

The impact of CEO integrity on corporate credit rating

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Abstract

This study empirically investigates the relationship between CEO integrity and firm ratings based on a rich dataset spanning 502 nonfinancial public firms with 890 CEOs from 46 countries worldwide in the period 2010-2024. Drawing on the upper echelon theory and the conceptualisation of CEO integrity as the word-deed congruence, examined across 11,659 earning conference calls, we document that CEO integrity is a significant standalone determinant of corporate credit risk. The relationship between CEO integrity and firm ratings is state-dependent: ratings increase for firms led by low-integrity CEOs during normal times, when the rating agency's reputational cost is low. However, under heightened credit stress and uncertainty, because the rating agency's reputational cost is high, high-integrity CEOs are viewed as risk-mitigating factor, therefore associated with higher ratings. This is more pronounced for firms in countries with low levels of information transparency and those without a long relationship with the rating agency.

Keywords: CEO integrity, credit ratings, behavioural integrity, text analysis.

JEL classification: G30, G34, M14.

1. Introduction

Credit ratings play a crucial role in evaluating a firm's creditworthiness and understanding what drives these ratings is a core issue in corporate finance. Prior research explains credit ratings mainly using hard information, such as financial ratios, leverage, profitability, and other accounting-based measures. They show that a firm's fundamentals and governance characteristics are important determinants of credit ratings (e.g., Ashbaugh-Skaife et al., 2006; Attig et al., 2013). In recent years, researchers have turned their attention to the importance of soft information such as qualitative assessments of management behaviour and corporate culture in the rating production process (e.g., Bozanic et al., 2023). Building on this literature, we examine whether credit rating agencies (CRAs) incorporate senior executives' ethics, namely CEO integrity, into their rating decisions.

CEO integrity captures the extent to which a chief executive is perceived as honest, trustworthy, and consistent in matching words with actions. Integrity is a fundamental element of corporate culture and an important signal of a firm's commitment to honouring its obligations. Prior research defines integrity as "keeping one's word," emphasising that a reputation for honouring commitments is central to trust and reliability (Guiso et al., 2015; Graham et al., 2022). Integrity is particularly relevant in a credit context because CRAs assess not only a firm's ability to repay debt, but also its willingness to do so. Therefore, a CEO who consistently honors commitments may increase creditors' confidence, leading to more favourable perception of creditworthiness.

From a theoretical perspective, CEO integrity can mitigate agency problems. When contracts are incomplete, trust and reputation help limit opportunistic behavior by managers (Jensen and Meckling, 1976; Fama and Jensen, 1983). As a result, a culture of integrity established by senior executives conveys information about credit risk that is not fully reflected in financial statements. Integrity of the top management team may thus serve as an additional signal that complements traditional quantitative measures used in credit analysis.

Empirical evidence supports this view. Firms led by high-integrity executives tend to engage in more ethical behaviour and exhibit stronger performance, both of which are closely related to credit risk. For example, firms whose executives avoid unethical practices such as opportunistic option backdating (a common proxy for low integrity) experience significantly lower incidences of financial misreporting and fraud (Biggerstaff et al., 2015).

In addition, a strong integrity culture is associated with higher operating efficiency, greater profitability, and fewer financing frictions (Guiso et al., 2015). By reducing internal agency conflicts and encouraging responsible decision-making, integrity can lower default risk and increase a firm's capacity to meet its debt obligations.

Despite these indications, the role of CEO integrity in credit ratings remains relatively underexplored. Existing studies on credit rating determinants emphasise governance structures, corporate social responsibility, and broader organisational culture or institutional factors (Ashbaugh-Skaife et al., 2006; Attig et al., 2013), but they do not focus directly on the integrity of top executives. For example, Bao et al (2024) document a positive association between integrity culture and credit ratings. However, their study focuses on organisational integrity, leaving open the question of whether the personal integrity of the CEO affects credit ratings.

In this paper, we address this gap by providing an empirical investigation of the relation between CEO integrity and credit ratings. We develop a novel measure of CEO integrity based on the language used by executives in the unscripted portions of quarterly earnings conference calls. Using the textual analysis framework of Loughran and McDonald (2011), we rely on the Linguistic Inquiry and Word Count software (LIWC) (Pennebaker and King, 1999) causation word dictionary, and supplement the dictionary with business-specific terms commonly used in corporate communication. We capture the linguistic cues that reflect credibility and ethical tone. Our sample consists of 502 publicly listed firms across 46 countries worldwide in the period from 2010 to 2024, for which we have Standard & Poor's long-term foreign currency issuer credit ratings from S&P Rating Direct and earnings conference call transcripts from Refinitiv database.

Our results show that the relation between CEO integrity and firm ratings is complex and depends on the CRAs' motivations and the nature of the relationship between firms and the CRA. During normal periods, firms led by low-integrity CEOs tend to receive more favourable credit ratings than firms with comparable fundamentals and led by high-integrity CEOs. This finding suggests that, in optimistic environments, persuasive communication or positive sentiment may outweigh concerns about managerial credibility and potential opportunistic financial reporting behaviour, allowing low-integrity CEOs to benefit from more favourable credit assessments. However, this advantage disappears during economic downturns or periods of heightened credit stress. When economic conditions deteriorate, firms led by high-integrity CEOs receive relatively better credit ratings, while low-integrity CEOs no longer enjoy a rating premium. These findings indicate that CEO integrity becomes more valuable when uncertainty increases and trust erodes. Overall, our results suggest that CEO

integrity functions as a stand-alone credit factor whose value is state-dependent. In good times, weak integrity may mask underlying risks. In bad times, however, trust and transparency become more important, and CRAs place greater weight on managerial credibility. In this sense, CEO integrity acts as a “soft credit cushion” that protects firms when economic conditions worsen. Finally, we highlight the role of the relationship between rated firms and the CRAs as it potentially distorts the rating analysts’ incentives. Our empirical analyses show that the importance of CEO integrity to firm risk becomes more pronounced in bad times for firms without a long relationship with the CRAs. Our study sheds light on the fact that ratings should not be treated as an objectively, independent measure of credit risk. Research on the determinants of ratings should take into account the distorting effects of CRAs’ reputational function and revenue incentives.

Our study contributes to the literature in several ways. First, we identify CEO integrity as a novel determinant of credit ratings, extending prior work that has focused mainly on financial ratios and formal governance mechanisms. While traditional models emphasise hard information, we show that CEO ethics (specifically behavioural integrity) plays an independent role in credit risk assessments. This complements evidence that managerial quality affects credit ratings (Cornaggia et al., 2017) and aligns with findings that managerial honesty is associated with better firm outcomes (Chance et al., 2015). Second, we show that the effect of CEO integrity on credit ratings is state-dependent. While the value of CEO integrity may be less visible in good times, it becomes particularly valuable during periods of elevated risk and uncertainty. This finding supports the view that managerial quality matters most under stress, and that ethical leadership provides intangible protection when financial conditions tighten. Third, we shed light on how soft information is incorporated into credit rating decisions. By showing that linguistic proxy of CEO integrity extracted from earnings conference calls explain the variation in credit ratings beyond firm’s fundamentals, we provide evidence that credit analysts incorporate qualitative cues from managerial communications into their assessments. Finally, we contribute to the broader literature on ethics and leadership in financial markets by framing CEO integrity as an intangible organisational asset. Like managerial ability and firm culture, CEO integrity can strengthen organisational resilience and stakeholder confidence, thereby lowering perceived default risk, especially during the periods of heightened uncertainty and diminished trust. Our findings suggest that this CEO trustworthiness is recognised and rewarded by CRAs, particularly during adverse economic conditions. In sum, our study highlights CEO integrity as an economically meaningful but previously underappreciated factor in the credit evaluation process.

The remainder of the paper is structured as follows: section 2 reviews the literature on the role of leadership in firm ratings, section 3 analyses the theoretical framework and outlines the core hypotheses of our study, section 4 explains our identification method of CEO integrity and empirical design, section 5 describes the dataset, section 6 discusses the empirical results, and section 7 concludes.

2. Literature Review

CEOs' personal traits have a strong impact on how they react to and perceive risk, their strategic choices and organisational outcomes. The Upper Echelons perspective (Hambrick and Mason, 1984) suggests that executives' demographic characteristics, personality traits, and cognitive styles significantly affect firm-level decisions, particularly in areas involving uncertainty. For example, overconfidence, narcissism, and optimism have been shown to drive managers' risk-taking behaviour that can lead to either value creation or destruction (Malmendier and Tate, 2005; Chatterjee and Hambrick, 2007). Conversely, characteristics such as integrity, humility, and conscientiousness foster more cautious approaches, promoting sustainability and long-term stability (Peterson et al., 2012). Accordingly, understanding CEO traits is essential for explaining the heterogeneity in firm performance, governance practices, and strategic adaptation across industries. Bertrand (2009) points out that CEO characteristics strongly influence their investment decisions, governance structures, compensation policies, and other strategic directions. Studies have examined how CEO traits such as military background (Benmelech and Frydman, 2015) and personal networks (Engelberg et al., 2013) and voice pitch (Mayew et al., 2013) affect their decisions. For example, Chen et al. (2021) show that generalist CEOs tend to diversify investments, while specialist CEOs invest selectively in core areas. Birth order has also been identified as a factor in CEO investment strategies, with first-born CEOs taking less strategic risk, measured with research and development spending R&D, capital expenditures, and acquisitions (Campbell et al., 2019).

Several studies suggest that CEOs' formative experiences with adversity influence their corporate decision-making. For instance, Bernile et al. (2017) document that CEOs who were exposed to natural disasters during their youth tend to adopt more conservative financial policies and reduce their engagement in risk-taking, which is consistent with the long-lasting effects of personal hardship on CEOs' risk preferences. Similarly, Malmendier et al. (2011) find that CEOs who lived through the Great Depression exhibit heightened financial conservatism—such as lower leverage and reduced investment—indicating that early-life

shocks influence CEOs' risk-taking and their strategic orientations. Bernile et al. (2017) point out that CEOs who experienced significant adverse events in their early life exhibit a greater propensity to finance their firms through public debt instruments (such as bonds) rather than bank loans. This relationship suggests that capital structure policy and firm cost of capital are also influenced by CEOs' early-life experiences.

The development of the capital market underscores the need for a deeper comprehension of the determinants of corporate default risk. It has opened a growing branch of literature investigating the impact of CEO characteristics on firm ratings. For example, Bonsall et al. (2017) show that companies led by more capable managers typically receive higher credit ratings. Following this thread, Cornaggia et al. (2017) investigate the extent to which competence of a manager increase ratings. They find that more competent managers do receive higher credit ratings thanks to their ability to efficiently utilise resources to increase firm value. On the other hand, Bhandari et al. (2022) document that CEOs' political preferences influence firm ratings mainly because the political preference reflects the manager's attitude toward risk. In particular, republican CEOs, especially for firms with headquarters located in conservative states, are often associated with higher credit ratings because of in-group conservatism, especially for firms in financial distress or with weak corporate governance. Ma et al (2021) explore if CRAs look at the combined skills of the CEO as a factor of credit risk. In this study, the researchers conclude that generalist CEOs, as opposed to specialist CEOs, tend to take more risk and get lower credit ratings than their counterparts.

Apart from executives' personal characteristics, researchers are also interested in consequences of CEOs' cognitive bias for the firms. Early studies in behavioural corporate finance literature usually look at managers' overconfidence. In general, empirical findings indicate that managers' overconfidence has two-sided effects on firm level outcomes. On the one hand, overconfident managers tend to engage in overinvestment, potentially resulting in increased firm risk. For example, Malmendier and Tate (2005) show that overconfident CEOs tend to overestimate their capabilities of delivering success and view external finance as unduly costly. Consequently, they tend to overinvest especially when financial slack increases. On the other hand, several studies emphasise the value of hiring overconfident CEOs because these managers are more willing to take bold decisions essential for business success. For example, in Hirshleifer et al. (2012), overconfident CEOs do not just invest more in innovation but also achieve more innovation success. Additionally, cash is used more efficiently by overconfident CEOs, resulting in increased firm value, particularly in firms with growth potential that face financial constraints (Aktas et al., 2019).

In several studies, researchers look closer at CEO's narcissism. Narcissistic CEOs enjoy displaying themselves to the outside world to gain attention and admiration. As a result, when faced with strategic change options that offer similar benefits or opportunities, they tend to choose bold and ambitious actions that attract attention and spark discussion, giving them more "narcissistic sustenance." Prior research shows that CEO narcissism is detrimental to firm performance and increases firm risk. For example, Chatterjee and Hambrick (2007) find that narcissistic CEOs are linked to volatile firm performance and tend to be more aggressive in their approach to acquisitions. Adding to this point, Peterson et al. (2012) document that narcissist CEOs tend to exhibit lower levels of servant leadership, implying that they are more willing to prioritise their personal achievements over stakeholders' interests. Concerning the effects of CEO narcissism on firm risk, Hou et al. (2025) show that rating analysts view narcissist CEOs as risky, hence assign lower ratings to firms under their leadership.

We notice that, unlike leadership cognitive biases and personal qualities, the role of leadership ethics in corporate finance literature hasn't received the attention it deserves. Among the many traits that define successful leadership, integrity stands out as one of the most important traits. Integrity determines the level of trust placed in a manager's decisions. High-integrity leaders build trust and expectations, reducing information asymmetry and monitoring expenses. Integrity reduces perceived risk from investors. Low-integrity CEOs increase perceived uncertainty. Auditors, investors, and regulators view the firm under a low-integrity CEO's leadership as risky, resulting in higher audit fees and more stringent loan terms (Dikolli et al. 2020).

In some finance studies, researchers employ a narrower definition of integrity called behavioural integrity when considering CEO integrity in empirical models. Behavioural integrity is a key dimension of integrity; it captures how consistently a CEO's actions reflect their statements. Trust decreases when stakeholders notice misalignment, reducing the credibility of the CEO's future statements. Credibility is forward-looking and stakeholders are more likely to rely on a CEO's promises when past behaviour aligns with commitments. A CEO who consistently delivers on promises builds trust and enhance relationship with employees (Simons, 2002). Leaders' integrity, specifically behavioural integrity, reinforces employees' trust in leadership and improves employees' work performance (Simons et al., 2015). Firms embracing integrity in their corporate culture often outperform others because they can build an environment of trust, mitigate agency problem, and enhance stakeholder relationships (Guiso et al., 2015). Dikolli et al. (2020) find that CEOs' behavioural integrity is also positively associated with firm financial performance, measured by Tobin's Q. This

suggests that CEO integrity strengthens the broader corporate culture, improving corporate business outcomes. CEOs with lower level of behavioural integrity pose a greater risk due to potential misrepresentation or inconsistency in communication. As a result, auditors charge higher audit fees for firms with low-integrity CEOs (Dikolli et al., 2020). Additionally, CEOs with low level of integrity care less about shareholders' interests, so they are more prone to deceptive behaviour. Specifically, the CEOs with low integrity exhibit a higher propensity for backdating and they are more likely to meet or beat earning targets (Jia, 2013). Jia's (2013) findings implicitly indicate that CEOs with low integrity are more likely to engage in earning management.

Evidence for the link between CEO integrity and firm performance is mixed. Hennig et al. (2026) find that CEO integrity decreases errors related to commission, while increasing errors of omission in M&A decision making. This means that higher integrity CEOs can avoid unfavourable deals but miss out on other opportunities. Similarly, while acknowledging that CEOs with high integrity increase firm value, Lv et al. (2025) find that such CEOs have an unwanted effect of leading the firm to exhibit significantly lower risk-taking. This point was also voiced by Gala and Kashmiri (2022) who find that high integrity CEOs tend to negatively affect entrepreneurial orientation in terms of risk taking, innovation, and proactiveness. On the flipside, Guiso et al. (2015) differentiates the two levels of moral hazards between the upper managerial and the lower employee level, arguing that the top management team can enforce integrity as a firm value by keeping their words. CEOs whose actions align with promises can improve firm performance by reducing moral hazards at both levels. Pham et al. (2020) find that CEO integrity significantly boosts the positive effects of CSR disclosure on firm reputation, which then leads to better corporate performance and better perception of the firm.

In conclusion, the empirical evidence for the impact of CEO integrity on firm risk in the finance literature is lacking though leadership ethics play a pivotal role in shaping corporate culture and driving corporate outcomes. This gap becomes a promising area of research that we aim to fill and deliver original contributions.

3. Hypothesis development

Our research question about the impact of CEO integrity on corporate credit ratings is anchored in the well-known upper echelons theory by Hambrick and Mason (1984). The upper

echelons theory posits that "a firm is a reflection of its top executives". It means that key managers' perception and interpretation of the information on which their choices of corporate strategies are based will be influenced by the managers' personal cognitive values, experiences, and personalities. The upper echelons perspective highlights the importance of executives' characteristics to the firms' business outcomes, thereby opening an interesting avenue for research in finance. In our modern society, the role of top management team, particularly a CEO, is increasingly recognised in corporate governance, and it is seen as having a significant impact on corporate risk and performance. Building on the foundations of behavioural decision theory (March and Simon, 1958), consistent with the behavioural agency model (Wiseman and Gomez-Mejia, 1998), and drawing on research in managerial cognition and heuristics (Tversky and Kahneman, 1974), we reckon that leaders' bounded rationality influences the way they interpret information and respond to external challenges. Upper echelons theory posits that managerial choices are shaped not solely by rational analysis but also by cognitive constraints, individual experiences, and social contexts that influence executives' judgment and behaviour. Therefore, we argue that corporate credit ratings not only reflect the business and financial situations but also the personal traits of top executives, specifically the CEOs. CEOs are the ultimate decision-makers responsible for formulating corporate strategic decisions. As the most influential figures within a company's power centre, they inevitably exert a considerable influence on corporate credit risk, thereby influencing corporate credit ratings. Therefore, our empirical models will be designed to test the following key null hypothesis:

H0: CEO integrity doesn't influence credit ratings.

The above null hypothesis is tested against the following two alternatives:

H1a: High-integrity CEOs improve credit ratings

H1b: Low-integrity CEOs improve credit ratings

Under H1a, CEOs who uphold integrity in business conduct can increase firm ratings because they are less likely to engage in value-destroying investments or pursue personal interests at the expense of shareholders. Firms run by these CEOs are less likely to face moral hazard problem. CEOs with high integrity are more likely to make transparent, stakeholder-aligned investment decisions. They focus on long-term value creation rather than short-term gains. Ethical leaders are also less likely to engage in opportunistic investments that could harm

reputation or invite regulatory scrutiny. This reasoning has its roots in the agency theory, which was formally articulated by Jensen and Meckling (1976) and Ross (1973). Building on the foundational work of Jensen and Meckling (1976), we hypothesise that CRAs evaluate not only firms' business and financial strengths but also the managerial influence and potential moral hazard problem on firm risk. CEOs who demonstrate higher integrity are less likely to engage in earnings management or opportunistic reporting practices, further reinforcing the firm's credibility in the eyes of rating analysts (Jia, 2013). Empirical evidence indicates that firms approaching potential credit rating downgrades often engage in strategic financial reporting to mitigate the negative consequences of the downgrades. Firms facing imminent rating downgrades are inclined to utilise discretionary accruals to inflate reported earnings (Liu et al., 2018). In a related contribution, Kisgen (2006) introduces the credit rating–capital structure hypothesis, positing that managers actively adjust financing decisions to remain within desirable rating categories. These adjustments, while potentially beneficial in the short term, may lead to suboptimal capital structures that deviate from the firm's long-term value-maximising objectives. Because high-integrity CEOs are less likely to compromise firms' long term value for short term benefits, we hypothesise that they are also less likely to engage in these opportunistic practices. Because rating analysts view firm risk through the business cycles, high-integrity CEOs can increase firm ratings especially in the long run.

Additionally, we contend that CEO integrity can indirectly improve ratings through their impact on corporate culture. Integrity constitutes a fundamental component of corporate culture that reflects ethical behaviour and signals trustworthiness to external stakeholders (Guiso et al., 2015; Graham et al., 2022). From a theoretical standpoint, integrity fosters transparency and reduces agency conflicts by aligning managerial actions with the interests of shareholders and other stakeholders. It also promotes cooperative and trust-based relationships within a business organisation, thereby enhancing social capital and organisational cohesion (Maak, 2008). Firms that cultivate a strong integrity culture are less likely to engage in opportunistic behaviours such as earnings manipulation or fraudulent reporting (Biggerstaff et al., 2015). Therefore, a strong culture of integrity not only strengthens a firm's internal governance but also enhances its external credibility, ultimately solidifying stakeholders' confidence. CEOs who demonstrate consistency between values and actions can reinforce organisational trust and ethical climates, whereas lack of integrity increases reputational risks and ethical misconduct at lower levels. Empirical research further highlights that CEO integrity not only influences individual decision-making but also spreads throughout the firm, positively influence employees' behaviour, and boost the organisation's long-term success (Brown and

Trevino, 2006). Thanks to the spillover effects of CEO integrity on the internal ethical climate within their organisations, corporate performance improves over time, which is ultimately reflected in higher credit ratings.

Finally, CEO integrity directly positively influences ratings through a trust building mechanism. Skarlicki et al. (2023) conceptualise CEO integrity as an institutional enabler that reinforces organisational legitimacy by aligning corporate conduct with prevailing societal norms and moral expectations. High-integrity CEOs tend to make decisions that align with prevailing societal norms, values and expectations and ensure that firms operate within the accepted institutional boundaries. High integrity bolster stakeholders' trust, whereas low integrity raises doubt about management reliability and the accuracy of disclosures (Simons, 2002). This increases perceived risk and potentially lower credit ratings. Therefore, CEO integrity contributes to boosting firm's reputation. Firms led by high-integrity CEOs are more likely to be perceived as trustworthy and reliable by CRAs, so they might have higher credit ratings.

Contrary to H1a, H1b stipulates that CEOs without or with low integrity can improve ratings. On the one hand, a CEO with integrity helps build trust; but they might also disclose unfavourable information. In situations when such information signals a weakening financial position, CEO integrity leads to a lower rating compared to CEOs who strategically withhold such information. On the other hand, low-integrity CEOs who involve in opportunistic financial reporting practice and earning management can achieve a higher rating at least in the short to medium term. This prediction is formulated on the ground of the contemporary positive accounting theory developed by Watts and Zimmerman (1978) and later refined by Watts and Zimmerman (1990). The theory posits that the management smooths earnings, often disregarding accounting standards and jeopardising firms' long-term interests, to achieve certain short-term returns that benefit the firms and themselves. Positive accounting theory shares similar assumptions with stakeholder theory and upper echelon theory, as firm executives are assumed to be rationally acting agents, working to maximise their own utility. In brief, positive accounting theory explains how accounting practices, such as the manipulation of financial reporting, are not neutral evidence accurately reflecting firm performance, but instead part of the toolkit used by managers. In the case of the present study, this theory explains why untrustworthy CEOs could manipulate earnings to gain better credit ratings than their peers.

The theoretical rationale of hypothesis H1b is also supported by anecdotal and empirical evidence. For example, according to a survey by Graham et al. (2005), when asked

the question: Which earnings benchmarks matter most to managers? Over 80% of managers agree that they strive to meet earnings benchmarks to boost stock price performance. The same survey reveals that there are close to 40 percent of managers who agree that they meet earnings benchmarks to achieve a desired credit rating. Furthermore, Jiang (2008) show that the pervasive influence of earnings benchmarks and investor expectations extends to firms' efforts to secure favourable credit ratings and lower the cost of debt, as consistent earnings performance is often viewed by creditors and CRAs as a signal of financial stability and lower default risk. Prior research has established that credit ratings play a crucial role in determining firms' value (Holthausen and Leftwich, 1986; Dichev and Piotroski, 2001), creating strong managerial incentives to maintain or enhance these ratings. Jung et al. (2013) demonstrate that earnings smoothing becomes a strategic tool through which managers can enhance firms' credit ratings. They show that smoothing reported earnings positively influence ratings. In this context, consistent and less volatile earnings signals appear to reduce perceived default risk, thereby improving the likelihood of favourable credit ratings and lowering the cost of debt financing (Trueman and Titman, 1988). Along this line of reasoning, it can be argued that untrustworthy CEOs have a stronger motivation to boost ratings through these tactics to achieve a favourable rating in the short term. In an empirical investigation into CEO integrity, Jia (2013) also show that untrustworthy CEOs engage in earning management more than their peers, hence have a higher propensity to meet/beat earning benchmarks.

4. Sample selection and methodology

4.1. Sample selection

We collect earnings conference call transcripts written in English from Refinitiv for non-financial publicly listed firms headquartered outside the United States during the period from January 2010 to December 2024. Credit rating data is collected from the S&P Rating Direct database, whereas financial data is obtained from the Compustat database. Our sample consists of firms listed in the Compustat database that have long-term foreign currency issuer credit ratings assigned by S&P Global Rating. For each firm, the ratings prevailing at the end of each fiscal year are collected and subsequently converted into a standardised 20-point scale, following Andrikopoulos et al. (2025) (see Appendix 1). Within this scale, the highest credit rating category, AAA, is assigned a value of 20, whereas the lowest rating category, CC, is assigned a value of one. Firms with ratings below CC (i.e., C, SD or D) are excluded from the sample because these ratings are for firms already in default (D), selectively defaulting on specific debt obligations (SD), or approaching default (CC, C). Firms in these bottom rating categories are in financial distress; they face restrictions on certain capital expenditure decisions, dividend policies, and capital structure adjustments imposed by debt covenants provisions. Due to these distinct features, they are removed from the sample.

Our sample selection process comprised multiple stages of data merging and filtering. First, 46,544 earnings call transcripts for non-US public firms collected from Refinitiv were cleaned using Python to extract the CEOs' answers in the Q&A sections of the transcripts. After removing transcripts in which CEOs didn't participate in the calls, the sample reduced to 46,493. These processed text files were then imported into the LIWC software and analysed using the LIWC-22 dictionary of causation words. LIWC software yields transcript-level linguistic variables including: CAUSE, IVSU, POS, NEG, and WEAKMOD, which were subsequently averaged at firm-year level. This step results in a sample of 16,412 firm-year observations. This sample was then merged with financial variables from Compustat to obtain financial variables. In this step, the number of observations decreased to 11,659 due to missing or incomplete financial information. This sample is used for estimating Equation (1) to calculate the CEO integrity score. In the next step, we merged this dataset with S&P credit ratings, which reduced the sample to 2,856 firm-year observations. After being merged with additional governance variables from BoardEx, the sample shrinks further to 2,587 firm-year observations for 502 non-US publicly listed firms, representing 890 CEOs across 46 countries

worldwide. Our final dataset includes 2,587 firm-year observations with complete information on credit ratings, CEO integrity scores, and accounting and governance metrics.

Table 1 reports the number of firms in our sample by country. It can be seen from Table 1 that firms are disproportionately distributed across countries with a relatively heavy concentration in Europe and other developed countries. In particular, there are more firms from Europe such as France (58), Germany (46), United Kingdom (79) than from other regions. There is a substantial representation from other Anglo-European economies, such as Switzerland (27), the Netherlands (26), and Sweden (27) as well as advanced Asian economies. Firms from Asia and the Pacific are drawn from a variety of countries, notably Japan (26), Australia (29), India (8), Taiwan (2), China (2), Indonesia (4). Finally, firms from Africa and Latin America are the least represented in the sample. In general, the sample encompasses headquarters from multiple countries worldwide, providing a meaningful cross-country variation and supporting the international scope for our analyses.

4.2. Methodology

4.2.1. CEO Integrity

In this study, we adopt the behavioural aspect of integrity defined by the consistency between a manager's words and deeds (Simons, 2002). Low-integrity CEOs provide more explanations to justify their actions and rebuild trust. Such CEOs tend to provide more explanations to justify their behaviour for three reasons. First, specific instances of word–deed incongruence often require additional justification to reconcile the inconsistencies between stated intentions and actual outcomes. Second, in corporate communication contexts, offering explanations can help reduce the credibility gap associated with low integrity. Third, providing explanations enhances information quality and enables stakeholders to assess managerial statements more effectively, thereby reinforcing perception of transparency and integrity. We argue that, when corporate executives face heightened scrutiny and lower perceived credibility, they are more likely to employ explanatory narratives to legitimise their actions and maintain stakeholder confidence.

The variation in the explanations in CEO communications can serve as an effective indicator of CEO integrity. The leaders with lower level of integrity are likely to provide more extensive explanations than those with higher level of integrity. This is supported by two key theoretical perspectives. First, drawing on the Cognitive Dissonance Theory (Festinger, 1957), when discrepancies arise between a leader's statements and behaviour, stakeholders seek causal understanding to preserve cognitive consistency. Heider (1958) provides insights into

how stakeholders make sense of inconsistencies between a leader's words and behaviour. When a CEO's behaviour conflicts with their statements, stakeholders use attributional reasoning to determine whether the discrepancy signals intentional deception (low integrity) or results from external constraints (situational factors). In response, managers may provide explanations to justify the incongruence and mitigate reputational damage or loss of trust (Elsbach, 2003). For instance, if a CEO publicly commits to enhancing the firm's sustainability practices but fails to deliver, explanatory narratives may increase as part of an effort to manage impressions and restore perceived credibility. Second, a CEO with low integrity may offer more detailed explanations to achieve transparency and trustworthiness (Simons, 2002). For example, a low-integrity CEO forecasting strong revenue growth might seek to bolster credibility by noting, "The projected increase is driven by the completion of our new manufacturing facility and recently finalised multi-year supply agreements." Such elaboration serves as a signalling mechanism aimed at reducing investor uncertainty and strengthening confidence in the firm's disclosures.

Unlike Dikolli et al. (2020) who analyse CEO integrity with the frequency of giving explanations in their shareholder letters, in this study we use the CEOs' answers in the Q&A sections of earnings conference calls. Earnings conference call transcripts, which comprise both prepared presentations and unscripted Q&A sessions, serve as a rich source of qualitative information. Both shareholder letters and prepared statements convey structured corporate messaging. CEO communication in the Q&A session of an earning conference call is inherently interactive. Consequently, these exchanges are valuable for analysing sentiment, tone, and linguistic patterns (Mayew, 2012), which can reveal an individual's personal attributes. Matsumoto et al. (2011) demonstrate that the Q&A sessions of corporate earning conference calls convey significantly greater incremental information to investors than the scripted presentations. The unscripted nature of managers' responses during Q&A sessions can reveal their confidence levels and attitudes.

Our paper measures CEO integrity by using a lexicon-based analysis of earnings conference call transcripts. Specifically, we measure CEO integrity by the frequency with which a CEO provides explanations in their responses to stock analysts' questions during an earnings conference call. We identify a CEO's explanation by calculating the proportion of causation-related words that appear in the CEO's answers (CAUSE). Causation words are identified using the causation dictionary from the Linguistic Inquiry Word Count (LIWC) software, which is subsequently modified and refined by Loughran and McDonald 2022 Edition. We also purge out the explanatory content unrelated to integrity from CAUSE. To do

so, we regress CAUSE on factors linked to firm performance, business uncertainty, business complexity, debtholder–shareholder conflicts, CEO impression management and broader macroeconomic conditions. Following Dikolli et al (2010), CEO integrity score is obtained from the residuals of the following OLS regression:

$$\begin{aligned}
 CAUSE_{j,t} = & \beta_0 + \beta_1 ROA_{j,t} + \beta_2 STDCFO_{j,t} + \beta_3 STDSALES_{j,t} + \beta_4 SALEGROWTH_{j,t} + \\
 & \beta_5 INTANG_{j,t} + \beta_6 RD_{j,t} + \beta_7 SIZE_{j,t} + \beta_8 DEBTASSETS_{j,t} + \beta_9 IVSU_{j,t} + \beta_{10} POS_{j,t} + \\
 & \beta_{11} NEG_{j,t} + \beta_{12} WEAKMOD_{j,t} + \mathbf{IND}_k + \mathbf{YEAR}_t + \epsilon_{j,t}
 \end{aligned}
 \tag{Equation.1}$$

where j denotes firm, k denotes the industry defined by the two-digit SIC code in Compustat and t denotes the year of the transcript.

Appendix 2 provides the full definitions of the variables in Equation (1). The coefficients β_1 to β_4 are factor loadings on indicators of firm performance (ROA, SALEGROWTH) and business volatility (STDCFO, STDSALES). The coefficients β_5 through β_7 are factor loadings on the indicators of business complexity including intensity of innovation (RD), intangible assets (INTANG) and firm size (SIZE). Financial leverage (DEBTASSETS) is used as a proxy for the conflict between shareholders and debtholders. In highly-levered firms, managers tend to provide more extensive explanations and disclosures to mitigate the information asymmetry and reduce agency costs. These control variables are commonly used in the disclosure and corporate communication literature (e.g., Healy and Palepu, 2001; Merkley et al., 2013). The coefficients β_9 through β_{12} are the factor loadings on linguistic variables capturing a CEO’s impression management. They include IVSU which refers to the frequency of self-referential words, the positive (POS) and negative (NEG) tone of managerial communication. Consistent with prior literature, linguistic sentiment influences investor perception and can signal either optimism or concern (Brockman et al., 2015). A higher proportion of positive tone may reflect a CEO’s attempt to emphasise favourable aspects of performance, whereas a greater use of negative tone may indicate more transparent reporting, although it could also signal higher perceived risk (Patelli and Pedrini, 2015). Finally, WEAKMOD controls for the use of weak modal words (e.g., may, might, could), which has been linked to managerial uncertainty (Loughran and McDonald, 2011, 2016). Frequent use of weak modals may signal linguistic concealment strategies, as managers employ vague language to minimise accountability and avoid making definitive commitments.

Table 2 displays the estimation results of Equation 1.¹ The results are, for the most part, consistent with expectations. CAUSE is negatively associated with both return on assets (ROA) and sales growth (SALEGROWTH). This finding supports the expectation that CEOs provide fewer explanations when financial performance is strong and vice versa. The association between CAUSE and business complexity is less clear. The expectation is that greater business complexity requires more justifications from the corporate leaders. This expectation is supported by RD, but not by SIZE. A negative coefficient estimate on SIZE reported in Table 1 implies that CEOs from small firms tend to explain more than those from big firms. While big firms are more complex to manage than small firms, the information coverage about big firms tends to be larger. Consequently, small firms might appear more ambiguous to stakeholders, prompting their leaders to give more explanations.

As presented in Table 2, the results indicate that the level of explanations is not significantly influenced by the degree of debtholder–shareholder conflict, as proxied by leverage (DEBTASSETS). This finding doesn’t lend support to the notion that concerns about potential financial distress resulting from excessive borrowing policy raise credibility issue, thereby motivate more extensive explanatory disclosures.

All the text variables proxying the CEOs’ likely impression management are positive and statistically significant at 1% level (IVSU, POS, NEG and WEAKMOD). The result suggests that CEOs who utilise more emotionally charged language, whether conveying optimism or pessimism, tend to offer more detailed causal explanations. Notably, we obtain a positive coefficient on WEAKMOD, which is strongly statistically significant at 1% level. This is consistent with the expectation that a CEO tends to give more explanations when facing uncertainty.

Finally, adjusted R-squared reported by Table 2 is 7.8%, which is slightly lower than 12.6% reported by Dikolli et al (2020). The lower explanatory power of our model is attributed to its parsimony due to the differences in the data composition. Dikolli et al (2020) use 30,357 CEOs’ shareholder letters in the United States, which is an English speaking country, whereas the present study utilises 11,659 firm-year observations with CEO-firm-specific annual integrity scores aggregated from quarterly earnings conference calls from countries outside the US.

4.2.2. Baseline regression model

¹ The descriptive statistics of the variables used in Equation (1) are presented in Appendix 3.

To test the hypotheses outlined in section 3, we establish the following multivariable regression model:

$$RATING_{i,t} = \alpha + \beta LINT_SCORE_{i,t} + \omega X_{i,t-1} + \theta FIRM_i + \delta YEAR_t + \epsilon_{i,t}$$

(Equation.2)

Where i and t denote firm and year, respectively.

RATING as dependent variable is the foreign currency long-term issuer credit rating assigned to firm i by S&P Global Rating at the end of the year t . RATING takes value between 1 and 20, which is converted from alphanumericals to numbers. Larger values of RATING indicate stronger creditworthiness and lower levels of credit risk. The primary explanatory variable, LINT_SCORE, is the residual of Equation (1) and serves as a measure of CEO integrity. Higher values of LINT_SCORE indicate more extensive use of explanatory language and lower level of integrity. Detailed definitions of all variables used in Equation (2) are presented in Appendix 2.

Equation (2) is controlled for a set of firm-level control variables captured by $X_{i,t-1}$. These variables include firm-specific determinants of credit ratings documented in the rating literature (e.g., Alp, 2013). They are profitability (ROA), a dummy variable indicating negative earnings (NEGEARN) and excess cash holdings (EXCASH), firm size (SIZE), financial leverage (DEBTASSETS), annual sales growth (SALEGROWTH), interest coverage ratio (INTCOV), and volatility of operating cashflows (STDCFO). These variables represent the fundamentals imperative to firm risk. Accordingly, it's expected that RATING increases with firm size (SIZE), financial performance (ROA), growth prospects (SALEGROWTH) and interest coverage (INTCOV). On the other hand, it decreases with operating loss (NEGEARN), agency cost associated with liquidity accumulation (EXCASH), the level of debt in a firm's capital structure (DEBTASSETS), and the volatility of cashflows (STDCFO).

In this study, the firm-level determinants of corporate governance comprise board size (BOARD_SIZE), board independence (BOARD_INDEP), and board diversity (FEMALE_DIR). BOARD_SIZE indicates the number of directors serving on a firm's board, whereas BOARD_INDEP reflects the proportion of independent directors relative to the total board size. FEMALE_DIR indicates the percentage of female members on the board. Collectively, these variables represent fundamental dimensions of board structure and composition that are expected to influence the overall quality of corporate governance. We control for governance quality because of its significant implications for firm risk documented

in the literature (e.g., Ashbaugh-Shaife et al., 2006). Firm and year fixed effects are included to control for the unobserved firm-specific time-constant heterogeneity and the international systemic shocks that affect ratings.

We provide descriptive statistics of the Equation (2) variables in Table 3 and the correlations among the independent variables used in the empirical analysis in Table 4.

Equation (2) tests the prediction that CEO integrity is a significant stand-alone qualitative factor of firm ratings. Although Equation (2) does not explicitly control for CEOs' demographics, we control it for CEO's ability (MA_SCORE), which can subsume the combined effects of CEOs' personal characteristics such as age, gender and education background. In this chapter, we adopt the method for measuring managerial ability developed by Demerjian et al. (2012). This CEO ability score derived from this method is an accounting-based quantitative measure of a CEO's managerial talent. It reflects the efficiency of mobilising and utilising resources for production that maximise firm value in the most cost-effective way. This variable follows Cornaggia et al. (2017) who investigated the impact of CEO ability on firm ratings.

5. Descriptive statistics

Table 3 reports the descriptive statistics for all variables used in Equation (2). The mean RATING is 11.606, which is equivalent to BBB- under S&P's international rating scale. This mean value comes with a standard deviation of 2.882 notches. RATING varies from the lowest possible rating (one) to the highest possible rating, which covers the entire spectrum of the rating scale for non-defaulting firms. Figure 1 shows the distribution of ratings separately for high-integrity CEOs and low-integrity CEOs. The low-integrity CEOs in Figure 1 refer to CEOs whose median LINT_SCORE is greater than the industry-wide median, whereas the high-integrity CEOs in Figure 1 refer to those whose median LINT_SCORE is less than the industry-wide median.² In general, the distributions of ratings across two CEO groups indicate a systematic shift: low-integrity CEOs are more common among firms below the investment-grade rating threshold (from 7 to 11), whereas high-integrity CEOs show a greater representation among firms at ratings above the investment-grade threshold (from 12 to 16). In summary, although both groups exhibit broadly similar distributional forms, high-integrity CEOs are more common in firms at higher levels of ratings than in firms at lower levels. The

² Industries are defined by the two-digit SIC (SIC2) code according to Compustat database.

pattern in the sample distribution provides a preliminary evidence that managerial integrity might be associated with stronger corporate creditworthiness.

In Table 3, the integrity score (LINT_SCORE) has an average value of -0.016 but there is a great extent of dispersion around this mean value, indicated by a large standard deviation of 0.561. The distribution of managerial ability score (MA_SCORE) is comparable to that reported by Cornaggia et al. (2017). Specifically, their sample mean, median, and standard deviation of CEO ability are -0.004, -0.013, and 0.149, respectively. These values are close to a mean of -0.070, a median of -0.077, and a standard deviation of 0.138 in our sample.

Table 4 reports the pairwise correlation matrix for the independent variables included in the baseline regression (Equation 2). As shown in the table, there are no correlations that raise significant multicollinearity concerns. The key independent variable, LINT_SCORE, exhibits only weak correlations with all other independent variables, with coefficients ranging from -0.081 to 0.080. The correlation between LINT_SCORE and MA_SCORE is 0.026. Although modest in magnitude, it indicates that CEOs with greater managerial ability also use explanatory narrative more frequently during earning conference calls, which signals lower integrity.

The correlation matrix also shows that the highest correlations among independent variables are between ROA and the following variables: INTCOV (0.212), NEGEARN (-0.435) and SALESGROWTH (0.352). The results suggest that stronger financial performance is associated with smaller earning losses, greater capability to service debt, and higher sales growth. Notably, the correlation between firm size and cashflow volatility (STDCFO) reaches 0.457. This positive correlation suggests that larger firms, which typically operate across more diverse business segments and markets, face more complex operating environments that contribute to greater variability in cashflows.

6. Empirical results

6.1. Baseline results

Table 5 presents the estimation results of Equation (2) using the ordinary least squares regressions and the random effects ordered logit regressions to assess the impact of CEO integrity on firms' credit rating. The findings presented in Table 5 align with our hypothesis H1b, in which low-integrity CEOs improve credit rating. Columns (1) – (4) display the OLS estimates of Equation (2) with year and firm fixed effects. Columns (5) – (8) report the estimates of Equation (2) with random effects ordered logit regressions. The column (1) and

column (2) show that the coefficients on LINT_SCORE are 0.099 and 0.113 in the OLS specifications without and with accounting and governance controls, respectively. Both are statistically significant at the five percent significance level or higher. When controlling for CEO's managerial talent (MA_SCORE), the coefficients on LINT_SCORE increase in magnitude and remain statistically significant. This indicates that the effect of CEO integrity on rating is statistically strong and robust to the inclusion of CEO-specific managerial competence. These results remain robust when we reestimate Equation (2) with random effects ordered logit model. Specifically, according to Column (5)- (8) of Table 5, the coefficient on LINT_SCORE remains positive and statistically significant at the one percent significance level. In general, the baseline regressions show that CEO integrity is a stand-alone qualitative determinant of firm ratings, which is supported by the data irrespective of model choices.

LINT_SCORE is not just statistically significant but also economically meaningful. A one standard deviation (0.561) increase in LINT_SCORE corresponds to an estimated 0.142 rating notch increase (calculated as 0.561×0.254). This change equals a 0.05 standard deviation ($0.142/2.882$) increase in credit ratings, which is similar in size to the effect of a one standard deviation change in managerial ability in Corngaggia et al (2017). Corngaggia et al. (2017) document that a one standard deviation increase in managerial ability is associated with an approximate 0.038 standard deviation improvement in credit ratings. When assessing the maximal effect on firm ratings, a shift from the highest level of integrity (-0.1372) to the lowest level of integrity (1.867) is associated with 0.823 notch increase in ratings.

The significant role of CEO integrity for firm ratings obtained from the baseline regressions suggests that managerial integrity is an independent qualitative factor in credit risk assessment and that ratings can be higher for firms under the leadership of low-integrity CEOs. Hyde et al. (2023) demonstrate that higher levels of CEO deception are associated with more favourable analyst recommendations, even after accounting for analysts' own levels of suspicion. Their findings suggest that stock analysts generally assume that CEOs are truthful, a pattern consistent with Truth-Default Theory (Levine, T. R., 2022). Baseline regression results provide support for H1b, indicating that firms led by low-integrity CEOs exhibit higher credit ratings. This finding suggests that low-integrity CEOs might actively engage in behaviours designed to manipulate stakeholder perceptions rather than genuinely improving firm risk profile and maintaining sustainable financial performance. Jung et al. (2013) highlight the strategic role of earnings smoothing in firms' efforts to improve their credit ratings. Their findings suggest that managers engage in income smoothing not merely to signal stability to external stakeholders, but as a deliberate mechanism to influence the assessments of rating

analysts. Managers also engage in income-increasing accrual management, particularly when facing an imminent credit rating downgrade. Moreover, such income-increasing accrual management has been shown to effectively reduce the risk of a downgrade for firms being put on negative watch (Liu et al., 2018). This is consistent with the positive accounting theory, whereby corporate managers exploit the discretion in choosing the accounting methods to pursue certain motives (see, e.g., Watts and Zimmerman, 1978). Through such accrual management practice, CEOs may succeed in presenting a financially healthy picture of the firms, which can help achieving a favourable rating level. In a related study, Murphy (2012) show that individuals who are higher in Machiavellianism are more likely to misreport. Machiavellianism is widely documented as one of the three Dark Triad in psychology. CEOs with Machiavellianism are characterised as individuals who can behave with deceit for certain personal gains, hence negatively correlated with CEO integrity. Therefore, our baseline result might be attributed to low-integrity CEOs having a higher propensity to act opportunistically than high-integrity counterparts.

Adjusted R-squared obtained from all OLS model specifications is slightly above 90% before and after controlling for accounting and governance variables. These high adjusted R-squared values might be driven by the firm and year fixed effects, which indicate that a large proportion of ratings are determined by external factors beyond managers' controls and firm-specific characteristics that are not directly observable. Our obtained adjusted R_squared is similar in magnitude to Becker and Milbourn (2011) who examine the determinants of firm ratings in the US using the same model.

The estimated coefficients for the control variables are consistent with those reported in prior studies that employ credit ratings as the dependent variable (Hossain et al. 2023; Cornaggia et al. 2017). Specifically, ratings are strongly related to firm-specific accounting metrics such as profitability (ROA), excess cash reserves (EXCASH), debt servicing capacity (INTCOV), and firm size (SIZE). Consistent with the prior literature (e.g., Cornaggia et al. 2017), we find a strongly significant negative coefficient on DEBTASSET, suggesting that greater reliance on debt financing increases the risk of financial distress hence lowers ratings. Table 5 shows that corporate governance quality matters for firm ratings. In particular, ratings are higher for firms maintaining higher representation of independent directors on the board. This result corroborates Ashbaugh-Skaife et al (2006). The coefficient on BOARD_SIZE is positive and statistically significant at the five significance level in the model estimated with OLS (Column 4, Table 5), suggesting that larger boards are associated with an increase in ratings. This result is also consistent with Andrikopoulos et al. (2025). Although

BOARD_SIZE is slightly less stable across the OLS model specifications than BOARD_INDEP, it becomes strongly significant at the one percent level with a positive sign in the random effects ordered logit model (Column 5-8, Table 5). The evidence for board diversity (FEMALE DIR) in determining firm ratings is less clear since the coefficient estimate on FEMALE DIR is only weakly significant in Column 4, Table 5. In summary, the results obtained from the baseline regression in Table 5 imply that exercising quality governance mechanisms is an effective way to constrain agency problems and mitigate their detrimental impact on firm credit quality.

6.2. Does the impact of CEO integrity on firm ratings differ across firms?

Prior research on rating quality suggests that rating standards are applied unequally on firms and they are substantially driven by the revenue incentives of the CRAs (e.g., see Becker and Milbourn, 2011). Mählmann (2012) investigates whether long-standing relationships between firms and CRAs generate an advantage in the form of more favourable credit ratings. The study documents an economically significant relationship effect: firms with a long rating history receive higher ratings than those without a long rating history, even after controlling for a wide range of observable risk factors. Mählmann (2012) demonstrates that rating standards might be applied differently on different firms. Building on this insight, we test whether the relevance of CEO integrity to firm risk is assessed equally across firms or whether its impact on credit assessments is influenced by the firm's rating history with the CRAs. CRAs tend to be more lenient toward long-term clients due to client-retention incentives, as documented by Mählmann (2012). Such leniency gives a greater opportunity for low-integrity CEOs from long-term client firms to influence ratings through discretionally accrual management. Therefore, the association between CEO integrity and ratings might be stronger for long-term client firms than for new client firms.

In the present study, we measure the length of a firm's relationship with S&P as the number of years it has been rated by S&P, using each firm's full rating history from the S&P Rating Direct database. The sample is then partitioned at the sample median rating history. Firms with rating histories longer than the sample median are long-term clients, whereas firms with rating histories shorter than the sample median are new clients. Table 6 reports the estimation results of Equation (2) on long-term clients and new clients separately.

The coefficient on LINT_SCORE obtained from OLS regressions (Columns 1 and 2, Table 6) is positive and statistically significant for both groups with 0.095 for long-term clients and 0.119 for new clients. This indicates that higher CEO integrity is associated with higher

credit ratings for both long-term and new clients. Although slightly larger in magnitude, the impact of CEO integrity on ratings among new clients is just marginally greater than that among long-term clients. This result suggests that CEO integrity is viewed as a standalone indicator of firm risk regardless of the firm's relationship with CRAs.

However, there is evidence for differential rating standards when Equation (2) is estimated with random effects ordered logit models (Columns 3 and 4, Table 6). Accordingly, low-integrity CEOs increase ratings and it is more pronounced for long-term clients than for new clients, which supports the initial prediction. In particular, the estimated coefficient on LINT_SCORE for long-term clients is positive and statistically significant at the ten percent significance level (0.295), whereas the coefficient for new clients is also positive but statistically insignificant (0.261).

In summary, the empirical evidence on how the association between CEO integrity and ratings varies across firms is unclear and model-dependent. While OLS regressions support the notion that the weight of CEO integrity in risk assessments doesn't differ across firms, the random effects ordered logit regressions support the prediction that a longer relationship with the CRAs might enable low-integrity CEOs to influence ratings more effectively.

6.3. The effects of economic bust

Bolton et al. (2012) propose a rating game theory which demonstrates that CRAs may balance the desire to maintain a strong reputation with the incentive to satisfy the issuers who finance their services. This theory suggests that conflicting incentives cause CRAs to be influenced by both reputation concerns and business-retention objectives, rather than being completely objective and based only on true credit risk.³ As a result, credit ratings become the outcome of strategic choices rather than purely objective assessments.

Building on Bolton et al (2012), we argue that CRAs' reputation cost increases under adverse market conditions, causing the rating analysts to judge unethical CEOs more harshly. Ethical CEOs with integrity are more likely to be perceived as low-risk, which can lead analysts to assign higher ratings to their firms. Because the probability of rating failure being exposed is high under adverse circumstances, CRAs become more protective of their reputation and

³ In general, empirical studies provide a solid support for Bolton et al's (2012) rating game theory. For example, Dilly and Mählmann (2016) show that rating standards for US bond issuers between 1990 and 2007 tend to be relaxed during boom periods, resulting in more ex post downgrades during subsequent bursts. In a recent empirical study, Hung et al (2022) confirms that the quality of ratings is a function of rating agencies' reputational costs. Accordingly, global rating agencies tend to apply more stringent rating standards due to their higher cost of reputational loss. Their study indirectly suggests that local CRAs, which place greater emphasis on market shares, are more likely to employ lax rating standards, leading to rating inflation.

consequently tighten their rating standards. Therefore, there is less room for manipulative managerial behaviour to influence ratings, whereas managers acting with integrity tend to be viewed as low-risk because of their positive influence on firm's fundamentals in the long run.

According to the Committee on Capital Markets Regulation (2021), CRAs performed effectively during the COVID-19 crisis. CRAs responded quickly to emerging economic and market stress, they issued timely downgrades and revisions to ratings outlooks to change their assessments aligning with the severity of the pandemic risks. The Committee on Capital Markets Regulation (2021) explains that when COVID-19 hit, it set off a wave of fast and widespread credit rating downgrades across companies, governments, and structured finance products. Therefore, we chose COVID-19 period as the focal point of our study to capture rating actions under severe and sudden economic shocks. The data range is obtained from 2020 to 2023, which corresponds to the World Health Organisation's identification of COVID-19 period.

In this section, we investigate whether the impact of CEO integrity on firm ratings varies across different types of firms and economic environments, thereby assessing the extent to which its effects are contingent upon contextual conditions. We create an interaction term between a binary variable indicating COVID-19 years and the main testing variable LINT_SCORE (COVID_LINT_SCORE), to capture the moderating effects of an economic bust on the relationship between CEO integrity and firm ratings.

Table 7 shows that, under normal market conditions, LINT_SCORE is positively associated with credit ratings, indicating that lower levels of CEO integrity correspond to more favourable credit assessments. However, this effect reverses during COVID-19 period. Specifically, the interaction term between COVID and LINT_SCORE is negative and statistically significant in the regressions with control variables (Columns 2 and 4, Table 7). Column (2) and column (4) in Table 7 report the estimates on COVID_LINT_SCORE with the full set of financial and governance control variables. The interaction coefficients are -0.215 and -0.578, respectively. These two values are statistically significant at the five significance level, which indicates that low-integrity CEOs are viewed negatively by analysts in economic bust. By contrast, ethical CEOs with integrity are considered a risk-mitigating factor and get higher rating. These findings provide support for H1a, indicating that high-integrity CEOs are associated with improved ratings. It means that CRAs, when facing heightened reputational concerns, tighten their rating standards and regard high-integrity CEOs a risk-mitigating factor, resulting in higher ratings for their firms.

6.4. The effects of economic bust across firms and countries

In this section, we further investigate how economic downturn during the COVID-19 period moderates the relationship between CEO integrity and firm credit ratings, with an attention to the differences across institutional environments characterised by the levels of information transparency proxied by the Corruption Perception Index (CPI) from the Transparency International Organisation. Table 8 presents the estimation results of Equation (2) using OLS and random effects ordered logit regressions separately for low-transparency countries and high-transparency countries. The sample is partitioned across different levels of information transparency using the sample median CPI score as cutoff point. Columns 1–2 of Table 8 present results from ordinary least squares (OLS) regressions, while columns 3–4 of Table 8 report the estimates from random effects ordered logit models.

According to Table 8, CEO integrity is strongly and significantly related to the credit ratings under normal conditions only in countries with high level of transparency (low corruption), as reflected in the positive and significant coefficient on LINT_SCORE at the one percent significance level (Columns 2 and 4, Table 8). However, the interaction effect of market downturn during COVID years is only negative and statistically significant in low-transparency countries (high corruption). This result is broadly consistent across OLS and random effects ordered logit regression models. This implies that ratings tend to be higher for high-integrity CEOs under economic bust in countries with low levels of information transparency.

In summary, Table 8 shows that during economic downturns, low (high)-integrity CEOs are associated with low (high) ratings in less transparent environments, where institutional weaknesses are more easily exposed. This finding suggests that the shifts in rating standards by CRAs are not applied uniformly across countries. Rating standards are more likely to tighten and the value of CEO integrity to firm risk increases in low-transparency countries than in high-transparency countries, when external conditions raise the analysts' reputational concerns due to the higher likelihood of rating failure being exposed. This explains why high-integrity CEOs get the higher ratings for their firms, whereas low-integrity CEOs decrease ratings in low-transparency environment during COVID-19 period. Additionally, this study reveals that rating standard is a function of reputational cost and the strength of the relationship between CEO integrity and rating varies with institutional quality. This insight offers a further contribution to the literature on rating quality (e.g., Alp, 2013; Baghai et al., 2014; Hung et al., 2022).

In Table 9, we investigate how the COVID-19 moderates the association between CEO integrity and firm ratings for long-term clients versus new clients. In general, the results show a clear diverging pattern in the moderating role of COVID-19 across two groups. For new clients, the estimate on the interaction term `COVID_LINT_SCORE` is -0.454, which is statistically significant at the one percent significance level. However, it turns insignificant for firms with long-term relationship with the CRA. The result implies that the moderating role of COVID-19 on the relationship between CEO integrity and firm rating is significant for new clients of the CRA, but not for their long-term clients. We obtain similar results when reestimating Equation (2) with random effects ordered logit model. This result substantiates the argument that risk assessment is not applied consistently across firms. Analysts' perception of CEO integrity is largely driven by the CRA's incentives.

Overall, in normal conditions low-integrity CEOs increase ratings. However, during economic bust they damage ratings for their firms unless firms have already had a long-term relationship with the CRAs. Additionally, CEO integrity matters for ratings of both types of firms, but new clients rely much more on it, and they are disproportionately affected when CEO integrity deteriorates during crises. The unequal treatment of firms suggests that the relationship with the CRAs may alter analysts' perceptions of low-integrity CEOs during economic bust. These findings supplement original insights to the relationship effects on ratings documented by Mählmann (2011).

7. Conclusion

Credit ratings are essential to the efficient functioning of capital markets because they represent independent assessments of a firm's creditworthiness. Exploring the impact of leadership ethics in general, and leadership integrity in particular, on ratings is crucial to understanding the dynamics of firm risk. However, leadership integrity is a concept that is difficult to capture. Building on Simons' (2002) conceptualisation of behavioural integrity (BI), we develop an operational proxy for CEO integrity by applying text analysis techniques on CEOs' responses during Q&A sections of earnings conference calls. Specifically, we employ the degree of word-deed incongruence as proxy for the managerial integrity. Utilising a cross-country sample in the period 2010-2024, we find that under normal circumstances, low-integrity CEOs increase rating. Under economic busts, all else being equal, due to changes in the CRAs' reputational cost function, firms with low-integrity CEOs are viewed as riskier than firms with high-integrity CEOs. In addition, we demonstrate that CRAs adjust their assessment thresholds to protect their own reputation during the economic bust. Evidence of uneven firm treatment suggests that CRA relationships can systematically shape analysts' assessments of CEOs with low integrity, an effect that becomes especially pronounced in economic busts.

In this paper, we take a further step in the ongoing scholarly effort to deepen theoretical and empirical understanding of CEO integrity in finance literature. We also provide original insights that supports the upper echelons theory. Compared to previous research focusing on the impact of CEO ability and personal characteristics on firm outcomes (e.g., Cornaggia et al. 2017; Hou et al., 2025; Bhandari et al., 2021), we provide a new angle relating to CEO personality and its consequences for firm risk.

Our empirical findings underscore the significance of qualitative factors as determinants of firm risk. We contribute to the emerging literature on the effects of CEO ethics on firm outcomes, specifically corporate credit ratings. Our findings hold significant practical implications for various stakeholders especially creditors, corporate board members and even credit rating supervisors who rely on credit ratings for informed trading decisions. Our paper highlights the necessity of incorporating managerial attributes into credit assessments and strategic decision-making processes. By illuminating the link between executive traits and firms' credit outcomes, our paper provides an understanding that can inform investors, policymakers and other related parties in their efforts to understanding and evaluating the quality of credit ratings. Finally, our research is valuable to stakeholders by shedding light on how CEO integrity shapes important corporate outcomes and inspires future research on the value of CEO ethics in finance literature.

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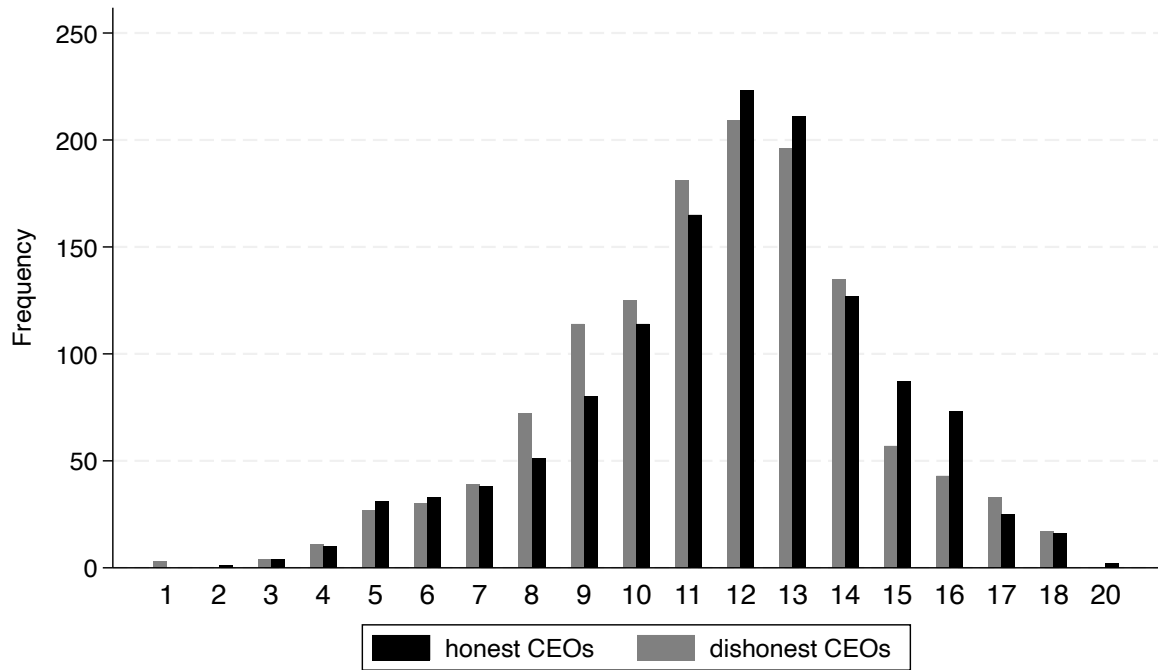
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Figure 1. Sample distribution of credit ratings by groups of CEOs



Note: The X-axis represents the credit rating. The credit rating conversion displays in Appendix 1.

Table 1. Summary table by country headquarters

Country Name	Frequency
Australia	29
Austria	3
Belgium	10
Bermuda	1
Brazil	1
Switzerland	27
China	2
Colombia	1
Cayman Islands	1
Czech Republic	1
Germany	46
Denmark	7
Spain	18
Finland	8
France	58
United Kingdom	79
Gibraltar	1
Greece	4
Hong Kong SAR	1
Hungary	1
Indonesia	4
Isle of Man	2
India	8
Ireland	4
Israel	1
Italy	19
Japan	26
South Korea	8
Luxembourg	7
Malaysia	2
Nigeria	1
Netherlands	26
Norway	11
New Zealand	7
Oman	1
Philippines	1
Poland	2
Portugal	2
Qatar	1
Russia	21
Saudi Arabia	2
Singapore	4
Sweden	27
Thailand	5
Turkey	3
Taiwan	2
Ukraine	1
South Africa	5
Total Firms	502

Note: This table shows the number of firms headquartered in each location included in the sample set.

Table 2. Regression result of Equation (1)

	Coefficient	t-statistic
ROA	-0.327***	(-5.55)
STDCFO	0.000***	(-3.01)
STDSALES	0.000	(-0.34)
SALEGROWTH	-0.055**	(-2.07)
INTANG	-0.044	(-1.36)
RD	0.337**	(-2.51)
SIZE	-0.008**	(-2.28)
DEBTASSETS	0.062	(-1.55)
IVSU	-0.055**	(-2.04)
POS	0.046***	(-8.52)
NEG	0.154***	(-18.69)
WEAKMOD	0.061***	(-3.54)
CONSTANT	1.846***	(-11.1)
SIC2 FE	Yes	
Year FE	Yes	
Observations	11659	
Adjusted R ²	0.078	

Note: This table presents the estimation results of the linear regressions of Equation (1). The dependent variable is CAUSE which refers to the firm-specific annual average percentage of causation-related words used by the firm's CEO during the Q&A section of earnings conference calls. For definitions of independent variables, see Appendix 2. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

Table 3. Descriptive statistics

Variables	N	Mean	S.D.	Min	p25	Media	p75	Max
RATING	2587	11.606	2.882	1.000	10.000	12.000	13.000	20.000
LINT_SCORE	2587	-0.016	0.561	-1.372	-0.377	-0.067	0.312	1.867
MA_SCORE	956	-0.070	0.138	-0.468	-0.166	-0.077	0.017	0.425
ROA	2571	0.086	0.065	-0.065	0.047	0.074	0.111	0.351
EXCASH	2571	0.361	0.480	0.000	0.000	0.000	1.000	1.000
NEG EARN	2571	0.140	0.347	0.000	0.000	0.000	0.000	1.000
INTCOV	2571	20.072	40.366	-2.238	5.986	10.110	18.046	304.445
STDCFO	2571	21329.760	161690.200	12.699	117.894	338.587	1239.512	2275278.000
SALEGROWTH	2571	0.033	0.185	-0.788	-0.033	0.034	0.102	0.830
SIZE	2571	10.064	2.018	6.471	8.695	9.765	11.000	17.969
DEBTASSETS	2571	0.303	0.150	0.005	0.201	0.288	0.389	0.823
BOARD_SIZE	1941	12.333	4.513	4.000	9.000	11.000	14.000	30.000
BOARD_INDEP	1941	0.105	0.122	0.000	0.000	0.077	0.154	0.444
FEMALE_DIR	1941	0.245	0.143	0.000	0.125	0.250	0.357	0.750

Note: This table presents descriptive statistics of credit ratings (RATING), CEO integrity score (LINT_SCORE) and other firm-fundamentals that will be used by our baseline regression model. The continuous variables are winsorised at the 1st and 99th percentiles. Full definitions of the variables are available in Appendix 2.

Table 4. Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
LINT_SCORE (1)	1												
MA_SCORE (2)	0.026	1											
ROA (3)	-0.067	0.178	1										
EXCASH (4)	0.017	0.013	0.028	1									
NEGEARN (5)	0.080	-0.040	-0.435	0.081	1								
INTCOV (6)	-0.007	0.098	0.212	0.005	-0.137	1							
STDCFO (7)	-0.075	0.011	0.008	0.036	-0.006	0.112	1						
SALEGROWTH (8)	-0.032	0.011	0.352	-0.057	-0.296	0.083	-0.006	1					
SIZE (9)	-0.081	-0.189	0.038	-0.042	-0.052	0.068	0.457	0.001	1				
DEBTASSETS (10)	0.022	0.042	0.118	0.007	0.104	-0.317	-0.046	-0.074	-0.052	1			
BOARD_SIZE (11)	-0.009	-0.178	-0.201	-0.043	-0.022	-0.073	-0.093	-0.012	0.194	-0.027	1		
BOARD_INDEP (12)	-0.009	0.088	0.080	-0.024	-0.060	-0.116	-0.085	-0.046	-0.030	0.065	0.025	1	
FEMALE_DIR (13)	-0.010	0.020	0.036	-0.024	-0.003	0.048	-0.115	-0.101	0.042	0.029	-0.039	0.096	1

Note: This table shows correlations matrix between the independent variables used in Eq. (2).

Table 5. Baseline regression result (Equation 2)

	OLS				Random Effects Ordered Logit			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LINT_SCORE	0.099** (2.41)	0.113*** (2.88)	0.233*** (3.17)	0.254*** (3.57)	0.195** (2.20)	0.284** (2.56)	0.440*** (2.66)	0.654*** (3.09)
ROA		5.694*** (9.11)		7.175*** (6.29)		17.190*** (9.28)		25.260*** (7.31)
EXCASH		0.100* (1.86)		0.177** (2.08)		0.306** (2.03)		0.532** (2.19)
NEGEARN		-0.259*** (-3.78)		-0.127 (-1.08)		-0.612*** (-3.25)		-0.234 (-0.73)
INTCOV		0.001* (1.67)		-0.001 (-1.33)		0.007*** (2.99)		-0.002 (-0.75)
STDCFO		-4.68E-07 (-0.62)		1.21E-05 (1.49)		-2.77E-06** (-2.13)		-9.97E-06 (-0.46)
SALEGROETH		-0.187 (-1.48)		-0.284 (-1.25)		-1.275*** (-3.84)		-1.357** (-2.20)
SIZE		0.248*** (4.75)		0.520*** (4.03)		1.129*** (10.04)		2.036*** (6.74)
DEBTASSETS		-4.358*** (-13.78)		-6.002*** (-11.09)		-11.860*** (-13.21)		-16.000*** (-9.40)
BOARD_SIZE		0.021 (1.26)		0.077** (2.36)		0.107*** (2.62)		0.199** (2.53)
BOARD_INDEP		0.635* (1.73)		0.831* (1.73)		2.453** (2.51)		3.367** (2.48)
FEMALE_DIR		-0.321 (-1.18)		-0.863* (-1.75)		-0.181 (-0.31)		-1.223 (-1.08)
MA_SCORE			1.499*** (4.36)	0.782** (2.33)			2.636*** (3.35)	1.261 (1.29)
Constant	16.160*** (17.48)	13.220*** (13.39)	11.470*** (12.92)	9.572*** (5.55)				
Observations	2587	1941	956	758	2587	1941	956	758
Adjusted R ²	0.904	0.934	0.911	0.939				
Firm FE	Yes	Yes	Yes	Yes	No	No	No	No
Year FE	Yes	Yes	Yes	Yes	No	No	No	No

Note: The table presents the estimation results of the multivariate regressions of the impact of CEO integrity on corporate credit ratings (Equation 2). Columns (1)-(4) are estimated with Ordinary Least Squares, while Columns (5)-(8) are estimated with random effects ordered logit. The dependent variable is RATINGS. For definitions of all the variables, see Appendix 2. T-statistics are in parentheses. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

Table 6. Is the effect of CEO integrity on ratings consistent across firms?

	OLS		Random Effects Ordered Logit	
	(1)	(2)	(3)	(4)
	Long term client	New client	Long term client	New client
LINT_SCORE	0.095*	0.119**	0.295*	0.261
	(1.90)	(1.97)	(-1.93)	(-1.29)
ROA	6.868***	2.231**	22.820***	9.461***
	(8.24)	(2.43)	(-8.19)	(-3.09)
EXCASH	0.047	0.148*	0.161	0.468*
	(0.68)	(1.75)	(-0.78)	(-1.67)
NEG EARN	-0.198**	-0.429***	-0.388	-1.523***
	(-2.18)	(-4.56)	(-1.46)	(-4.74)
INTCOV	-0.001	4.77E-04	0.004	0.006
	(-0.86)	(0.42)	(-0.98)	(-1.63)
STDCFO	1.20E-06	5.29E-06***	-2.21E-07	-1.18E-06
	(0.84)	(2.65)	(-0.11)	(-0.48)
SALEGROWTH	-0.076	-0.098	-1.191**	-1.018*
	(-0.47)	(-0.56)	(-2.55)	(-1.87)
SIZE	0.013	0.269***	0.692***	1.393***
	(0.15)	(3.91)	(-3.88)	(-7.35)
DEBTASSETS	-5.112***	-3.176***	-13.820***	-12.180***
	(-11.77)	(-6.98)	(-10.37)	(-8.12)
BOARD_SIZE	0.013	0.035	0.093	0.1770**
	(0.63)	(1.36)	(-1.62)	(-2.42)
BOARD_INDEP	0.605	-1.485**	2.755**	-1.350
	(1.36)	(-1.98)	(-2.11)	(-0.60)
FEMALE_DIR	0.069	-0.798*	0.841	-0.923
	(0.20)	(-1.72)	(-0.99)	(-0.77)
Constant	13.770***	7.487***		
	(13.06)	(8.74)		
Observations	1093	848	1093	848
Adjusted R ²	0.926	0.954		
Firm FE	Yes	Yes	No	No
Year FN	Yes	Yes	No	No

Note: The table presents the estimation results of the multivariate regressions of the impact of CEO integrity on corporate credit ratings (Equation 2). Columns (1)-(2) are estimated with Ordinary Least Squares, while Columns (3)-(4) are estimated with random effects ordered logit. The dependent variable is RATINGS. For definitions of all the variables, see Appendix 2. Long-term clients refer to all the firms whose S&P rating history is greater than or equal to the sample median (13 years), and new clients refer to all the firms with S&P rating history shorter than 13 years. Rating history is calculated using the firm's entire rating history in the S&P Rating Direct Database. T-statistics are in parentheses. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

Table 7. The effect of economic bust: Baseline result

	OLS		Random Effects Ordered Logit	
	(1)	(2)	(3)	(4)
LINT_SCORE	0.130*** (2.82)	0.147*** (3.46)	0.262*** (2.63)	0.388*** (3.24)
COVID_LINT_SCORE	-0.134 (-1.55)	-0.215** (-2.37)	-0.280 (-1.52)	-0.578** (-2.30)
COVID	-0.161*** (-3.58)	0.034 (0.65)	-0.287*** (-2.91)	0.020 (0.14)
ROA		5.389*** (8.64)		17.120*** (9.22)
EXCASH		0.107** (1.99)		0.307** (2.04)
NEGEARN		-0.268*** (-3.92)		-0.626*** (-3.32)
INTCOV		0.002* (1.75)		0.007*** (2.97)
STDCFO		-4.72E-07 (-0.62)		-2.82E-06** (-2.15)
SALEGROETH		-0.280** (-2.30)		-1.299*** (-3.89)
SIZE		0.262*** (5.12)		1.120*** (9.86)
DEBTASSETS		-4.266*** (-13.49)		-12.000*** (-13.09)
BOARD_SIZE		0.019 (1.16)		0.106*** (2.59)
BOARD_INDEP		0.583 (1.64)		2.476** (2.53)
FEMALE_DIR		-0.179 (-0.80)		-0.219 (-0.35)
Constant	7.155*** (7.93)	8.707*** (4.62)		
Observations	2587	1941	2587	1941
Adjusted R ²	0.904	0.933		
Firm FE	Yes	Yes	No	No

Note: The table presents the estimation results of the multivariate regressions of the impact of CEO integrity on corporate credit ratings (Equation 2). Columns (1)-(2) are estimated with Ordinary Least Squares, while Columns (3)-(4) are estimated with random effects ordered logit. The dependent variable is RATINGS. For definitions of all the variables, see Appendix 2. COVID is a binary variable indicating the COVID-19 years identified in line with the World Health Organisation (2020-2023). COVID_LINT_SCORE is an interaction term between COVID and CEO integrity score (LINT_SCORE). T-statistics are in parentheses. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

Table 8. The effect of economic bust: Transparency result

	OLS		Random Effects Ordered Logit	
	(1)	(2)	(3)	(4)
	High corruption	Low corruption	High corruption	Low corruption
LINT_SCORE	0.063 (1.13)	0.237*** (3.77)	0.130 (0.80)	0.700*** (3.41)
COVID_LINT_SCORE	-0.339*** (-2.65)	-0.164 (-1.36)	-0.766** (-2.10)	-0.629 (-1.57)
COVID	-0.450 (-1.24)	-0.709 (-0.79)	-0.425* (-1.94)	0.316 (1.45)
ROA	3.791*** (4.31)	6.323*** (6.74)	14.460*** (5.51)	22.460*** (6.77)
EXCASH	0.003 (0.04)	0.138* (1.89)	0.014 (0.06)	0.476** (2.01)
NEGearn	-0.262*** (-2.74)	-0.261*** (-2.78)	-0.765*** (-2.83)	-0.722** (-2.36)
INTCOV	0.002** (2.24)	-0.001 (-0.66)	0.010*** (3.00)	0.001 (0.10)
STDCFO	-2.82E-06 (-0.68)	2.29E-05** (2.47)	-3.14E-06** (-2.25)	4.96E-06 (0.20)
SALEGROWTH	0.021 (0.11)	-0.182 (-1.08)	-1.049** (-2.18)	-1.474*** (-2.78)
SIZE	0.196*** (2.89)	0.294*** (3.61)	1.163*** (8.08)	1.341*** (5.41)
DEBTASSETS	-4.800*** (-9.51)	-3.770*** (-8.70)	-14.920*** (-10.35)	-11.210*** (-7.68)
BOARD_SIZE	-0.010 (-0.47)	0.068*** (2.62)	0.039 (0.70)	0.284*** (4.00)
BOARD_INDEP	0.731 (0.94)	0.738 (1.59)	2.547 (1.31)	4.146*** (2.83)
FEMALE_DIR	0.073 (0.19)	-0.342 (-0.86)	-0.209 (-0.23)	0.665 (0.60)
Constant	7.196*** (7.83)	8.121*** (3.66)		
Observations	1023	918	1023	918
Adjusted R ²	0.939	0.946		
Firm FE	Yes	Yes	No	No
Year FE	Yes	Yes	No	No

Note: The table presents the estimation results of the multivariate regressions of the impact of CEO integrity on corporate credit ratings (Equation 2). Columns (1)-(2) are estimated with Ordinary Least Squares, while Columns (3)-(4) are estimated with random effects ordered logit. The dependent variable is RATINGS. For definitions of all the variables, see Appendix 2. COVID is a binary variable indicating the COVID-19 years identified in line with the World Health Organisation (2020-2023). COVID_LINT_SCORE is an interaction term between COVID and CEO integrity score (LINT_SCORE). High corruption refers to the countries with Corruption Perception Index lower than the sample median and low corruption refers to the countries with Corruption Perception Index higher than the sample median. T-statistics are in parentheses. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

Table 9. The effect of economic bust: Relationship result

	OLS		Random Effects Ordered Logit	
	(1)	(2)	(3)	(4)
	Long term client	New client	Long term client	New client
LINT_SCORE	0.091*	0.191***	0.275*	0.539**
	(1.67)	(3.03)	(1.67)	(2.48)
COVID_LINT_SCORE	0.007	-0.454***	0.148	-1.725***
	(0.06)	(-3.54)	(0.44)	(-3.87)
COVID	0.130**	-0.164**	0.311	-0.535**
	(2.03)	(-2.10)	(1.62)	(-2.02)
ROA	6.484***	1.976**	23.050***	9.411***
	(7.77)	(2.20)	(8.25)	(3.05)
EXCASH	0.033	0.161*	0.174	0.485*
	(0.48)	(1.95)	(0.84)	(1.72)
NEG EARN	-0.208**	-0.435***	-0.407	-1.553***
	(-2.28)	(-4.74)	(-1.53)	(-4.81)
INTCOV	-0.001	0.001	0.003	0.006
	(-0.53)	(0.55)	(0.86)	(1.55)
STDCFO	1.52E-06	4.59E-06**	-2.00E-07	-1.50E-06
	(1.06)	(2.33)	(-0.10)	(-0.59)
SALEGROWTH	-0.198	-0.156	-1.126**	-1.278**
	(-1.23)	(-0.94)	(-2.41)	(-2.30)
SIZE	0.045	0.294***	0.660***	1.455***
	(0.53)	(4.44)	(3.67)	(7.49)
DEBTASSETS	-4.998***	-3.168***	-14.320***	-12.130***
	(-11.43)	(-7.15)	(-10.40)	(-7.95)
BOARD_SIZE	0.011	0.038	0.090	0.184**
	(0.53)	(1.49)	(1.57)	(2.49)
BOARD_INDEP	0.724*	-1.247*	2.800**	-1.014
	(1.66)	(-1.74)	(2.14)	(-0.45)
FEMALE_DIR	0.285	-0.438	0.333	-0.484
	(0.94)	(-1.19)	(0.37)	(-0.39)
Constant	7.369**	-1.173		
	(2.11)	(-0.26)		
Observations	1093	848	1093	848
Adjusted R ²	0.924	0.955		
Firm FE	Yes	Yes	No	No

Note: The table presents the estimation results of the multivariate regressions of the impact of CEO integrity on corporate credit ratings (Equation 2). Columns (1)-(2) are estimated with Ordinary Least Squares, while Columns (3)-(4) are estimated with random effects ordered logit. The dependent variable is RATINGS. For definitions of all the variables, see Appendix 2. COVID is a binary variable indicating the COVID-19 years identified in line with the World Health Organisation (2020-2023). COVID_LINT_SCORE is an interaction term between COVID and CEO integrity score (LINT_SCORE). Long-term clients refer to all the firms whose S&P rating history is greater than or equal to the sample median (13 years), and new clients refer to all the firms with S&P rating history shorter than 13 years. T-statistics are in parentheses. ***, **, and * indicate statistical significance at the 1%, 5% and 10% levels, respectively.

Appendix 1. Credit rating conversion

S&P Domestic Currency Long-Term Issuer Credit Rating	20-Notch Credit Rating
AAA	20
AA+	19
AA	18
AA-	17
A+	16
A	15
A-	14
BBB+	13
BBB	12
BBB-	11
BB+	10
BB	9
BB-	8
B+	7
B	6
B-	5
CCC+	4
CCC	3
CCC-	2
CC	1

Appendix2. Variables definitions

Variables	Definitions
ROA	Operating income (OIBDP) scaled by total assets (AT). Source: COMPUSTAT
STDCFO	Standard deviation of cash from operations over t 1 to t 5. CFO is calculated from Compustat as follows: $IB - ((ACT - ACT_{lag1}) - (LCT - LCT_{lag1}) - (CHE - CHE_{lag1}) + (DLC - DLC_{lag1}) - DP)$. The standard deviation is then scaled by total assets. Winsorized at 1 percent and 99 percent.
STDSALES	Standard deviation of sales over t 1 to t 5. (Compustat SALE variable). The standard deviation is then scaled by total assets. Winsorized at 1 percent and 99 percent.
SALEGROWTH	$100 * 3 (SALE_{LAG1} / SALE_{LAG1})$ using Compustat SALE variable. Winsorized at 1 percent and 99 percent.
INTANG	Compustat INTAN scaled by AT. Winsorized at 1 percent and 99 percent.
RD	Compustat XRD scaled by AT. Set to 0 if XRD is missing. Winsorized at 1 percent and 99 percent.
SIZE	Total assets in the current year (Compustat AT). Winsorized at 1 percent and 99 percent. SIZE is log-transformed when used in regressions.
DEBTASSETS	Compustat (DLC / DLTT) scaled by AT. Winsorized at 1 percent and 99 percent.
IVSU	Natural logarithm of [(1 / p percentage of first-person pronouns in the shareholder letter) / (1 / p percentage of second- and third-person pronouns in the shareholder letter)], where the pronoun words are LIWC word categories. See Li (2008).
POS	Percentage of positive words in the shareholder letter using Loughran and McDonald's (2022) list of positive words and exclusions of positive words that are negated.
NEG	Percentage of negative words in the shareholder letter using the Loughran and McDonald (2022) list of negative words.
WEAKMOD	Percentage of weak modal words in the shareholder letter using the Loughran and McDonald (2022) list of weak modal words.
LINT_SCORE	Linguistic behavioral integrity score, which captures extent of variation in causation words in the Earnings Conference Call transcripts attributable to the CEO. Higher values imply relatively excessive explanations among CEOs, and lint_score is measured as the OLS regression residual of CAUSE on Equation 1 result.
MA_SCORE	The managerial efficiency score calculated based on Demerjian et al. (2012) for firm i in fiscal year t. Source: COMPUSTAT.
EXCESS CASH	This is an indicator variable that equals one if a firm's cash holding (CHE/AT) for a given year is higher than the median level of that firm's 2SIC industry for that year. Source: COMPUSTAT.
NEG EARN	One if net income before extraordinary items is negative, zero otherwise. Source: COMPUSTAT.
INTCOV	Operating income (OIBDP) scaled by interest expense (XINT). Source: COMPUSTAT.
BOARD_SIZE	The number of directors on board.
BOARD_INDEP	The number of independent directors divided by the total number of directors on board.
FEMALE_DIRECTOR	The number of female directors divided by the total number of directors on board.

Appendix 3. Descriptive statistics of Equation (1)

	N	Mean	S.D.	Min	p25	Media	p75	Max
CAUSE	11659	2.188	0.668	0.000	1.777	2.130	2.540	10.000
ROA	11659	0.078	0.113	-0.455	0.038	0.075	0.124	0.438
STDCFO	11659	4144.936	21160.890	2.444	37.515	131.075	604.968	182542.600
STDSALES	11659	14492.060	74945.290	2.027	102.157	414.387	2193.762	648221.600
SALEGROWTH	11659	0.063	0.238	-0.973	-0.019	0.057	0.148	0.989
INTANG	11659	0.238	0.214	0.000	0.051	0.180	0.386	0.811
RD	11659	0.027	0.056	0.000	0.000	0.002	0.028	0.343
SIZE	11659	8.640	2.322	3.548	7.085	8.479	10.075	15.667
DEBTASSETS	11659	0.246	0.169	0.000	0.116	0.233	0.349	0.764
IVSU	11659	0.371	0.234	-0.203	0.215	0.365	0.520	0.982
POS	11659	3.483	1.182	0.760	2.660	3.390	4.210	6.840
NEG	11659	1.679	0.787	0.000	1.120	1.570	2.140	4.110
WEAKMOD	11659	0.570	0.366	0.000	0.320	0.510	0.760	1.840