEO external directorships is also likely to vary by application type. Financial blockchain applications face substantially higher regulatory scrutiny, compliance obligations and legitimacy demands than nonfinancial applications (Kakavand *et al*., 2017; McLaughlin *et al*., 2017). These conditions heighten the importance of the mechanisms outlined earlier, particularly information access and legitimacy.

Financial applications such as payments, asset management and trade finance require deeper engagement with regulators, legal advisors and financial intermediaries, whereas nonfinancial applications (e.g. supply chain management, loyalty reward systems, voting and healthcare services) involve fewer regulatory constraints (Zheng *et al*., 2018). Because regulatory complexity increases uncertainty for investors, managerial credibility becomes especially important when evaluating financial blockchain investments.

CEO external directorships can help address these challenges by providing timely regulatory insights, early awareness of policy changes and access to legal expertise (Boso *et al*., 2013; Cornwell *et al*., 2017). These ties also enhance the CEO's legitimacy and facilitate coordination with external stakeholders, signaling that the firm is well-positioned to navigate compliance-heavy financial environments. As a result, investors are likely to perceive well-connected CEOs as more capable of implementing blockchain solutions in highly regulated financial contexts.

Accordingly, investors should respond more positively to financial blockchain announcements when CEOs hold extensive external directorships, as heightened regulatory scrutiny and legitimacy concerns lead investors to rely more heavily on CEO external directorships as observable signals of oversight capability and regulatory navigation competence, resulting in stronger positive market reactions.

H3. CEO external directorships lead to more positive market reactions for financial blockchain investments than for nonfinancial applications.

Figure 1 shows the research model and the three hypotheses investigated.

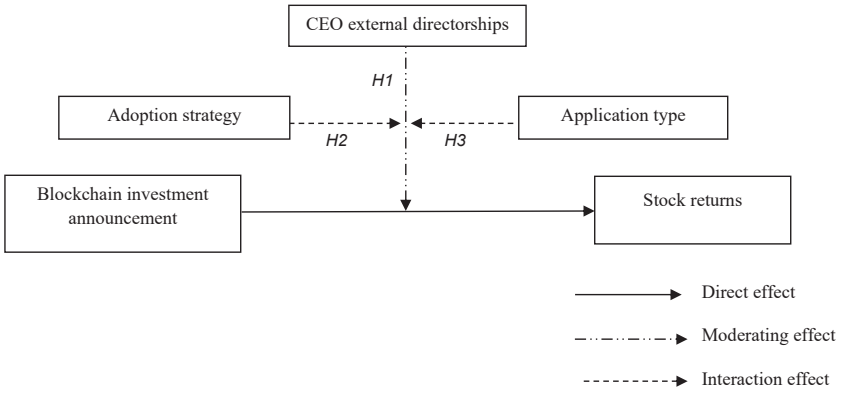

Figure 1. Research framework

4. Research method

4.1 Sample selection

We conducted a comprehensive search of the Factiva (Dow Jones Newswires) database for announcements containing the keyword "blockchain" from 2020 to 2022. The 2020–2022 period was selected as it captures the post-COVID surge in blockchain adoption for resilient supply chains and digital finance, aligning with social capital theory's emphasis on networks mitigating uncertainty in disruptive contexts (e.g. Bai *et al*., 2024). This era saw heightened regulatory ambiguity (e.g. SEC guidelines on crypto), amplifying the value of CEO external ties for legitimacy signaling (Podolny, 1994; Filatotchev *et al*., 2025). Each announcement was manually reviewed to determine whether it constituted a blockchain investment announcement, defined as a disclosure in which a firm initiates, implements or scales a blockchain-related project, platform or partnership with a clear intent to deploy or integrate blockchain technology.

To ensure data validity, we followed a systematic screening protocol. One author first applied predefined inclusion and exclusion criteria. Ambiguous or borderline cases were independently reviewed by all co-authors until consensus was reached. To further ensure coding reliability, two authors also independently coded a subset of announcements, the resulting Cohen's kappa values ranged from 0.82 to 0.88 for key categories (strategy and application), indicating strong agreement. Discrepancies were resolved through discussion. The full coding protocol is provided in Supplementary Material S1.

Announcements were included if they explicitly stated firm resource commitment (financial, technological or strategic) to blockchain initiatives with specific scope details. We excluded general references, speculative commentary or non-blockchain IT activities without evidence of adoption. To mitigate confounding effects, announcements with other major news (e.g. M&A or earnings releases) within the $[-5, +5]$ window around the event date were excluded. No overlapping announcements occurred within the same event window, and potential pre-announcement leakage was addressed by verifying each announcement as the first public disclosure. When multiple media articles reported the same event, only the earliest article was retained. Announcements related to the same blockchain investment but occurring at different implementation stages were treated as distinct initiatives. We further excluded private firms, illiquid stocks and repeated announcements.

The initial search yielded 342 announcements. After removing duplicates and applying exclusion criteria, the final sample consisted of 200 valid announcements across 138 firms from 2020 to 2022. This sample size aligns with prior IS event-study research and provides sufficient statistical power (e.g. Lui *et al*., 2021). Table S2 (see Supplementary Material S3) presents illustrative examples of included announcements.

Firm-level financial data were obtained from Compustat, and stock market data from CRSP (The Center for Research in Security Prices). Table 1 describes the details of our sample firms: Panel A shows industry distribution; Panel B demonstrates the distribution across key variables, including adoption strategy and application; and Panel C shows firms' characteristics (e.g. total assets, employees, return on assets, total liabilities and sales).

We measured stock market reactions using event study methodology, widely applied in accounting, finance and increasingly in IS research. Event studies provide timely and reliable assessments of investor expectations, allowing market reactions to be captured immediately rather than after accounting results become available (Bose and Pal, 2012). The unit of analysis is the blockchain investment announcement. Abnormal returns capture short-term investor belief updating regarding the announced initiative and are a forward-looking, market-based indicator of perceived value, rather than realized firm performance (McWilliams and Siegel, 1997). Table S1 (see Supplementary Material S2) summarizes prior IT and blockchain event-study literature.

Table 1. Description of sample firm

Panel A: Industry distribution of the announcements

SIC (2-digit)	Industry	Frequency	Percentage
20	Food and kindred products	13	6.5
25	Furniture and fixtures	5	2.5
28	Chemical and allied products	4	2.0
29	Petroleum and coal products	2	1.0
35	Industrial and commercial machinery and computer equipment	4	2.0
36	Electronic Equipment	7	3.5
37	Transportation equipment	12	6.0
48	Communications	5	2.5
53	General merchandise stores	13	6.5
54	Food shops	2	1.0
58	Drinking and eating places	4	2.0
59	Miscellaneous retail	5	2.5
60	Depository institutions	50	25.0
61	Nondepository institutions	11	5.5
62	Security and commodity brokers	18	9.0
63	Insurance carriers	11	5.5
73	Business services	28	14.0
80	Health services	2	1.0
99	Nonclassifiable establishments	4	2.0

Panel B: Distribution of the announcement across key variables

Adoption Strategy	Collaboration 84 (42%)	Individual 116 (58%)
Application	Financial 88 (44%)	Nonfinancial 112 (56%)

Panel C: Description of the sample firms

Variable	Total Assets[a]	Employee No.[b]	ROA	Total Liabilities[a]	Sales[a]
Mean	5.99	282	0.092	5.14	1.03
Median	1.99	100	0.086	1.19	0.57
Std. Deviation	8.28	561	0.098	7.61	1.28
Minimum	0.000015	0.033	−0.346	0.00008	0.00002
Maximum	26.23	2,300	0.357	23.66	5.12

Note(s) [a]USD in Billions, [b]In Thousands

4.2 Measures

4.2.1 Dependent variable. We used the capital asset pricing model (CAPM) to measure the abnormal stock returns, which capture the impact of blockchain investment announcements. CAPM is the most widely used market model and is calculated using Equation (1):

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad \text{(Eq. 1)}$$

where R_{it} is the return for announcement i on day t, R_{mt} is the market index return, α is the y-intercept, β_i represents the firm's systematic risk and ε_{it} is the error term. For each stock, we consider multiple stock indices and select the one with the highest R^2.

Abnormal return (AR) during the event period is then calculated as the difference between actual and expected returns:

$$AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt}) \quad \text{(Eq. 2)}$$

For each announcement, 200 trading days ending 30 days prior to the event date are used to develop a regression model. Consistent with prior event-study research, alternative market indices were evaluated for each stock and the benchmark producing the highest pre-event explanatory power (R^2) was selected to ensure accurate expected return estimation. Stock returns are then calculated over a three-day event window [−1, 0, +1]. We adopt this short window, consistent with prior IT event-study research (e.g. Dehning *et al.*, 2003), to capture immediate market reactions while limiting noise and confounding effects from unrelated firm or market events, making it more reliable than longer windows (McWilliams and Siegel, 1997).

Thus, the abnormal return on the announcement date (day 0) serves as the dependent variable (see Supplementary Material S4 for the abnormal returns of the full sample). Abnormal returns provide a forward-looking, market-based assessment of investor expectations and are standard in IT event-study research, capturing investor reactions before accounting outcomes are observable. Endogeneity concerns are mitigated by the event-study design, which exploits exogenous announcement timing and short event windows to capture investor belief updating. Nonetheless, we interpret the findings as expectation-based associations rather than definitive causal effects.

4.2.2 Cross-sectional regression model. To test the roles of CEO external directorships (H2), we regressed abnormal returns on CEO external directorships while controlling relevant industry-, firm- and CEO-level characteristics, using the cross-sectional regression model shown in Equation (3)

$$\begin{aligned} AR_i = {} & \beta_0 + \beta_1 CEO\ external\ directorships_i + \beta_2 Adoption\ strategy_i + \beta_3 IT\ capability_i \\ & + \beta_4 Application_i + \beta_5 Firm\ size_i + \beta_6 Firm\ reputation_i + \beta_7 Inudstry_i \\ & + \beta_8 Initial\ investment\ announcement_i + \beta_9 Year\ of\ announcement_i + \beta_{10} CEO\ age_i \\ & + \beta_{11} CEO\ gender_i + \beta_{12} CEO\ duality_i + \beta_{13} CEO\ tenure_i + \varepsilon_i \end{aligned} \quad \text{(Eq. 3)}$$

where AR_i is the abnormal return on the event day (day 0) for firm i. Consistent with event-study practice, we focus on abnormal returns on the announcement day (day 0) to capture the immediate market reaction while minimizing potential contamination from confounding news. To address potential nonindependence from multiple announcements by the same firm, all regression standard errors are clustered at the firm level. Consistent with standard event-study methodology (e.g. Klöckner *et al.*, 2022), we do not include lagged accounting performance as a control, as prior firm performance is already incorporated into stock prices and abnormal returns isolate investor belief updating around the announcement.

Subgroup analyses (Geletkanycz and Boyd, 2011; Peng and Luo, 2000) were conducted to examine whether the effect of CEO external directorships varies by adoption strategy (H2) and by application type (H3). We interpreted the coefficient β_1 and its significance to assess the effect of CEO external directorships. Chow tests (Peng and Luo, 2000) were also conducted to determine whether differences between subgroup regression estimates were statistically significant.

4.2.3 Measurement of key variables. CEO external directorships: Following previous studies, CEO external directorships were defined as the number of external boards (excluding the focal firm) on which the CEO serves in a given year (Zhang and Wiersema, 2009; Oh and Barker III, 2018; Mutlu *et al.*, 2021). Consistent with this stream of research, we use an unweighted count of external board seats, regardless of firm type or industry overlap, as the standard approach for capturing CEO external social capital. CEO external directorships

provide various strategic benefits, including access to information and legitimacy (Geletkanycz *et al*., 2001). Data were obtained from BoardEx and firms' 10-K filings and annual reports. This count serves as a proxy for the CEO external social capital and network reach.

Adoption strategy: Adoption strategy was coded using Factiva news announcements. Initiatives were classified as collaborative (=1) when at least one external partner was involved in a formal partnership, consortium, or co-development agreement, and individual (=0) otherwise. Collaborative initiatives were identified through manual coding of keywords such as "partnership," "joint venture," "collaboration" and named partner organizations.

Application type: Blockchain application type was classified into two categories based on the initiative's primary functional domain. Financial applications (=1) included payments, asset management and trade-finance use cases. Nonfinancial applications (=0) include areas such as supply chain tracking, voting, digital identity, healthcare and loyalty programs.

4.2.4 Measurement of control variables. We controlled for several individual-, firm- and industry-level variables that may influence stock returns. Following previous studies (e.g. Lui *et al*., 2021; Dehning *et al*., 2003), the control variables included firm size, firm reputation, IT capability, industry type, industry clockspeed, initial investment announcement, year of announcement and project status. We also included CEO characteristics – age, gender, duality and tenure – which have been demonstrated to influence firm performance and innovation (Barker III and Mueller, 2002).

Firm size was measured as the natural logarithm of total assets (Lui *et al*., 2016). Firm reputation was coded as 1 if the firm appeared in the Fortune 500 ′most admired companies' list during the announcement year or the prior five years, and 0 otherwise (Bharadwaj, 2000). IT capability was coded as high (1) if the firm appeared in the InformationWeek (IW) 500 list during the announcement year or in the prior five years, and low (0) otherwise (e.g. Bharadwaj, 2000).

Industry type was coded as manufacturing (=1) for firms with four-digit SIC codes between 2000 and 3,999 and nonmanufacturing (=0) otherwise (e.g. Lui *et al*., 2021). Industry clockspeed followed Fine's (1998) classification, coded as low (1), medium (2) or high (3), to reflect differences in the rate of market and technological change. Blockchain investment may yield stronger returns for high-clockspeed industries due to their greater responsiveness to rapid market change.

Initial announcements were coded as 1 for the first blockchain initiative and 0 for subsequent announcements by the same firm (Zhao and Wang, 2017). New initiatives tend to be unexpected and may generate larger market responses (Ghosh and Woolridge, 1991). The year of announcement was recorded as the actual calendar year (e.g. 2020).

Our sample includes announcements at various project stages (e.g. pilot, prototype, full-scale deployment). Accordingly, project status was coded as 1 for post-implementation announcements and 0 for earlier stages. Post-implementation announcements may generate higher returns due to lower uncertainty and perceived risk.

CEO characteristics were measured as follows (Barker III and Mueller, 2002): gender (female = 1, male = 0), CEO duality (=1 if the CEO also served as board chair) and tenure (years served as CEO).

Based on prior literature, we expect firm reputation, IT capability and initial investment announcements to be positively associated with abnormal returns (Lui *et al*., 2021; Dehning *et al*., 2003). By contrast, firm size, manufacturing industry, year of announcement, CEO age, female CEO, CEO duality and CEO tenure are expected to be negatively associated with abnormal returns (Barker III and Mueller, 2002).

Because the event-study design focuses on short-window abnormal returns around discrete, publicly disclosed announcement dates, time-invariant firm fundamentals and stable governance structures (e.g. board size, ownership structure, audit quality) are largely absorbed and are unlikely to drive announcement-day market reactions. Accordingly, the models prioritize controls commonly used in IT event-study research – firm size, reputation, industry

characteristics and CEO attributes – while avoiding overconditioning and multicollinearity. We therefore interpret the findings as expectation-based associations rather than definitive causal effects.

Table 2 presents the definitions, measurement and data sources of all variables used in this research, including CEO external directorships, adoption strategy (collaborative or individual) and application type (financial or nonfinancial).

5. Results

5.1 Results of moderating effect of CEO external directorships (H1) (RQ1)

To test H1 (RQ1), we conducted regression analyses. Table 3 shows the correlations, while Table 4 presents the regression results. As shown in Table 4, the *F* values generated by all models are over 3.14 and statistically significant at the 1% level or above. Moreover, comparative model fit is assessed by changes in adjusted R^2 across nested specifications, which range from 0.289 to 0.410, indicating stable explanatory power as key variables and interaction terms are introduced. Across Models 2, 4 and 6, CEO external directorships consistently show a positive and statistically significant association with AR values ($p < 0.01$), supporting H1. Table 4 also reports 95% confidence intervals, which complement statistical significance tests by assessing the robustness and economic relevance of the estimated effects. Economically, an additional CEO external directorship is associated with an increase in abnormal returns of approximately 20 basis points on the announcement day. For the median firm in our sample (market capitalization ≈ USD 99.3 million), this corresponds to an increase of roughly USD 0.2 million in shareholder value.

The positive coefficient on CEO external directorships aligns with social capital mechanisms, whereby information access, legitimacy signaling, and coordination capacity reduce perceived execution and regulatory risk, outweighing agency costs in blockchain's high-uncertainty context. These results highlight that external directorships offer access to information, legitimacy and strategic insight – resources that help firms navigate the execution and regulatory challenges of blockchain investment (Karahanna and Preston, 2013; Wagner *et al*., 2014; Nugroho *et al*., 2020), while contradicting studies that suggest minimal or negative effects (e.g. Gedajlovic *et al*., 2013).

Several control variables reveal meaningful patterns. Firm size is negatively associated with AR values, while industry clockspeed and firm reputation are positively related, suggesting stronger market reactions for smaller firms, firms in fast-moving industries and firms with established reputations. Because the models control industry type and industry clockspeed, the results are robust to cross-industry heterogeneity and are unlikely to be driven by industry-specific innovation dynamics. CEO age is negatively associated with AR values, aligning with the notion that younger CEOs may be perceived as more open to innovation. Collaborative strategy is positively associated with AR values, reinforcing the importance of credibility and inter-firm cooperation.

5.2 Results of contextual factors of CEO external directorships (H2–H3) (RQ2)

To test H2 and H3 (RQ2), we estimate interaction terms between CEO external directorships and adoption strategy as well as application type in the main regression models (Table 4). For H2, results in Models 7 and 8 show that the interaction between CEO external directorships and collaborative adoption strategy is positively related to AR values ($p < 0.10$). The results support H2 and indicate that CEO external directorships are particularly valuable when blockchain initiatives require interfirm trust and coordination. This supports prior empirical studies (e.g. Nawinna and Venable, 2019; Krause *et al*., 2007) showing that executive social networks facilitate collaboration and enhance firm performance.

H3 predicts that CEO external directorships provide substantial positive returns in the context of financial applications. Result in Model 8 shows that the interaction between CEO

Table 2. Variable descriptions

Variables	Description	Measurements	Data sources	References
CEO external directorships	Number of outside board seats held by the CEO (excluding the focal firm)	Count of external directorships	BoardEx, annual report, and 10-K documents	Oh and Barker III (2018), Zhang and Wiersema (2009)
Adoption strategy	Whether more than one firm involved in the blockchain initiative	Collaborative = 1; Individual = 0	Blockchain announcements	Shipilov and Stern (2016)
Application type	Type of blockchain application	Financial = 1; Nonfinancial = 0	Blockchain announcements	Zheng *et al.* (2018)
Firm reputation	Whether a firm has high reputation	Reputation = 1 if listed as "Most Admired Companies" in Fortune 500 in the announcement year or prior five years; otherwise 0	Fortune	Bharadwaj (2000)
IT capability	Strength of the firm's IT innovativeness	High IT capability = 1 if listed in IW 500 in the announcement year or prior five years; otherwise 0	InformationWeek 500 award	Bharadwaj (2000), Bose and Pal (2012)
Initial investment announcement	Whether this is the first blockchain initiative announced by the firm	First announcement = 1; otherwise 0	Blockchain announcements	Zhao and Wang (2017)
Firm size	Size of the firm	Log of total assets	Compustat	Lui *et al.* (2016, 2023)
Industry type	Whether the firm is in manufacturing	Manufacturing (SIC 2000–3999) = 1; otherwise 0	Compustat	Lui *et al.* (2021)
Industry clockspeed	Speed of industry change	1 = Low; 2 = Medium; 3 = High	Compustat	Fine (1998) Lui *et al.* (2023)
Year of announcement	Year in which the blockchain initiative is announced	Calendar year (e.g. 2020)	Blockchain announcements	
Project status	Whether the blockchain initiative had already been implemented at the time of the announcement	Post-implementation = 1; otherwise 0 (pilot/prototype)	Blockchain announcements	
CEO age	CEO's age	From date of birth	BoardEx	Barker III and Mueller (2002)
CEO gender	CEO's gender	Female = 1; Male = 0	BoardEx	Lui *et al.* (2016)
CEO duality	Whether the CEO also serves as chairman	Duality = 1; otherwise 0	BoardEx	Lui *et al.* (2016), Cheng *et al.* (2021)
CEO tenure	Years the CEO has served the firm	Number of years in role	BoardEx	Barker III and Mueller (2002)

external directorships and financial applications is CEO external directorships is positive and significant ($p < 0.10$). These results suggest that CEO external directorships added legitimacy and regulatory insight in more complex financial settings, consistent with previous studies (Boso *et al.*, 2013; Cornwell *et al.*, 2017) showing that executive network ties facilitate access to legal and regulatory resources.

Table 3. Summary of variables in hierarchical regression

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	AR	1															
2	Firm size	−0.539**	1														
3	Firm reputation	−0.157	0.461**	1													
4	IT capability	−0.084	0.301**	0.190	1												
5	Industry type	0.033	−0.290**	−0.112	−0.103	1											
6	Clockspeed	0.016	0.199	−0.125	0.040	−0.015	1										
7	Initial investment announcement	0.166	−0.356**	−0.186	−0.275*	0.284*	0.032	1									
8	Year of announcement	0.068	−0.277*	0.037	−0.218	0.117	0.079	0.052	1								
9	Project status	0.057	−0.013	0.057	0.134	0.065	−0.008	0.078	−0.111	1							
10	CEO age	−0.294*	0.379**	0.130	0.193	−0.020	−0.049	0.046	−0.106	0 0.084	1						
11	CEO gender	−0.023	−0.162	−0.122	−0.132	0.182	−0.061	0.010	−0.057	−0.058	−0.061	1					
12	CEO duality	0.064	−0.079	0.058	−0.019	−0.015	−0.125	0.001	0.040	0.126	0.137	0.142	1				
13	CEO tenure	−0.183	0.030	0.165	0.193	−0.024	−0.099	0.040	0.036	0.054	0.286**	0.022	0.259*	1			
14	Adoption strategy	0.319**	−0.149	−0.169	0.005	0.036	0.090	−0.024	−0.186	0.020	0.081	0.177	−0.019	−0.246*	1		
15	Application type	0.162	−0.377**	−0.101	−0.151	0.294**	0.007	0.218	0.261*	−0.146	−0.146	0.017	0.164	0.206	−0.101	1	
16	CEO external directorships	0.279**	0.268*	−0.149	−0.004	−0.235*	0.003	−0.032	−0.137	0.003	0.367**	−0.083	0.145	−0.011	0.188	−0.011	1

Note(s): *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$

Table 4. Results of hierarchical regression analysis

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		Model 8	
CEO ext. directorships			0.002	(2.942)***			0.002	(3.464)***			0.002	(3.380)***	0.002	(2.297)**	0.002	(1.728)*
Intercept	6.453	(1.199)	8.509	(1.660)	6.390	(1.151)	7.622	(1.493)	5.159	(0.917)	5.997	(1.159)	4.192	(0.801)	4.048	(0.761)
Firm size	−0.014	(−5.660)*******	−0.016	(−6.629)***	−0.014	(−4.980)***	−0.015	(−5.834)***	−0.012	(−3.890)***	−0.013	(−4.827)***	−0.012	(−4.291)***	−0.012	(−4.255)***
Firm reputation	0.009	(1.960)*	0.012	(2.690)***	0.010	(2.008)**	0.012	(2.716)***	0.009	(1.813)*	0.012	(2.597)**	0.010	(2.153)**	0.010	(2.103)**
IT capability	0.002	(0.452)	0.000	(0.127)	0.003	(0.615)	0.002	(0.433)	0.002	(0.493)	0.001	(0.293)	0.002	(0.515)	0.002	(0.523)
Industry type	−0.007	(−1.315)	−0.003	(−0.533)	−0.007	(−1.239)	−0.001	(−0.180)	−0.007	(−1.202)	0.000	(0.073)	−0.000	(−0.072)	−0.001	(−0.127)
Industry clockspeed	0.006	(1.630)	0.009	(2.418)**	0.005	(1.365)	0.008	(2.115)**	0.004	(0.967)	0.007	(1.851)*	0.005	(1.151)	0.006	(1.733)*
Initial investment announcement	0.000	(0.036)	−0.002	(−0.491)	0.000	(0.103)	−0.001	(−0.168)	0.002	(0.388)	0.001	(0.211)	0.002	(0.594)	0.003	(0.611)
Year of announcement	−0.003	(−1.188)	−0.004	(−1.649)	−0.003	(−1.139)	−0.004	(−1.478)	−0.003	(−0.906)	−0.003	(−1.144)	−0.002	(−0.787)	−0.002	(−0.747)
Project status	0.002	(0.257)	0.001	(0.125)	0.002	(0.235)	0.002	(0.236)	0.002	(0.288)	0.000	(0.058)	0.001	(0.288)	0.001	(0.338)
CEO age					−0.000	(−0.134)	−0.000	(−1.675)*	−0.000	(−0.573)	−0.001	(−2.090)**	−0.001	(−2.029)**	−0.001	(−1.979)*
CEO gender					−0.005	(−0.728)	−0.005	(−0.742)	−0.008	(−1.003)	−0.008	(−1.093)	−0.007	(−0.963)	−0.007	(−0.921)
CEO duality					0.000	(0.054)	−0.001	(−0.160)	0.001	(0.191)	0.001	(0.153)	−0.000	(−0.086)	−0.000	(−0.084)
CEO tenure					−0.000	(−1.595)	−0.000	(−1.163)	−0.000	(−1.059)	−0.000	(−0.426)	−0.000	(−0.503)	−0.000	(−0.487)
Adoption strategy									0.008	(1.879)*	0.007	(1.724)*	0.004	(0.487)	0.004	(0.508)
Application type									0.002	(0.375)	−0.002	(−0.562)	0.001	(0.226)	0.000	(0.050)
CEO ext. directorships x adoption strategy													0.001	(1.725)*	0.002	(1.718)*
CEO ext. directorships x Application type															0.001	(1.813)*
Model of F value		4.629***		5.585***		3.377***		4.631***		3.145***		4.243***		4.139***		3.800***
R square		0.374		0.452		0.411		0.514		0.440		0.536		0.509		0.509
Adjusted R square		0.293		0.371		0.289		0.403		0.300		0.410		0.386		0.375

Note(s): "CEO ext. directorships" denotes "CEO external directorships"
t−statistics in parentheses
*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$
95% confidence intervals (computed from coefficient and t-statistic estimates) for
●CEO external directorships: Model 2 [0.0007, 0.0033], Model 4 [0.0009, 0.0031], Model 6 [0.0008, 0.0032], Model 7 [0.0003, 0.0037], Model 8 [−0.0003, 0.0043]
●Interaction terms
o CEO external directorships x adoption strategy: Model 7 [−0.0001, 0.0021], Model 8 [−0.0003, 0.0004]
o CEO external directorships x Application type: Model 8 [−0.0001, 0.0021]

Overall, the magnitude of the effect suggests that investors place economically meaningful value on CEO external directorships when coordination or regulatory complexity is elevated. Stronger effects in collaborative and financial blockchain contexts are more consistent with social capital and signaling mechanisms than with agency-based predictions of CEO busyness, suggesting that investors prioritize legitimacy and coordination benefits when uncertainty is elevated. The results for H2 and H3 further demonstrate that the value of CEO external directorships is contingent on project context, aligning with prior work emphasizing the contextual nature of executive social capital (Finkelstein *et al.*, 2009; Geletkanycz and Boyd, 2011).

5.3 Robustness checks

To address robustness to alternative specifications and potential endogeneity concerns, we conducted a series of robustness checks. First, we re-estimated models using an alternative measure of firm size (log of employees) and by adding financial leverage (debt/total assets) as an additional control. The results remained stable across these specifications (see Table S4 in Supplementary Material S5). We also re-estimated abnormal returns using the Fama–French three-factor model rather than the CAPM (see Table S5 in Supplementary Material S5). In addition, regression results remain qualitatively unchanged when using cumulative abnormal returns over the $[-1, 0]$ window as the dependent variable instead of day 0 abnormal returns (see Table S6 in Supplementary Material S5). Cumulative AR$[-1, 0]$ is commonly used in event studies to account for minor pre-announcement information leakage while minimizing contamination from post-announcement confounding events (MacKinlay, 1997). Together, these tests indicate that the findings are not sensitive to model choice, control specification or event-window definition.

Second, to address concerns regarding the count-based operationalization of CEO external directorships, we reestimated Models 6, 7 and 8 using an alternative specification based on the logarithmic transformation log(1 + number CEO external directorships). The results remain robust, with a consistent sign and statistical significance (see Table S7 in Supplementary Material S5).

Third, to assess robustness across subsamples, we conducted additional analyses restricting the sample to the first blockchain announcement per firm. The results remain qualitatively unchanged, indicating that the main findings are not driven by repeated announcements or sample composition. We further reestimated the models after excluding dominant industries in our sample (SIC 60, representing 25% of observations). The results remain consistent (see Tables S8 and S9 in Supplementary Material S5).

Finally, to confirm the robustness of results on H2 and H3, we conducted subgroup and Chow tests. Subgroup regressions and Chow tests yield qualitatively identical conclusions (see Table S10 in Supplementary Material S5).

6. Implications

Analyzing 200 blockchain announcements from 138 U.S. public firms, we find that CEO external ties enhance market value, particularly under collaborative strategies and financial application settings. By clarifying how CEO external social capital shapes IT investment outcomes, this study addresses the research gap: how CEO external directorships shape investor reactions to blockchain announcements and under what contingencies this effect is strongest. In doing so, this study contributes to research on executive governance and IT investment by clarifying how CEO external directorships shape investor expectations toward blockchain initiatives. Our findings demonstrate that the value of external ties is contingent on adoption strategy and application type, highlighting the context-dependent nature of executive social capital.

6.1 Theoretical implications

This study advances three distinct theoretical fronts, each tied to explicit gaps identified in the literature (Section 2.4). First, this research contributes to the long-standing debate on whether CEOs' external directorships benefit or harm their home companies. We show that external directorships positively influence market reactions to blockchain investment announcements, supporting research that highlights the value of executive social networks in facilitating IT adoption (e.g. Karahanna and Preston, 2013), and countering studies that emphasize minimal or negative effects (e.g. Gedajlovic *et al*., 2013). These results clarify the value of external ties in volatile, innovation-intensive environments. Importantly, the positive findings also suggest that in high-uncertainty blockchain investment contexts, social capital and signaling mechanisms outweigh agency-based concerns, as investors appear to value the legitimacy and coordination benefits of external ties more than potential governance downsides.

Second, integrating contingency theory, we establish adoption strategy and application type as theoretically grounded interaction factors that shape the moderating role of CEO external directorships, clarifying when external social capital creates value. By linking the pattern of abnormal returns to the theorized mechanisms, the results provide empirical support for the argument that executive social capital dominates agency costs when blockchain investments intensify coordination and regulatory demands. External directorships generate stronger positive value in collaborative strategies and financial applications – settings characterized by elevated coordination and regulatory complexity. This reinforces the view that external social capital is not inherently beneficial, but becomes valuable when aligned with the informational, legitimacy and coordination needs of the innovation context (e.g. Finkelstein *et al*., 2009; Burt, 1997).

Third, we extend the literature on executive network ties in IT investment by shifting attention from internal social capital (e.g. CIO-TMT relationships) and traditional top management support and characteristics (Farnoush *et al*., 2022) to CEO external board-level ties. We demonstrate that these ties function as boundary-spanning mechanisms that enable firms to navigate uncertainty, interorganizational interdependence and regulatory ambiguity associated with blockchain investment.

6.2 Practical implications

This research offers actionable insights for CEOs, boards, senior managers and investors involved in blockchain investment decisions.

First, for CEOs, the findings highlight the strategic value of cultivating strong external directorships. Such ties provide access to regulatory knowledge, technical expertise and collaboration opportunities – resources especially critical for blockchain projects in financial services or strategic partnerships. CEOs should view external board memberships not only as professional credentials but also as strategic tools for driving digital transformation and navigating uncertain technological contexts. Second, for boards, CEO network capital should be considered a strategic asset. CEOs with external directorships are better positioned to bring best practices, collaborative networks and reputational capital into the firm. When recruiting or evaluating CEOs for roles involving emerging technologies, boards may weigh external board experience as an important criterion, particularly for collaborative or regulation-intensive blockchain initiatives.

Third, for senior managers, aligning blockchain strategies with the CEO external network strength can improve execution outcomes. When CEOs possess extensive external ties, firms may benefit more from collaborative blockchain models. In financial or highly regulated applications, managers can leverage these ties to access external expertise and reduce compliance risk.

Fourth, for investors and analysts, CEO external directorships signal blockchain execution capability. Investors can use these ties as indicators of a firm's readiness to navigate blockchain complexity, particularly in collaborative or financial contexts. The stronger abnormal returns

observed in such settings suggest that the market responds more favorably to firms led by CEOs who can mobilize external knowledge, legitimacy and partner support.

Finally, for organizations investing in blockchain, leveraging CEO external networks can strengthen stakeholder confidence – ultimately improving market perceptions. More broadly, well-connected CEOs bring governance experience, reputation incentives, regulatory access and collaborative capabilities that support responsible blockchain implementation. These qualities enhance transparency, trust and accountability in digital ecosystems—societal outcomes that are especially important given blockchain's role in financial services, data integrity and multi-party digital infrastructures.

Overall, while our findings suggest that CEO external directorships can be a strategic asset in blockchain initiatives – particularly collaborative or financial applications – boards and executives should weigh potential trade-offs. Excessive external commitments may increase CEO busyness or dilute firm-specific focus (Gedajlovic *et al*., 2013), potentially offsetting benefits in less uncertain contexts. Stakeholders may therefore value moderate external ties that balance network advantages with governance risks.

6.3 Limitations and future research

We acknowledge several limitations, which also offer opportunities for future work. First, our sample consists of publicly listed U.S. firms, which may limit generalizability. Governance structures, capital markets and the legitimacy of external directorships differ across countries, and firms that adopt blockchain without public announcements are not captured in our dataset. Subsequent studies could extend to private firms, non-U.S. contexts and alternative disclosure channels to provide richer insights into cultural, regulatory and institutional contingencies. Future studies could employ richer governance data (e.g. board expertise, independence) and more comprehensive firm-level controls (e.g. institutional ownership) to further isolate CEO external directorship effects.

Second, CEO external directorships were measured as the number of outside board positions, which captures breadth but not qualitative aspects such as board prestige, industry relevance or strategic alignment. Future research could incorporate weighted measures that reflect board influence or relevance. Similarly, our binary classification of adoption strategy ("individual" versus "collaborative") simplifies the complex continuum of blockchain partnerships. More granular indices of collaboration may yield deeper insights.

Third, although our findings highlight the benefits of external ties, excessive board commitments may create distraction or agency costs. Future work could test nonlinear effects or account for board workload. In addition, our sample leans toward financial blockchain applications, limiting insight into nonfinancial domains such as supply chains, intellectual property and identity management. These areas may elicit different investor reactions and warrant explicit investigation.

Fourth, like other event studies (e.g. Roztocki and Weistroffer, 2015; Lui *et al*., 2021), our design cannot fully rule out unobserved confounding events during the event window, including cross-firm announcements (Dardan *et al*., 2005). Moreover, event studies capture only short-term market reactions, which may reflect temporary over- or underreaction. Consistent with event-study logic, our findings reflect short-term investor expectations at the time of announcement rather than realized or long-term firm performance outcomes. Future research could incorporate long-term performance measures such as ROA or Tobin's Q to provide a more comprehensive view of strategic impact.

Finally, relatively few CEOs in our sample were connected to firms that had previously adopted blockchain, preventing an analysis of whether ties to blockchain-experienced firms provide additional benefits. As blockchain investment becomes more widespread, future studies could investigate such network spillovers and employ qualitative methods such as case

studies or surveys to provide additional insights into the mechanisms through which these ties impact blockchain investment outcomes.

Supplementary material

The supplementary material for this article can be found online.

References

Al-Shattarat, W., Benameur, K.B., Mostafa, M.M., Hassanein, A. and Hamed, R.S. (2025), "A decade of cybersecurity research in business, management, and accounting: bibliometric analyses and future research directions", *Cogent Business and Management*, Vol. 12 No. 1, 2544230, doi: 10.1080/23311975.2025.2544230.

Alshamsi, M., Al-Emran, M. and Shaalan, K. (2022), "A systematic review on blockchain adoption", *Applied Sciences*, Vol. 12 No. 9, p. 4245, doi: 10.3390/app12094245.

Bai, C., Zhu, Q. and Sarkis, J. (2024), "Do blockchain capabilities help overcome supply and operational risks: insights from firm market returns during COVID-19", *Omega*, Vol. 126, 103049, doi: 10.1016/j.omega.2024.103049.

Banker, R.D., Feng, C. and Pavlou, P.A. (2022), "Businessperson or technologist: stock market reaction to the alignment between CIO background and firm strategy", *Journal of Management Information Systems*, Vol. 39 No. 4, pp. 1006-1036, doi: 10.1080/07421222.2022.2127442.

Barker III, V.L. and Mueller, G.C. (2002), "CEO characteristics and firm R&D spending", *Management Science*, Vol. 48 No. 6, pp. 782-801.

Barney, J. (1991), "Firm resources and sustained competitive advantage", *Journal of Management*, Vol. 17 No. 1, pp. 99-120, doi: 10.1177/014920639101700108.

Bendig, D., Wagner, R., Piening, E.P. and Foege, J.N. (2023), "Attention to digital innovation: exploring the impact of a chief information officer in the top management team", *MIS Quarterly*, Vol. 47 No. 4, pp. 1487-1516, doi: 10.25300/misq/2023/17152.

Bharadwaj, A.S. (2000), "A resource-based perspective on information technology capability and firm performance: an empirical investigation", *MIS Quarterly*, Vol. 24 No. 1, pp. 169-196, doi: 10.2307/3250983.

Bose, I. and Pal, R. (2012), "Do green supply chain management initiatives impact stock prices of firms?", *Decision Support Systems*, Vol. 52 No. 3, pp. 624-634, doi: 10.1016/j.dss.2011.10.020.

Boso, N., Story, V.M. and Cadogan, J.W. (2013), "Entrepreneurial orientation, market orientation, network ties, and performance: study of entrepreneurial firms in a developing economy", *Journal of Business Venturing*, Vol. 28 No. 6, pp. 708-727, doi: 10.1016/j.jbusvent.2013.04.001.

Burt, R.S. (1997), "The contingent value of social capital", *Administrative Science Quarterly*, Vol. 42 No. 2, pp. 339-365, doi: 10.2307/2393923.

Carson, B., Romanelli, G., Walsh, P. and Zhumaev, A. (2018), *Blockchain Beyond the Hype: what is the Strategic Business Value*, McKinsey & Company, Digital McKinsey.

Chang, C.-H. and Wu, Q. (2021), "Board networks and corporate innovation", *Management Science*, Vol. 67 No. 6, pp. 3618-3654, doi: 10.1287/mnsc.2020.3587.

Cheng, S.F., De Franco, G., Jiang, H. and Lin, P. (2019), "Riding the blockchain mania: public firms' speculative 8-K disclosures", *Management Science*, Vol. 65 No. 12, pp. 5901-5913, doi: 10.1287/mnsc.2019.3357.

Cheng, Z., Rai, A., Tian, F. and Xu, S.X. (2021), "Social learning in information technology investment: the role of board interlocks", *Management Science*, Vol. 67 No. 1, pp. 547-576, doi: 10.1287/mnsc.2019.3548.

Cornwell, E.Y., Taylor Poppe, E.S. and Doherty Bea, M. (2017), "Networking in the shadow of the law: informal access to legal expertise through personal network ties", *Law and Society Review*, Vol. 51 No. 3, pp. 635-668, doi: 10.1111/lasr.12278.

Custom Market Insights (2025), "Global blockchain technology market 2025-2034", available at: https://www.custommarketinsights.com/report/blockchain-technology-market/

D'aveni, R.A. (1990), "Top managerial prestige and organizational bankruptcy", *Organization Science*, Vol. 1 No. 2, pp. 121-142, doi: 10.1287/orsc.1.2.121.

Dardan, M., Stylianou, A. and Dardan, S. (2005), "The valuation of eCommerce announcements during fluctuating financial markets", *Journal of Electronic Commerce Research*, Vol. 6 No. 4, pp. 312-326.

Dehning, B., Richardson, V.J. and Zmud, R.W. (2003), "The value relevance of announcements of transformational information technology investments", *MIS Quarterly*, Vol. 27 No. 4, pp. 637-656, doi: 10.2307/30036551.

Edvinsson, L. and Malone, M. (1997), *Intellectual Capital: Realizing Your Company's True Value by Finding its Hidden Brainpower*, HarperBusiness Press, New York, NY.

Ezzi, F., Abida, M. and Jarboui, A. (2023), "The mediating effect of corporate governance on the relationship between blockchain technology and investment efficiency", *Journal of the Knowledge Economy*, Vol. 14 No. 2, pp. 718-734, doi: 10.1007/s13132-022-00892-4.

Faleye, O., Kovacs, T. and Venkateswaran, A. (2014), "Do better-connected CEOs innovate more?", *Journal of Financial and Quantitative Analysis*, Vol. 49 Nos 5-6, pp. 1201-1225, doi: 10.1017/s0022109014000714.

Farnoush, A., Gupta, A., Dolarsara, H.A., Paradice, D. and Rao, S. (2022), "Going beyond intent to adopt blockchain: an analytics approach to understand board member and financial health characteristics", *Annals of Operations Research*, Vol. 308 No. 1, pp. 93-123, doi: 10.1007/s10479-021-04113-0.

Filatotchev, I., Lanzolla, G. and Syrigos, E. (2025), "Impact of CEO's digital technology orientation and board characteristics on firm value: a signaling perspective", *Journal of Management*, Vol. 51 No. 2, pp. 875-912, doi: 10.1177/01492063231200819.

Fine, C.H. (1998), *Clockspeed: Winning Industry Control in the Age of Temporary Advantage*, Basic Books, MA.

Finkelstein, S., Cannella, S.F.B., Hambrick, D.C. and Cannella, A.A. (2009), *Strategic Leadership: Theory and Research on Executives, Top Management Teams, and Boards*, Oxford University Press, USA.

Galaskiewicz, J. (1985), "Interorganizational relations", *Annual Review of Sociology*, Vol. 11 No. 1, pp. 281-304, doi: 10.1146/annurev.so.11.080185.001433.

Gedajlovic, E., Honig, B., Moore, C.B., Payne, G.T. and Wright, M. (2013), *Social Capital and Entrepreneurship: a Schema and Research Agenda*, Sage Publications Sage, CA: Los Angeles, CA.

Geletkanycz, M.A. and Boyd, B.K. (2011), "CEO outside directorships and firm performance: a reconciliation of agency and embeddedness views", *Academy of Management Journal*, Vol. 54 No. 2, pp. 335-352, doi: 10.5465/amj.2011.60263094.

Geletkanycz, M.A., Boyd, B.K. and Finkelstein, S. (2001), "The strategic value of CEO external directorate networks: implications for CEO compensation", *Strategic Management Journal*, Vol. 22 No. 9, pp. 889-898, doi: 10.1002/smj.172.

Ghosh, C. and Woolridge, J.R. (1991), "Dividend omissions and stock market rationality", *Journal of Business Finance and Accounting*, Vol. 18 No. 3, pp. 315-330, doi: 10.1111/j.1468-5957.1991.tb00597.x.

Hasan, M.R., Shiming, D., Islam, M.A. and Hossain, M.Z. (2020), "Operational efficiency effects of blockchain technology implementation in firms: evidence from China", *Review of International Business and Strategy*, Vol. 30 No. 2, pp. 163-181, doi: 10.1108/ribs-05-2019-0069.

Hassanein, A. and Tharwat, H. (2024), "Artificial intelligence (AI) and green finance", in Hunjra, A.I. and Goodell, J.W. (Eds), *The Palgrave Handbook of Green Finance for Sustainable Development*, Palgrave Macmillan, Cham, pp. 859-889, doi: 10.1007/978-3-031-65756-6_32.

Hassanein, A., Benameur, K.B., Mostafa, M.M., Al-Shattarat, W. and Magar, N.H. (2025), "Mapping the scientific research of blockchain technology in accounting and auditing: bibliometric analyses and a roadmap for future research", *Cogent Business and Management*, Vol. 12 No. 1, 2513638, doi: 10.1080/23311975.2025.2513638.

Hastig, G.M. and Sodhi, M.S. (2020), "Blockchain for supply chain traceability: business requirements and critical success factors", *Production and Operations Management*, Vol. 29 No. 4, pp. 935-954, doi: 10.1111/poms.13147.

Kakavand, H., Kost De Sevres, N. and Chilton, B. (2017), "The Blockchain Revolution: An Analysis of Regulation and Technology Related to Distributed Ledger Technologies", SSRN, available at: https://ssrn.com/abstract=2849251

Karahanna, E. and Preston, D.S. (2013), "The effect of social capital of the relationship between the CIO and top management team on firm performance", *Journal of Management Information Systems*, Vol. 30 No. 1, pp. 15-56, doi: 10.2753/mis0742-1222300101.

Karakas, S., Acar, A.Z. and Kucukaltan, B. (2021), "Blockchain adoption in logistics and supply chain: a literature review and research agenda", *International Journal of Production Research*, Vol. 62 No. 22, pp. 8193-8216, doi: 10.1080/00207543.2021.2012613.

Khan, S. and Mauldin, E. (2021), "Benefit or burden? A comparison of CFO and CEO outside directorships", *Journal of Business Finance and Accounting*, Vol. 48 Nos 7-8, pp. 1175-1214, doi: 10.1111/jbfa.12512.

Kim, J.-S. and Shin, N. (2019), "The impact of blockchain technology application on supply chain partnership and performance", *Sustainability*, Vol. 11 No. 21, p. 6181, doi: 10.3390/su11216181.

Klöckner, M., Schmidt, C.G. and Wagner, S.M. (2022), "When blockchain creates shareholder value: empirical evidence from international firm announcements", *Production and Operations Management*, Vol. 31 No. 1, pp. 46-64, doi: 10.1111/poms.13609.

Krause, D.R., Handfield, R.B. and Tyler, B.B. (2007), "The relationships between supplier development, commitment, social capital accumulation and performance improvement", *Journal of Operations Management*, Vol. 25 No. 2, pp. 528-545, doi: 10.1016/j.jom.2006.05.007.

Li, K., Lee, J.-Y. and Gharehgozli, A. (2023), "Blockchain in food supply chains: a literature review and synthesis analysis of platforms, benefits and challenges", *International Journal of Production Research*, Vol. 61 No. 11, pp. 3527-3546, doi: 10.1080/00207543.2021.1970849.

Lui, A.K.H., Ngai, E.W.T. and Lo, C.K.Y. (2016), "Disruptive information technology innovations and the cost of equity capital: the moderating effect of CEO incentives and institutional pressures", *Information and Management*, Vol. 53 No. 3, pp. 345-354, doi: 10.1016/j.im.2015.09.009.

Lui, A.K.H., Lee, M.C.M. and Ngai, E.W.T. (2021), "Impact of artificial intelligence investment on firm value", *Annals of Operations Research*, Vol. 308 Nos 1-2, pp. 373-388, doi: 10.1007/s10479-020-03862-8.

Lui, A.K., Lo, C.K., Ngai, E.W. and Yeung, A.C. (2023), "A tough pill to swallow? The lessons learned from mandatory RFID adoption", *International Journal of Production Economics*, Vol. 258, pp. 1-4, doi: 10.1016/j.ijpe.2023.108811.

MacKinlay, A.C. (1997), "Event studies in economics and finance", *Journal of Economic Literature*, Vol. 35 No. 1, pp. 13-39.

Mclaughlin, P., Sherouse, O. and Strosko, S. (2017), "Regulatory accumulation in the financial sector", available at: https://www.mercatus.org/publications/regulation/regulatory-accumulation-financial-sector (accessed 3 September 2020).

Mcwilliams, A. and Siegel, D. (1997), "Event studies in management research: theoretical and empirical issues", *Academy of Management Journal*, Vol. 40 No. 3, pp. 626-657, doi: 10.2307/257056.

Mutlu, C.C., Mutlu, S. and Sauerwald, S. (2021), "CEO outside directorships and managerial efficiency: the role of host board capital", *Corporate Governance: An International Review*, Vol. 29 No. 1, pp. 45-66, doi: 10.1111/corg.12337.

Nawinna, D. and Venable, J.R. (2019), "Effects of ICT-enabled social capital on inter-organizational relationships and performance: empirical evidence from an emerging economy", *Information Technology for Development*, Vol. 25 No. 1, pp. 49-68, doi: 10.1080/02681102.2018.1451979.

Nugroho, M.A., Jusoh, R. and Salleh, N.A.M. (2020), "The role of alignment between IS strategy and social capital on the IS capability and business performance relationship: a cross-sectional survey", *IEEE Access*, Vol. 8, pp. 152760-152771, doi: 10.1109/access.2020.3018036.

Oh, W.-Y. and Barker III, V.L. (2018), "Not all ties are equal: CEO outside directorships and strategic imitation in RandD investment", *Journal of Management*, Vol. 44 No. 4, pp. 1312-1337.

Pan, X., Pan, X., Song, M., Ai, B. and Ming, Y. (2020), "Blockchain technology and enterprise operational capabilities: an empirical test", *International Journal of Information Management*, Vol. 52, 101946, doi: 10.1016/j.ijinfomgt.2019.05.002.

Peng, M.W. and Luo, Y. (2000), "Managerial ties and firm performance in a transition economy: the nature of a micro-macro link", *Academy of Management Journal*, Vol. 43 No. 3, pp. 486-501, doi: 10.2307/1556406.

Peng, D.X., Verghese, A., Shah, R. and Schroeder, R.G. (2013), "The relationships between external integration and plant improvement and innovation capabilities: the moderation effect of product clockspeed", *Journal of Supply Chain Management*, Vol. 49 No. 3, pp. 3-24, doi: 10.1111/j.1745-493x.2012.03286.x.

Podolny, J.M. (1994), "Market uncertainty and the social character of economic exchange", *Administrative Science Quarterly*, Vol. 39 No. 3, pp. 458-483, doi: 10.2307/2393299.

Randolph, R.V., Hu, H.-F. and Silvernail, K.D. (2020), "Better the devil you know: inter-organizational information technology and network social capital in coopetition networks", *Information and Management*, Vol. 57 No. 6, 103344, doi: 10.1016/j.im.2020.103344.

Rogalski, T. and Schiereck, D. (2025), "Is blockchain worth it? Value drivers of stock market returns to corporate blockchain announcements", *International Journal of Management Practice*, Vol. 18 No. 2, pp. 157-191, doi: 10.1504/ijmp.2025.144800.

Roztocki, N. and Weistroffer, H.R. (2015), "Investments in enterprise integration technology: an event study", *Information Systems Frontiers*, Vol. 17 No. 3, pp. 659-672, doi: 10.1007/s10796-013-9451-8.

Sharma, P., Shukla, D.M. and Raj, A. (2023), "Blockchain adoption and firm performance: the contingent roles of intangible capital and environmental dynamism", *International Journal of Production Economics*, Vol. 256, 108727, doi: 10.1016/j.ijpe.2022.108727.

Shipilov, A. and Stern, I. (2016), "Applications virtual special issue: practical advice on how to unlock value from your alliances", *Strategic Management Journal*, Vol. 37 No. 13, pp. E45-E53, doi: 10.1002/smj.2536.

Teo, T.S., Nishant, R. and Koh, P.B. (2016), "Do shareholders favor business analytics announcements?", *The Journal of Strategic Information Systems*, Vol. 25 No. 4, pp. 259-276, doi: 10.1016/j.jsis.2016.05.001.

Tharwat, H., Hafez, S.T., Elgohary, I.E. and Hassanein, A. (2025), "A decade of cybersecurity research in internal auditing: bibliometric mapping and future research agenda", *Discover Sustainability*, Vol. 6 No. 1, p. 1066, doi: 10.1007/s43621-025-02031-w.

Uzzi, B. (1996), "The sources and consequences of embeddedness for the economic performance of organizations: the network effect", *American Sociological Review*, Vol. 61 No. 4, pp. 674-698, doi: 10.2307/2096399.

Wagner, H.-T., Beimborn, D. and Weitzel, T. (2014), "How social capital among information technology and business units drives operational alignment and IT business value", *Journal of Management Information Systems*, Vol. 31 No. 1, pp. 241-272, doi: 10.2753/mis0742-1222310110.

Xue, L., Yang, K. and Yao, Y. (2018), "Examining the effects of interfirm managerial social ties on IT components diversity", *MIS Quarterly*, Vol. 42 No. 2, pp. 679-694, doi: 10.25300/misq/2018/13952.

Zhang, Y. and Wiersema, M.F. (2009), "Stock market reaction to CEO certification: the signaling role of CEO background", *Strategic Management Journal*, Vol. 30 No. 7, pp. 693-710, doi: 10.1002/smj.772.

Zhao, C. and Wang, T.-N. (2017), "Unmixed signals: stock market reaction to subsequent announcements of strategic alliances", *International Journal of Information Systems and Change Management*, Vol. 9 No. 2, pp. 125-148, doi: 10.1504/ijiscm.2017.087973.

Zheng, Z., Xie, S., Dai, H.-N., Chen, X. and Wang, H. (2018), "Blockchain challenges and opportunities: a survey", *International Journal of Web and Grid Services*, Vol. 14 No. 4, pp. 352-375, doi: 10.1504/ijwgs.2018.095647.

Further reading

Cahill, D., Baur, D.G., Liu, Z.F. and Yang, J.W. (2020), "I am a blockchain too: how does the market respond to companies' interest in blockchain?", *Journal of Banking and Finance*, Vol. 113, 105740, doi: 10.1016/j.jbankfin.2020.105740.

Chatterjee, D., Richardson, V.J. and Zmud, R.W. (2001), "Examining the shareholder wealth effects of announcements of newly created CIO positions", *MIS Quarterly*, Vol. 25 No. 1, pp. 43-70, doi: 10.2307/3250958.

Dos Santos, B.L., Peffers, K. and Mauer, D.C. (1993), "The impact of information technology investment announcements on the market value of the firm", *Information Systems Research*, Vol. 4 No. 1, pp. 1-23, doi: 10.1287/isre.4.1.1.

Fama, E.F. and French, K.R. (1993), "Common risk factors in the returns on stocks and bonds", *Journal of Financial Economics*, Vol. 33 No. 1, pp. 3-56, doi: 10.1016/0304-405x(93)90023-5.

Jeong, A.Y. and Lim, J.-H. (2023), "The impact of blockchain technology adoption announcements on firm's market value", *Journal of Information Systems*, Vol. 37 No. 1, pp. 39-65, doi: 10.2308/isys-2021-038.

Khallaf, A. and Skantz, T.R. (2007), "The effects of information technology expertise on the market value of a firm", *Journal of Information Systems*, Vol. 21 No. 1, pp. 83-105, doi: 10.2308/jis.2007.21.1.83.

Corresponding author
Ariel K. H. Lui can be contacted at: kam.ha.lui@rmit.edu.au